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GENERAL NOTICES • ALGEMENE KENNISGEWINGS

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 71 OF 2018



Independent Communications Authority of South Africa
Pinmill Farm, 164 Katherine Street, Sandton
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DISCUSSION DOCUMENT TO IDENTIFY PRIORITY MARKETS IN THE ELECTRONIC COMMUNICATIONS SECTOR

INVITATION FOR WRITTEN REPRESENTATIONS ON PRIORITY MARKETS IN THE ELCTRONIC COMMUNICATIONS SECTOR

1. On 30 June 2017, the Independent Communications Authority of South Africa ("the Authority") published a notice in the *Gazette*[1] indicating its intention to conduct an Inquiry ("the Inquiry") in terms of section 4B(1)(a) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000) ("ICASA Act").

2. The purpose of this Inquiry is to:

   2.1. identify markets and or market segments in the electronic communications sector that are susceptible to *ex ante* regulations; and

   2.2. determine which of these markets should be prioritised for market reviews and potential regulation in terms of section 67(4) of the Electronic Communications Act, 2005 (Act No. 36 of 2005) ("ECA").

3. The Inquiry is conducted in four Phases (i.e. Phase I – Market study, Phase II - Discussion Document, Phase III – Public Hearings and Phase IV – Findings Document)[2].

4. As part of Phase I, the Authority published a questionnaire[3] requesting information and opinions from stakeholders (including the general public) to inform its market study.

5. The Authority received questions of clarification from Vodacom, MTN and Cell C on 13 July 2017 regarding the questionnaire and the Inquiry process and further questions from ISPA on 14 July 2017. Vodacom, MTN and Cell C further requested for an extension for submission of responses to Phase I in their respective submissions requesting clarity.

6. On 4 August 2017, the Authority published[4] its responses to questions of clarity raised by the aforementioned stakeholders.

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[1] *Gazette* No 40945 in Notice No 485
[2] Ibid at para. 3.5 to 3.8
[3] Available on the ICASA website www.icasa.org.za
[4] https://www.icasa.org.za/Portals/0/Regulations/Markets%20&%20Competition/BriefingNote-on-QuestionsofClarity-ICASAPriorityMarketStudy2017.pdf

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7. In addition, the Authority granted an extension in the *Gazette*[5] to stakeholders to submit their responses to the questionnaire of Phase I by 25 working days from 4 September 2017 to 10 October 2017.

8. On 10 October 2017, the Authority received responses to Phase I (Market Study) from the following interested parties:

   8.1.1. Telkom
   8.1.2. Vodacom
   8.1.3. Cell C
   8.1.4. MTN
   8.1.5. MWEB[6]
   8.1.6. Mzansi Lisetta Media and Printing

9. The Authority now invites stakeholders to make written representations on the Discussion Document in line with Phase II of the Inquiry. The written representations should reach the Authority within forty-five (45) working days from the date of the publication of this Discussion Document by email at prioritymarkets2017@icasa.org.za. The Authority will not consider written representations received after the aforementioned closing date (i.e. 45 working days).

10. Written representations should be as detailed as possible and views or opinions expressed should be substantiated, as far as possible, by evidence, studies conducted by stakeholders, stakeholders' own data, international experience or precedence.

11. Stakeholders may request that specific information of the written representations be treated as confidential as envisaged in section 4D of the ICASA Act. In adhering to the provisions of section 4D(1) (b) and (4) of the ICASA Act, stakeholders must not simply indicate that the information, for example, is financial, commercial or technical, but should provide a detailed explanation(s) of how such information is likely to cause harm to their commercial or financial interest if it were to be in the public domain. A confidential

[5] Published on 14 August 2017; *Gazette* No. 41040 in Notice No 832
[6] MWEB submission was not considered as it was received after due date.

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and non-confidential version of the written representation **must** be submitted with the request for confidentiality.

12. Stakeholders must indicate whether they require an opportunity to make oral representations at public hearings, which may be held in due course.

13. All communication relating to this Inquiry must be directed to the Chairperson: Priority Markets Committee by email at prioritymarkets2017@icasa.org.za

Rubben Mohlaloga
Chairperson 13/02/2018

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GLOSSARY OF TERMS

APN	**Access point name** – refers to a gateway between a mobile network and the Internet
ARPU	**Average revenue per user** – refers to a measure that indicates the total revenue by an operator earned per subscriber.
CDMA	**Code division multiple access** – refers to a digital cellular technology where signals are transmitted through a single channel using the full available spectrum.
DSL	**Digital subscriber line** – refers to technology that transfers high-bandwidth information over copper lines.
DTPS	**Department of Telecommunications and Postal Services**
EASSy	**Eastern Africa Submarine Cable System** – an undersea fibre optic cable which connects South Africa (via Mtunzini on the east coast) to Sudan (via Port Sudan).
EC	**European Commission**
ECA	**Electronic Communications Act, 2005 (Act No. 36 of 2005)**
ECNS	**Electronic Communications Network Service** – has the meaning assigned to it in the ECA.
ECS	**Electronic Communications Service** – has the meaning assigned to it in the ECA.
FTTP	**Fibre-to-the-premises (incl. FTTH and FTTB – Fibre-to-the-home and Fibre-to-the-business** - a broadband network architecture using optical fibre to provide the local loop used for last mile connectivity to residences and businesses.
ICASA	**Independent Communications Authority of South Africa**
IP	**Internet Protocol** – a standard which allows the transmission of discrete 'packets' of data. This occurs between devices that can be on different networks.
ISP	**Internet Service Provider** – retailers which provide Internet access services to enable firms and consumers to connect to the Internet.

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ISDN	**Integrated services digital network** – refers to technology that allows for the transmission of voice, data, images and video traffic through a public switched telephone network.
ISPA	**Internet Service Provider's Association**
LTE	**Long Term Evolution Technology** – a standard for high-speed telecommunication services for mobile phones and data terminals.
LTE-A	**Long Term Evolution Technology – Advanced** – LTE network technology that enables the aggregation of non-contiguous spectrum for the provision of high speed broadband services.
MDNS	**Managed data network services** – services that corporate enable customers to connect all their sites and business applications in different geographic locations to connect and exchange data.
MNO	**Mobile Network Operator** – a wireless communications service provider which provides wireless mobile voice and data communications for its subscribed customers.
MVNO	**Mobile Virtual Network Operators** – operators that do not own mobile infrastructure and rather make use of wholesale access to MNO infrastructure to provide retail mobile services to consumers.
NDP	**South Africa's National Development Plan.**
NLD	**National Long Distance route** – refers to the national fibre optic cable routes developed through a co-build project between a consortium of MTN, Vodacom, and Liquid Telecom (formerly Neotel) in conjunction with the South African National Road Agency SOC Limited (SANRAL) across South Africa.
NRA	**National Regulatory Authority**
OTT	**Over-The-Top services** – refers to services provided by third party content providers, not ISPs, that enable consumers to distribute multimedia through the public Internet.
PSTN	**Public switched telephone network** – refers to a circuit-switched network that provides voice telephone services for subscribers.
PoP	**Point of presence** – refers to an interface point between two communicating entities. PoPs contain the basic IP data routing technology and are the network points to which customers are connected. Core transmission capacity is required to be able to connect the various local and international PoPs in an IP network.

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RAN	**Radio access network** – refers to the mobile base stations and backhaul network that connects devices such as mobile phones and other remotely controlled devices with a core network.
SAex	**South Atlantic Express Cable** – refers to an undersea cable project that will connect South Africa to South and North America.
SAT-3	**South Atlantic 3 Cable** – an undersea fibre optic cable which connects South Africa (via Melkbosstrand) to Spain and Portugal.
SEACOM	A submarine cable operator with a network of fibre-optic cables that serve the East and West coasts of Africa.
SMME	**Small medium and micro enterprises** – has the meaning assigned to it in the ECA
SOHO	**Small office/home office** – a microenterprise, usually consisting of less than ten employees.
VoIP	**Voice over Internet Protocol** – commonly refers to a combination of technologies used in the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the public Internet.
VPN	**Virtual Private Network** – a network which enables firms to interconnect their geographically dispersed sites over common telecommunications infrastructure with virtual separation of traffic.
WACS	**West Africa Cable System** – an undersea fibre optic cable which connects South Africa (via Yzerfontein) to the United Kingdom (via London), and runs along the west coast of Africa.

ICT White Paper National Integrated ICT Policy White Paper published by the DTPS in Notice No. 40325 of 03 October 2016.

WiMAX	**Worldwide interoperability for microwave access** – refers to communication standards that are based on the Institute of Electrical and Electronics Engineers' 802.16 standard.
WLA	**Wholesale local access**
WOAN	**Wireless Open Access Network** – a proposed public-private sector-owned and managed consortium that will provide wholesale mobile network services.

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INTRODUCTION

1. The Priority Market Inquiry ("the Inquiry") is a priority setting exercise, the purpose of which is to identify markets susceptible to *ex ante* regulation that the Authority may prioritise for a market review in terms of section 67 of the ECA. Section 67 of the ECA provides the Authority with the legislative powers to address market failures and introduce pro-competitive remedies.

2. A prioritisation exercise of this nature ensures that the Authority's resources are allocated efficiently and effectively to market reviews that have the potential to yield material impacts on the competitive provision of electronic communications services to the benefit of consumers and achievement of government policy priorities. It also provides stakeholders with certainty in relation to which markets the Authority will focus on for market reviews in the immediate future.

3. This prioritisation exercise does not preclude the Authority from identifying other markets outside of this exercise, susceptible to *ex ante* regulation and conducting a market review thereto in terms of section 67 of the ECA.

4. Following the market study, the Authority's preliminary view is that the following markets should be prioritised for a market review:

    4.1. Wholesale fixed access, which refers to fixed access services (upstream market U4) and wholesale supply of asymmetric broadband origination (wholesale market W6).

    4.2. Upstream infrastructure markets incorporating national transmission services (upstream market U2) and metropolitan connectivity (upstream market U3).

    4.3. Wholesale mobile services incorporating mobile radio access network services (upstream market U5) and wholesale supply of mobile network services (wholesale market W3).

5. The discussion document is structured in terms of the following sections:

    5.1. The approach used to identify markets for prioritisation.

    5.2. Markets for prioritisation, motivating why each of the markets have been identified.

5.3. Markets not for prioritisation at this point in time (but may be subject to prioritisation in future);

5.4. Appendix 1, which sets out the markets identified in the electronic communications sector as part of the prioritisation process;

5.5. Appendix 2, which sets out the main government policy objectives as they pertain to the electronic communications sector.

APPROACH TO PRIORITISATION

6. This section outlines the approach to prioritisation adopted by the Authority and also addresses some of points raised in the responses to Phase 1 (Market Study) of the Inquiry.

THE APPROACH ADOPTED

7. The Inquiry seeks to identify a list of markets that the Authority may prioritise for market reviews going forward. It bears emphasis that this study is not a market review process as contemplated in section 67(4) of the ECA. Therefore, this Inquiry does not seek to undertake the prescribed components of a market review process which include:

    a) a detailed market definition exercise,

    b) a determination of the effectiveness of competition in the relevant market,

    c) a determination of licensees with significant market power, and

    d) pro-competitive remedies where competition is found to be ineffective.

8. Rather, the Inquiry process is one of screening the full range of electronic communications services to identify where the Authority's resources are to be best allocated in order to engage in in-depth market reviews that have the most potential to yield material benefits to consumers and government policy through enhancements to competition. The first step in this process is the identification of markets. Thereafter, the factors to be taken into account for the prioritisation exercise include competition screening measures as high level indicators of the likely state of competition as well as factors that determine the importance of the markets to customers and government policy.

Identification of markets

9. The identification of markets has been done on the basis of the application of competition law principles, guidance from previous cases[7], regulatory decisions in South Africa and elsewhere, and inputs received from licensees. The previous

[7] https://www.ellipsis.co.za/wp-content/uploads/2017/07/List-of-precedent-used.pdf

cases and regulatory decisions were outlined in the response to questions of clarity published on 8 August 2017[8]. In identifying the markets, the Authority has utilized the following guiding principles.

Broad markets rather than narrow market definitions.

10. Markets are deliberately identified as broader than the narrowest possible market definitions in order to provide a collective of connected market segments that may form the logical basis for a market review. It is neither necessary nor useful at the prioritisation stage to engage in an exercise of identifying the narrowest possible markets.

    10.1. The prioritisation stage cannot engage in a detailed market definition exercise as this should be left to the market review stage. In this process the Authority merely identifies possible candidate segments that may be reviewed more closely at the market review stage.

    10.2. In addition, it makes sense to review a set of connected or related market segments together as competitive conditions or factors affecting them may be similar.

A recognition of telecommunication layers.

11. The telecommunications industry has a number of vertical layers at which operators may participate. Whilst these layers are subject to varying labels and definition, they all typically have their roots in the Open Systems Interconnection model ("OSI model"), which partitions the industry into layers where each layer is an input into the next layer. On this basis and consistent with precedent[9], the Authority has identified three layers, namely an upstream infrastructure layer which serves as input into the wholesale network services layer, which in turn serves as input into the retail services layer.

Facilities are distinct to the market identification process.

12. Certain submissions suggested that the Authority should define markets for a market review purpose in respect of different telecommunication facilities. The Authority has not done so for the following two reasons.

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[8] https://www.icasa.org.za/Portals/0/Regulations/Markets%20&%20Competition/BriefingNote-on-QuestionsofClarity-ICASAPriorityMarketStudy2017.pdf
[9] https://www.ellipsis.co.za/wp-content/uploads/2017/07/List-of-precedent-used.pdf

12.1. Electronic communication facilities are already defined within the ECA [10] and are also subject to distinct facilities leasing obligations and regulations under the ECA[11]. It is therefore not necessary to conduct a market review process for such facilities to be identified and be subjected to certain obligations under a regulation. Many of the issues raised in respect of such facilities should be directed to the existing appropriate processes in the ECA.

12.2. To the extent that the regulation of such facilities needs to go further than what may be achieved under Chapter 8 of the ECA, then there is nothing in the market review process of actual telecommunications services (as opposed to facilities) that prevents pro-competitive remedies that implicate facilities leasing arrangements. As such, a market review of the electronic communications facilities is still not required in order to subject such facilities to further regulation if deemed appropriate.

Prioritisation of identified markets

13. The next step is to prioritise the identified markets for the purposes of market reviews. This step first requires a competition screening process to identify markets that exhibit features which may suggest ineffective competition and may therefore benefit from the closer scrutiny of a market review. This sub-set of markets is then prioritised based on the importance to policy objectives and materiality.

Competition screening measures

14. Competition screening measures are used to identify markets within the electronic communications sector which exhibit features that may suggest potential ineffective competition. The market structure screening measures include: (i) market shares and concentration, and (ii) barriers to entry and expansion. Both are key elements of market structure, having regard to the existing firms in the market as well as the role of potential competition from new entrants. In addition, the

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[10] "electronic communications facility" is defined in the ECA as "*includes but is not limited to any— (a) wire, including wiring in multi-tenant buildings; (b) cable (including undersea and land-based fibre optic cables); (c) antenna; (d) mast; (e) satellite transponder; (f) circuit; (g) cable-landing station; (h) international gateway; (i) earth station; (j) radio apparatus; (k) exchange buildings; (l) data centres; and (m) carrier neutral hotels, or other thing, which can be used for, or in connection with, electronic communications, including, where applicable—(i) collocation space; (ii) monitoring equipment; (iii) space on or within poles, ducts, cable trays, manholes, hand holds and conduits; and (iv) associated support systems, sub-systems and services, ancillary to such electronic communications facilities or otherwise necessary for controlling connectivity of the various electronic communications facilities for proper functionality, control, integration and utilisation of such electronic communications facilities.*"

[11] Chapter 8, titled Electronic Communications Facilities Leasing.

Authority will also take into account submissions to the market study that have identified competition concerns.

15. It is important to note that market structure features would also be considered as relevant factors in the assessment of effectiveness of competition and market power in a market review. These are however, not determinative in and of themselves. Rather, the assessment of the effectiveness of competition for a market review would go beyond the consideration of structural features and would also consider other factors, such as dynamic character and functioning of the market. However, for the purpose of screening for candidate markets for a review which cannot go into that level of detail, the application of structural market features are considered to be relevant and useful.

16. **Market shares and concentration**. Market shares and market concentration (which refers to the number and size distribution of sellers) provide useful information on the state of competition in a market. High market shares and concentration provides a preliminary indicator of the likelihood of ineffective competition in any given market.

17. Market shares and concentration measures are used in other jurisdictions as preliminary indicators for determining market power. In the European Commission ("**EC**") guidance document on the treatment of abusive conduct by dominant firms, the role of market shares is explained as follows:

> *"Experience suggests that the higher the market share and the longer the period of time over which it is held, the more likely it is that it constitutes an important preliminary indication of the existence of a dominant position and, in certain circumstances, of possible serious effects of abusive conduct, justifying an intervention by the Commission under Article 82 (1). However, as a general rule, the Commission will not come to a final conclusion as to whether or not a case should be pursued without examining all the factors which may be sufficient to constrain the behaviour of the undertaking."*[12]

[12] Official Journal of the European Union (2009) "Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary by dominant undertakings" (2009/C 45/02), para. 15

18. The assessment of market shares is also cited in the Authority's Guidelines for Market Reviews[13] (the "Authority's Guidelines") as one of the factors to be considered when evaluating the effectiveness of competition.

> *"Assessment of relative market shares: Market shares provide an indication of the extent of market power a licensee may have in a particular market. Market shares may be calculated by value or by volume depending on the product or service in question. Although a high market share does not necessarily indicate whether a licensee enjoys significant market power, competition law in South Africa defines a firm as being dominant according to the below scales:*
>
> - *it has at least 45% of that market;*
> - *it has at least 35%, but less than 45%, of that market, unless it can show that it does not have market power; or*
> - *it has less than 35% of that market, but has market power."*

19. **Barriers to entry and expansion**. This factor refers to conditions of entry and expansion, which provides information on the existence of potential competition from new entrants which is not captured by market shares and concentration. If there is free entry, it is difficult for firms to earn supra-competitive profits, as this would invite entry into the market which would compete away the profits. On the other hand, significant entry and expansion barriers make it easier for a firm with market power to maintain high prices. For this reason, the presence of high and persistent barriers to entry and expansion is applied as a factor for the identification of priority markets.

20. The inclusion of barriers to entry are a feature of the EC framework for identifying markets that are susceptible to *ex ante* regulation, where the approach to using barriers is explained as follows:

> *"The existence of high barriers to entry and to the development of competition in an electronic communications market is considered an indication that regulatory intervention may be required to ensure the development of a competitive market. Where barriers to entry are high in the absence of regulatory intervention, even an undertaking*

[13] ICASA "A Guideline for Conducting Market Reviews", issued on 8 March 2010, p. 10

that is more efficient than the incumbent is unlikely to be able to enter a market and compete successfully to the benefit of the consumer." [14]

21. The Authority's Guidelines also consider conditions of entry as factor for the assessment of competition:

> *"Ease of entry into the market: the threat of new entry into a defined market may pose as sufficient constraint on the market power of an existing licensee. However, such market entry represents a form of supply-side substitution. Excluding legal and regulatory barriers (assessed when defining a market), the potential for independent market entry is constrained by the costs of such entry. Barriers to independent market entry may exist as a result of substantial sunk costs, existing market participants having exclusive purchasing agreements with key input suppliers or whether the level of technological innovation may impact on potential market entry. Ease of entry to a market must be timely, likely and sufficient in order to increase the level of competition in a market."*[15]

22. **Likelihood of competition concerns.** For there to be a potential impact from a market review, it should focus on markets where there is a higher likelihood of ineffective competition. Whilst the factors that consider barriers to entry and concentration are intended to screen for markets where there may be ineffective competition, the prioritisation exercise also considers other indicators of the likelihood of competition concerns. This includes the responses received to the Authority's Questionnaire16 where respondents were asked to provide a view on which markets should be prioritized. These are all relevant in identifying which markets should be prioritised on the basis that competition concerns have already been raised.

Importance to customers and government policy.

23. Once markets are screened for the likelihood of ineffective competition, this set of markets are then further screened for materiality of the market to government policy

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[14] European Commission. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services.* p. 8
[15] ICASA "A Guideline for Conducting Market Reviews", issued on 8 March 2010, p. 13
[16] ICASA notice 485 of 2017, Government Gazette, No. 40945 dated 30th June 2017.

objectives and consumers (both individuals and business). Again, if resources are to be best deployed then they should focus on markets which are not only likely to be ineffectively competitive, but also where remedying any ineffective competition is likely to deliver material gains to South Africa.

24. **Government policy objectives**. It is relevant to consider government policy objectives in a priority setting exercise. This is stated explicitly in the Authority's Guidelines17 but is also justifiable on the basis that the Authority should have regard to the broader policy framework in which it operates. A summary of the key government policy objectives in respect of ICTs is contained in Appendix 2.

25. This approach is already reflected in the Authority's own Strategic Plan where the plan is aligned with a number of policies and frameworks, including, for example, the National Development Plan ("NDP") which provides the overarching government policy and maps out the strategic direction for the ICT sector, including setting out goals and outcomes to be achieved by 2030. The NDP guides the Authority in identifying its priorities and where the Authority is expected to contribute to the achievement of the outcomes outlined in the NDP.[18]

26. The ECA also stipulates in section 3(2) that the Minister may issue to the Authority policy directions in relation to a number of matters, including market enquiries and the determination of priorities:

> *"(2) The Minster may, subject to subsections (3) and (5), issue to the Authority or, subject to subsection (5), issue to the Agency policy directions consistent with the objects of this Act, national policies and of the related legislation in relation to –*
>
> > *"(a) the undertaking of an enquiry in terms of section 4B of the ICASA Act on any matter within the Authority's jurisdiction and the submission of reports to the Minister in respect of such matter;*
> >
> > *(b) the determination of priorities for the development of electronic communications networks and electronic communications services or any other service contemplated in Chapter 3;*

[17] ICASA "A Guideline for Conducting Market Reviews", issued on 8 March 2010, p. 4
[18] ICASA Strategic Plan, 2016/17 – 2021, p. 19

(c) the consideration of any matter within the Authority's or Agency's jurisdiction reasonably placed before it by the Minister for urgent consideration;

(d) guidelines for the determination by the Authority of spectrum fees; and

(e) any other matter which may be necessary for the application of this Act or the related legislation." (own emphasis)

27. **Materiality**. Market reviews are highly resource-intensive and should therefore be targeted at markets that matter instead of markets that are marginal to end users (both individuals and business customers). A materiality consideration involves identifying markets that are important in terms of a number of factors, including the size of the market (i.e. is it a significant market that is used by a large number of consumers or businesses) and the importance of the market in the future (i.e. is the market of growing importance in electronic communications sector). This approach should rule out the identification of markets where competition concerns may be likely but where the potential harm may be small. This approach is broadly in line with what has been proposed by some stakeholders in response to Phase 1.

Other factors taken into consideration.

28. In identifying markets and screening them for prioritisation, a few other factors were taken into consideration.

29. **Preference for wholesale markets**. When regulators seek to improve competiveness in a retail market, regulations are typically applied at the wholesale level in order to unlock competition downstream. Regulations are only applied at the retail level when all possible remedies at the wholesale level would not be effective in ensuring competition at the retail level. This reflects the view that by fixing market failures at the wholesale level – where the bottlenecks typically occur – competition at the retail level will usually follow.

30. The EC approach to market assessment for the purposes of *ex-ante* regulation in the electronic communications sector articulates this approach as follows:

"In principle, lack of effective competition may occur at the retail level or the wholesale level or both. The identification of a retail market

(as part of the value chain) for the purposes of ex ante market analysis does not imply, where there is a finding of a lack of effective competition by a NRA, that regulatory remedies would be applied to a retail market. Regulatory controls on retail services can only be imposed where relevant wholesale measures would fail to achieve the objective of ensuring effective competition at retail level. Given the advances in competition that have been achieved thanks to regulation, this Recommendation identifies only relevant markets at the wholesale level. It is believed that their regulation can address a lack of effective competition at the wholesale level, which in turn is the cause of identified market failures in the related retail markets. By intervening only at the wholesale level, NRAs can ensure that as much of the value chain is subject to competition process as possible, thereby delivering best outcomes for end-users.[19] *(own emphasis)*

31. In line with the above cited principle, the Inquiry will have a preference for identifying markets at the wholesale market level susceptible to *ex-ante* regulation where possible. This approach is also reflected in the Authority's Guidelines that specifies the 'need to regulate at the source of the potential problem' as a consideration for prioritisation.[20]

32. However, it is important to stress that some retail competition issues cannot necessarily be addressed at the wholesale level and in those circumstances a retail market focus may be appropriate. Furthermore, addressing some issues far up the wholesale value chain may require a considerable period of time before there is any impact at the retail level and for this reason it may be more appropriate to regulate closer to the retail market in order to have a desired immediate impact on market outcomes.

33. **Recognition of other regulatory provisions.** The purpose of the prioritisation exercise is to identify markets for a market review process. As a result, a market that is already subject to a review process or where a market is already regulated following a section 67 market review process, will not require prioritization.

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[19] EC. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*, p. 19.
[20] ICASA "A Guideline for Conducting Market Reviews", issued on 8 March 2010, p. 4

Question 1: In your opinion, is the above approach to prioritisation adopted by the Authority appropriate in identifying markets to be prioritised for future market reviews? Motivate your response by providing reasons and any supporting evidence or data, as far as possible.

SPECIFIC ISSUES ON APPROACH RAISED IN RESPONSES

34. In response to the Questionnaire[21], some stakeholders proposed a number of principles that should guide the Inquiry. Whilst some of these suggestions have been incorporated in the approach adopted above, a few of the other factors raised were not considered appropriate and warrant some further discussion.

The Inquiry is not a market review.

35. As outlined above, the Inquiry is not a market review as contemplated in section 67(4) of the ECA, but is rather a process of identifying a list of markets that the Authority may prioritise for market reviews going forward.

36. As a result, this Inquiry does not prescribe the Authority to regulate the markets identified, merely that such markets are given closer scrutiny in a future market review process.

37. In addition, this Inquiry is not intended to replicate what are the prescribed components of a market review process including:

(a) a detailed market definition exercise;

(b) a determination of the effectiveness of competition in the relevant market;

(c) a determination of licensees with significant market power; and

(d) pro-competitive remedies where competition is found to be ineffective.

[21] ICASA notice 485 of 2017, Government Gazette, No. 40945 dated 30th June 2017.

38. For this reason, the submissions that have tried to engage in a detailed assessment of some of the above elements are not considered appropriate for this particular Inquiry but are more relevant to any actual market review process of the prioritised markets.

The EC three-criteria test informs but does not determine the approach.

39. Several respondents to the Questionnaire put forward the three-criteria test, a methodological framework applied by the EC to identify relevant markets that may be subject to *ex-ante* regulation in Europe, as the preferred approach to be adopted by the Authority.

40. It is important to appreciate that the EC process in identifying such markets is not equivalent to the prioritisation exercise being undertaken by the Authority.

    40.1. Firstly, the EC recommendation on markets that are susceptible to ex-ante regulation is examined in the context of the European common market and involves directives to national regulatory authorities ("NRAs") to tackle these specific markets. As such, it is not a prioritisation exercise but rather a directive for specific regulatory action across member states.

    40.2. Secondly, within this context, the analysis undertaken by the EC prior to the directive needs to be of a particular level of detail such that the NRAs can presume the three-criteria test has been met in their own country, enabling them to proceed without repeating such an exercise. This view is drawn from the following quote:

> *"Given the analysis conducted by the Commission in the Explanatory Note of retail markets and their related wholesale markets, for the markets listed in the Recommendation, a presumption exists that the three criteria are met. Therefore, NRAs do not need to reconsider them when adopting a measure to address a market failure in one of the listed markets. In principle, a market analysis according to Article 16 of the Framework Directive will suffice to impose or withdraw regulatory obligations."*[22]

41. The Authority has incorporated elements of the three-part test, namely the use of entry barriers and concentration as screening devices for identifying markets that

[22] Commission Staff Working Document (2014, no. 298) "Explanatory Note *Accompanying the document* Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services; p. 11

may have ineffective competition. However, the Authority has also excluded some elements of the test as not being appropriate or useful at the prioritisation stage, and also incorporated other factors which are appropriate in the South African context. This approach adopted by the Authority is guided by the following principles:

41.1. it is not appropriate at the prioritisation stage to conduct an in-depth analysis of every market as the Inquiry is a screening process that precedes a market review where such detailed analysis will be conducted. In addition, a detailed analysis of barriers to entry and the dynamic character and functioning of the relevant markets, which are factors considered in the EC three-part test, are two criteria specifically mentioned in section 67(4A) of the ECA as part of the market review process;

41.2. It is not appropriate to include or eliminate markets at the prioritisation stage on the basis of whether a particular concern is best addressed by competition law or ex-ante regulation. At the prioritisation stage there is no determination of whether a concern exists or not, and what regulatory action may be required to address any such concern. As such, it is not possible to determine whether competition law is appropriate or not to address such a concern. Furthermore, even in the EC, there is some debate regarding the third criterion23, as recognised by the EC's own expert advisors:

"*(O)ur view of the Third Criterion (developed in full in the Interim Report) is that it is almost always possible to advance reasonable arguments for satisfaction of the Third Criterion for markets that clearly satisfy the first two. For that reason, it appears not very useful. Indeed, it gives rise to an element of uncertainty in the appraisal process (because those who wish to avoid regulation will certainly argue the opposite point of view) without adding sufficient value.*"[24]

41.3. In a prioritisation exercise such as the one being undertaken by the Authority, it is relevant to consider other factors in both identifying markets worthy of a market review and the allocation of scarce regulatory resources. This naturally includes the government policy objectives as identified in the

[23] Insufficiency of competition law to deal with the problem
[24] Ecorys, Idate, Icri: Future electronic communications markets subject to ex ante regulation, Final report, 18.9.2013

Authority's Guidelines, but also the existence of complaints and the materiality to final consumer prices and overall market competition

Establishing ineffective retail competition is not required for wholesale regulation

42. Some submissions proposed that wholesale markets cannot be considered on a standalone basis for market review and regulation unless the Authority first demonstrates that competition is ineffective in the downstream retail markets. This suggests that wholesale markets cannot be identified as a priority market without first undertaking a market review of retail markets. There is no basis for this principle in the ECA and nor does it make logical sense in a market review process.

43. The ECA does not require a demonstration of lack of competition at the retail level as a basis for initiating a market review at the wholesale level or in order to regulate wholesale markets. This is self-evidently the case from a reading of section 67. However, it is also aptly demonstrated by the regulation of call termination rates in South Africa, where the Authority regulates mobile and fixed line termination rates directly and is able to do so without first establishing that competition in the downstream retail markets are ineffective.

44. There are good reasons why this is the case from an economics perspective. These include:

    44.1. Regulators are not only concerned with the final retail product to consumers but may also be concerned with competition of intermediate services as these affect the level of retail prices. For instance, effective competition for the retail component of a service does not necessarily mean that the overall retail price is competitive if the wholesale service purchased by all retail providers is at an inflated price. Illustrative of this is the response from MNOs to conduct a market review of fixed line inputs to their networks despite claiming that their own retail markets are effectively competitive.

    44.2. In most cases a lack of effective competition at the wholesale level will directly result in ineffective competition at the retail level and it is only in exceptional circumstances that this is not the case. This is in large part because the providers of wholesale services in telecommunications are typically vertically integrated and therefore can either foreclose downstream rivals or impact their competitiveness through a refusal to supply on competitive terms.

Question 2: Do you agree with the Authority's responses to the above issues with regard to the guiding principles on the Inquiry and the Authority's incorporation of some of the elements of the EC test? If not, motivate your response by providing comprehensive reasoning thereof.

IDENTIFICATION OF PRIORITY MARKETS

45. Appendix 1 outlines the full list of markets identified as part of the Inquiry as well as the reasoning for identifying these markets. It also identifies market segments within each market that may constitute separate markets and may be investigated in more detail in a market review process. A summary of the identified markets by layer is presented in the table below reflecting the relationship of each market to layers above and below in the table. Appendix 1 provides a diagrammatic version of this table.

Table 1: Summary of markets and vertical links between them

	Broad market	Downstream from	Upstream of
Retail			
R1	Retail supply of mobile services	W1, W2, W3	
R2	Retail supply of voice telephony at fixed locations	W4, W5	
R3	Retail supply of access to the internet from fixed connections	W6, W7	
R4	Retail supply of managed data network services	U1, U2, U3, U4	
Wholesale			
W1	Wholesale supply of mobile termination services	U1, U2, U3, U4, U5	R1
W2	Wholesale supply of international roaming services	U1, U2, U3, U4, U5	R1
W3	Wholesale supply of mobile network services	U1, U2, U3, U4, U5	R1
W4	Wholesale supply of fixed termination services	U1, U2, U3, U4	R2
W5	Wholesale supply of fixed call access, origination, and transit	U1, U2, U3, U4	R2
W6	Wholesale supply of asymmetric broadband origination	U1, U2, U3, U4	R3
W7	Wholesale supply of internet connectivity	U1, U2, U3, U4	R3
Upstream			
U1	International transmission services		All W, R4
U2	National transmission service		All W, R4
U3	Metropolitan connectivity		All W, R4
U4	Fixed access services		All W, R4
U5	Mobile radio access network services		W1-W3

Question 3: Do you agree with the Authority's identification of the markets? Please provide separate reasoning for each market you propose to delete from or add to the list.

46. Of the markets identified in Table 1 above, the Authority's preliminary view is that the following markets should be prioritised:

    46.1. Wholesale fixed access services;

    46.2. National transmission and metropolitan connectivity; and

    46.3. Wholesale supply of mobile network services and RAN services.

47. The following section provides the motivation for recommending these markets for future market reviews, by applying the factors and considerations set out in the previous section.

WHOLESALE FIXED ACCESS SERVICES

48. The Authority's preliminary view is that wholesale fixed access services should be prioritised for future market review. In this context wholesale fixed access refers to **fixed access services** (upstream market U4) and **wholesale supply of asymmetric broadband origination** (wholesale market W6) as provided in Appendix 1 of this Discussion Document.

49. Fixed access services includes the provision of last mile connectivity in fixed networks. This includes:

    49.1. Wholesale local access refers to the wholesale services that allow access via the local loop, which is defined as the connection between a customer's premises and the nearest local exchange. These connections are used as inputs for the provision of broadband internet access to households and small businesses (referred to as the mass market).

    49.2. Wholesale high quality access refers to the wholesale services that allow access via the terminating segments of leased lines. These are used as inputs into downstream retail services such as leased line Internet Access, MDNS as well as mobile services which require backhaul services from their RAN to their core network.

50. The downstream wholesale supply of asymmetric broadband origination via fixed access technologies allows interconnection between the wholesale provider and its customer(s). This market includes any bitstream services provided by the wholesale provider of asymmetric broadband origination. This service is used as an input for the provision of broadband internet access to the mass market.

51. For reasons explained in this section, wholesale fixed access services satisfies the factors identified in the approach for market prioritisation, both from a market structure perspective as well as in terms of importance for government policy objectives and materiality. However, any regulatory action at the access level may take time to implement and yield results, and for this reason it is appropriate to simultaneously review the immediate downstream market for internet services given the data prioritisation of government.

Structural features of the market and likelihood of competition concerns

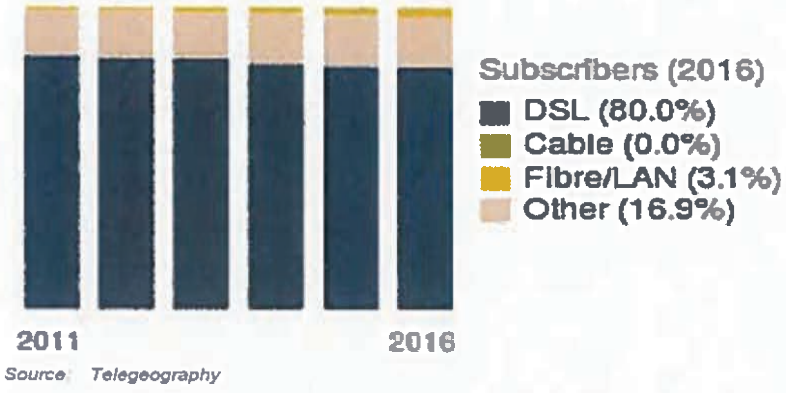
52. The features of last mile access for both leased lined and mass-market broadband services provide a strong indicator of the likelihood for competition concerns in this broad market. Barriers to establishing a comprehensive last mile presence are high and consequently, the market is concentrated with Telkom, the incumbent fixed line operator, which continues to be largest firm with the most pervasive fixed line network. It is not surprising that it is also an area which has been highlighted by respondents to the Questionnaire as candidate markets for prioritisation.

Market shares and concentration

53. The last mile access portion is concentrated, with Telkom as the largest provider of wholesale fixed last mile access. This is in respect of access technologies used by the mass market and wholesale leased line access.

54. **Last mile access for mass market broadband**. Asymmetric broadband Internet can be accessed through various technologies, including copper, fibre and fixed-wireless. It is clear that copper (DSL) is currently the main fixed access technology used for broadband, but that fibre is increasing its share of connections. This was demonstrated by data provided by both Telkom and Vodacom. This information is replicated below.

Figure 1: Fixed broadband market supply by technology



Source: Frontier Economics submission, 2017, p.94

55. The graph shows –

55.1. The predominant form of fixed broadband usage in South Africa occurs through DSL, which is likely to remain the case in the foreseeable future, despite its declining share of connections. The data provided by Vodacom shows that for 2016, DSL accounted for 80% of subscriptions.

55.2. FTTP (including FTTH or FTTB) is small (less than 5% of connections), but this share is growing.

55.3. Fixed wireless falls under 'other' in the figure above; i.e. it accounted for less than 17% of fixed broadband subscribers in 2016. According to the Authority, it accounted for around 20% of fixed Internet revenue (excluding revenue from leased lines).[25]

56. As the incumbent provider of fixed line telecommunications services in South Africa, Telkom is the largest provider of wholesale fixed last mile access used to provide broadband to the mass market. It holds a significant position in respect of both copper and fibre last mile connectivity networks.

57. Telkom is the only operator in South Africa with last mile DSL (i.e. copper) connectivity and does not allow any other provider to access its network directly as there is no local loop unbundling in South Africa. Competing ISPs can only provide DSL-based internet access services to consumers by connecting to Telkom's DSL network, for which they are charged a wholesale fee (called IP Connect, which is included under wholesale market W6). As Telkom is the only operator that owns a

[25] ICASA 2nd Report on the state of the ICT Sector in South Africa 31st March 2017, Graph 11, p.14

DSL network and this is the main access technology used by mass market consumers, it follows that the access services market for this segment is highly concentrated.

58. Fibre represents a small but increasing share of broadband access. Telkom is progressively replacing its legacy copper network with fibre and there has been recent entry by new fibre network providers.

58.1. Many of fibre network operators operate on an open access basis which means that ISPs are able to retail fixed line internet services over range of fibre networks operating at the wholesale level. However, the entrants providing last mile connectivity do not operate on a national basis and instead tend to target certain areas or suburbs where demand is likely to justify the roll out cost. These tend to be wealthier areas that also have a high density of users (like multi-dwelling units and office parks). Submissions from licensees confirmed this point, showing that the fibre infrastructure of Telkom/Openserve is present in a significantly higher number of areas than the second-largest fibre network.

58.2. Public data confirms the significant market position of Telkom/Openserve in South Africa's fibre network rollout.

58.3. As of mid-2016, Telkom/Openserve had passed 81 503 homes and more than 850 gated communities.

58.4. In contrast, as of mid-2016, Vodacom had passed 25 725 homes and 190 estates, and Vumatel had passed 33 000 homes.[26]

58.5. Africa Analysis estimated that the total number of homes passed by FTTH networks as of March 2016 was approximately 196 000.[27]

58.6. On the basis of these numbers, Telkom/Openserve's share of total homes was significantly more than double that of Vodacom or Vumatel. The latter two have grown since mid-2016 (Vumatel purchased Fibrehoods towards the end of 2016) and Telkom/Openserve has also grown significantly. By March 2017, Telkom/Openserve had passed 219 825 homes (almost tripling the

[26] See http://city-press.news24.com/Business/war-is-on-for-local-fibre-market-20160610.
[27] See http://www.africaanalysis.co.za/vumatelfibrehoods-deal-underlines-the-ftth-economics-of-scale-factor/.

2016 figure) and over 2.2 million premises in total.[28] By September 2017, Telkom/Openserve had grown to over 2.4 million total premises passed.[29]

59. On this basis, it is reasonable to conclude that Telkom/Openserve accounts for a significant proportion of total homes passed, and this was confirmed by submissions received from licensees.

60. In respect of fixed-wireless access, there are a number of providers. Most notably, Liquid Telecom (formerly Neotel) operates fixed wireless access networks through CDMA, LTE and WiMax technologies in a number of metro areas. Telkom also provides fixed-wireless access solutions through its wireless LTE-A solution. Fixed wireless access networks are typically seen as ADSL replacement technologies and in some cases can achieve high broadband speeds. Whether or not fixed wireless should be included in the relevant market is a question for a market review, but this does not change the prioritisation of the broad market. Fixed-wireless is not a significant access technology relative to DSL and is unlikely to constrain the strong position that Telkom has in fixed last mile access especially given that Telkom is most likely the largest fixed-wireless access provider too.

61. **Leased line last mile access.** As the incumbent provider of fixed line telecommunications services in South Africa, Telkom is also the largest provider of leased lines services in South Africa and the only operator with a ubiquitous access network.

Barriers to entry and expansion

62. It is widely accepted that the ability to replicate an incumbent operator's last mile fixed network is generally not feasible. Whilst there might be areas where this is possible – largely in the dense metro areas – this is generally not possible to do so on a national scale. In order to supply last mile access, a provider needs to connect end customers to its network. The creation of wired last mile access is associated with highly significant investment requirements. The high costs of local access include laying ducts in the local street areas and buildings, the wires themselves as well as street cabinets, and local exchanges, including all relevant equipment. Many of these costs are sunk, and cannot be recovered if an entrant decides to exit. There are furthermore significant economies of density such that providers

[28] See http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Telkom_Annual_Results_Booklet_WP_2017_Final.pdf.
[29] See http://www.telkom.co.za/ir/apps_static/ir/pdf/news/pdf/sensarticle_508.pdf.

have to secure a sufficient customer base per area to justify the investment in last mile access.

63. This position is strongly supported in the EC's 2014 recommendations of markets subject to ex-ante regulation identify that are there high and non-transitory barriers to replicating WLA. The EC specifically highlights that entrants would take considerable time and incur high sunk costs in order to replicate the necessary infrastructure. In this regard the EC states the following:

> "*In the large majority of Member States, the WLA market is characterised by the existence of only one infrastructure capable of offering local access products on a national scale. Given the high sunk costs and the time needed for any potential entrant to replicate the infrastructure of such a ubiquitous access network, the entry barriers in this market should be considered to be high and non-transitory*"[30]
>
> "*In addition, given the small number and often limited geographic reach of competitors operating their own alternative infrastructure it is unlikely, that without continued regulatory intervention, the competitive dynamics in this market will change significantly on a national scale over the foreseeable future*"[31]

64. The above quoted view is echoed with respect to lease line wholesale access. The EC further states:

> *"Given that only the former incumbent usually has a ubiquitous access network, the entry barriers in this market remain high and non-transitory also in light of the investments and time needed for duplicating such an infrastructure. Absent regulation in this market, alternative operators would not be able to duplicate the incumbent's offer at retail level, as it might have to resort to either a more expensive solution or offer a product which does not satisfy the high-quality requested."*[32]

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[30] European Commission. Explanatory note: accompanying the Commission recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, pg. 44.
[31] Ibid.
[32] Ibid, p. 52.

65. The economic and financial considerations in terms of the high cost of duplicating last mile infrastructure and obtaining a significant scale in order to provide broad coverage is also reflected in the submissions received whereby:

    65.1. MTN[33] and Vodacom[34] agree that it is not viable to lay alternative last mile infrastructure in the same areas as those already serviced by Telkom.

    65.2. This means that it is unlikely that any alternative provider to Telkom could develop a competing national access network, and highly unlikely that such an investment could be completed within the period of review.

66. In addition, practical and regulatory barriers have been identified.

    66.1. MTN[35] and Vodacom[36] refer to local authorities' unwillingness to allow multiple road disruptions or to grant passive infrastructure wayleave applications, and to long lead times to approve civil works.

    66.2. This is relevant in a context where Telkom controls the majority of fixed line passive infrastructure in South Africa. [37]

The likelihood of competition concerns

67. Given that it is not efficient to replicate Telkom's last mile access network infrastructure, and given Telkom's position in respect to controlling access by competitors to this infrastructure, competition bottlenecks in last mile access are likely to exist.

68. This view is supported by the views of some of the licensees that responded to the Authority. These licensees have referred to the following issues:

    68.1. Telkom's position in wholesale fixed access markets and the fact there are no close substitutes to the access infrastructure Telkom controls or the access services it provides;

    68.2. The inability of licensees other than Telkom to access passive fixed access infrastructure, such as ducts and poles;

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[33] MTN submission, 2017, at p. 37
[34] Vodacom submission, 2017, Annexure C – Fixed Retail and Wholesale, at pg. 45.
[35] MTN submission, 2017, p. 18
[36] Frontier Economics, The Priority Markets Review in South Africa. An assessment of the state of competition. 10th October 2017, at p. 96.
[37] Vodacom submission, 2017, Annexure C – Fixed Retail and Wholesale, at pg. 45.

68.3. The risk of inefficient duplication of fixed access infrastructure through investments made by licensees other than Telkom, in a potential future wherein competitive access to passive infrastructure is possible;

68.4. The low likelihood that any licensee other than Telkom would have the economic or financial resources to make the investments required to duplicate existing fixed access infrastructure; and

68.5. The lack of local loop unbundling and the lack of regulation of Telkom's wholesale fixed access services by the Authority.

Importance of wholesale fixed access services

Materiality of wholesale access services

69. Wholesale fixed access services forms an important input into a range of downstream electronic communications. It is a requirement for the provision of wholesale services, including wholesale mobile network services and a range of wholesale fixed services which are ultimately used for providing fixed voice, internet access and MDNS services to final customers.

70. Access services are an important input for operators, enabling them to connect their end customers to their networks. As shown in the preceding section, ISPs are reliant on Telkom for the provision of ADSL as well as lease line access. While there are areas where fibre is being rolled out for last mile access, this is on a more limited basis and does not match the density and coverage of Telkom's access network.

71. Access services also constitute a major cost for operators. For example, Vodacom estimates that the wholesale bitstream cost (which corresponds to wholesale market W6) contributes, on average 75% of the retail price of internet access.[38] In terms of leased lines, assessments by South Africa's competition authorities put the cost of access in the region of 50% to 65% relative to the final cost of the retail service.[39]

72. Fixed access is important not only for the provision of fixed line services, but mobile services too, as access services are required for the physical backhaul links used

[38] Vodacom. 2017. Annexure C Fixed Retail and Wholesale, pg. 23
[39] Case No: 51/LM/Jun06, para. 159 - 163

by MNOs. Therefore, access services is also required for the provision of LTE as well as 5G services going forward.

73. As wholesale fixed access services is an input into a wide range of electronic communications products and services (and is significant cost input), by prioritising this broad market for a market review there is the potential to have a positive and significant impact across a number of markets. This includes the provision of fixed broadband services, for which fixed access services is a critical input. The development of fixed broadband in South Africa is in and of itself important for a number of reasons:

73.1. Broadband is an important enabler of economic activity and social development. For this reason, the development of fixed broadband is regarded as a key government objective. This is discussed further in the next section and Appendix 2.

73.2. Fixed broadband data consumption in South Africa, similar to the world, is increasing. Cisco estimates that between 2015 – 2020 worldwide fixed data traffic is expected to increase at a compound annual growth rate of 35%.[40]

73.3. Despite its importance, South Africa's fixed broadband usage is low and lags significantly behind mobile usage in South Africa.

73.4. In 2016, less than 16% of South Africans reported to have access to the Internet through fixed broadband at home, work, or at an internet café or educational institution.[41] Currently, broadband usage in South Africa has been primarily driven by mobile broadband. Just over 50% of South Africans had access or used the Internet through a mobile phone in 2016,[42] which vastly exceeds fixed line access.

73.5. Fixed internet access in rural areas is extremely low. Specifically, 2% of households in rural areas have access to the Internet at home, 3.9% at work

[40] TechCentral. 2016. African *Internet* traffic forecast to explode. Available online: https://techcentral.co.za/african-*Internet*-traffic-to-explode/66068/
[41] Stats SA. 2017. *General Household Survey 2016*. p. 51. Available: http://www.statssa.gov.za/publications/P0318/P03182016.pdf
[42] Stats SA. 2017. *General Household Survey 2016*. p. 51. Available: http://www.statssa.gov.za/publications/P0318/P03182016.pdf

and 3.2% at Internet cafes or educational facilities.[43] In comparison 38.3% of rural households could access the Internet through mobile phones. [44]

73.6. Fixed broadband offers functionality and quality of services that mobile broadband services cannot achieve and therefore its development is important for South Africa to benefit from the more data heavy applications that will become more prevalent going forward.

Government policy objectives[45]

74. The prioritisation of wholesale fixed access services would also contribute towards the broader government policy objectives of promoting broadband access in South Africa, for which wholesale fixed access services is a critical input.

75. The Minister of Telecommunications and Postal Services issued a policy directive relating to the prioritisation of broadband markets for a market review to the Authority in March 2016.46 This directive emphasises the need for effective competition in broadband markets, drawing on the NDP and SA Connect. More specifically:

75.1. The NDP (2013) is cited as identifying the high cost of broadband internet as a, "*major hindrance*"[47] to scientific and technological progress, amongst other things. The NDP is further cited to achieve universal access to broadband, making converged services accessible at a cost comparable to South Africa's peers.[48]

75.2. The linkages between high broadband prices and South Africa's competitiveness and economic growth are highlighted in the SA Connect Policy.[49]

76. The South African government policies reflect a keen focus on broadband connectivity (both fixed and mobile) in South Africa. Importantly, these government policies have specifically identified the poor status of fixed broadband access.

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[43] Stats SA. 2017. *General Household Survey 2016*. p. 51. Available: http://www.statssa.gov.za/publications/P0318/P03182016.pdf
[44] Stats SA. 2017. *General Household Survey 2016*. p. 51. Available: http://www.statssa.gov.za/publications/P0318/P03182016.pdf
[45] Appendix 2 provides government policy objectives in respect of electronic communications
[46] Department of Telecommunications and Postal Services. 2016. Government Gazette No. 39781 – 4 March 2016.
[47] *Ibid* at para. 1.1.1, pg. 11
[48] *Ibid* at para. 1.1.2, pg. 11
[49] *Ibid* at para. 1.1.3 to 1.1.4, pg. 11

According to SA Connect,[50] fixed broadband growth is sluggish due to high costs and is being superseded by mobile broadband growth. SA Connect states that:

> "*The slow deployment of fixed broadband services (ADSL), and its relatively high costs meant that over the last five years mobile broadband rapidly became the primary form of broadband access; rather than providing a complementary service to fixed services as it has done in mature economies. Despite this take-off in mobile broadband, South Africa's broadband penetration remains poor to that of other lower-middle income countries. South Africa has lost its status as 'continental leader' in broadband and Internet, and the last two decades has seen South Africa's steady decline on global ICT indices*"[51] (own emphasis)

77. With respect to access networks specifically, SA Connect observes ADSL is only provided by Telkom with limited scope for wholesale competition by other internet service providers. SA Connect notes that Telkom has a relatively small number of ADSL subscribers and that other internet service providers are limited in their product and service offerings given the cost and point of interconnection to the Telkom network.[52] Fixed wireless on the other hand is only available in limited areas and FTTP is very limited and costly. [53]

78. It is further worth noting that the DTPS White Paper identifies last mile infrastructure as the largest bottleneck in broadband service provision.[54] Apart from the DTPS directive to the Authority regarding the prioritisation of broadband markets, the Competition Commission of South Africa has recently initiated a data services market enquiry, suggesting that interest in broadband services exists within South Africa's national policy as well as its regulatory framework

Conclusion

79. The Authority's preliminary view is that wholesale fixed access, which refers to **fixed access services** (upstream market U4) and **wholesale supply of asymmetric broadband origination** (wholesale market W6) should be prioritised for a market review. This is on the basis of a review of the structural features of the market – which indicate a concentrated market with high and non-transitory barriers

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[50] Department of Communications. 2013. South African Connect: Creating Opportunities, Ensuring Inclusion – South Africa's Broadband Policy – 20 November 2013
[51] *Ibid* at pg.3
[52] *Ibid* at pg.29
[53] *Ibid* at pg.29
[54] Department of Telecommunications and Postal Services. 2016. National Integrated ICT Policy White Paper – 28 September 2016, p. 69

to entry – as well as a consideration of the importance of the markets in terms of materiality and government policy objectives.

80. Both the fixed access services and wholesale supply of asymmetric broadband origination markets are prioritised, with the supply of asymmetric broadband origination situated down the value chain from fixed access services.

81. With fixed access services, access occurs locally, which means that traffic is handed over closer to the customer premises compared to bitstream services that form part of the wholesale supply of asymmetric broadband origination. In contrast, with the wholesale supply of asymmetric broadband origination, access is provided at a higher and more central point in the network.

82. Accessing the customer closer to the premises allows for a provider to have control over a larger segment of the value chain, allowing it to provide asymmetric broadband Internet access broadband on a more differentiated basis. However, accessing the network at a more central location may still be the preferred option for a number of operators and serves as an intermediate step given that full access to the local loop is not available.

83. Access to passive infrastructure, such as ducts and poles, is not included in the broad markets identified. These form part of facilities that are dealt with under chapter 8 of the ECA and to the extent such regulations are currently ineffective then this is best addressed through a chapter 8 review of the regulations. It may be the case that the Authority finds, following a market review, that some form of regulatory intervention is required in order to expand the scope of the Facilities Leasing Regulations[55] beyond what is envisaged in chapter 8. However, such a finding can only be determined as part of a market review.

84. The wholesale markets identified have been chosen at a level that is high enough up the supply chain that any regulatory intervention, if warranted, would impact as much of the chain as possible, as quickly as possible. However, identifying passive infrastructure as a market for review is unlikely to have any significant impact in the market for a number of providers in the immediate future, if at all.

[55] *Gazette* No 33252 in Notice No 468

Question 4: Do you agree with the Authority's preliminary view to prioritise the Wholesale fixed access services markets (fixed access services and wholesale supply of asymmetric broadband origination) outlined above or should one or both be removed from the list? Please provide reasons for your response.

NATIONAL TRANSMISSION AND METROPOLITAN CONNECTIVITY

85. The Authority's preliminary view is that upstream markets incorporating **national transmission services** (upstream market U2) and **metropolitan connectivity** (upstream market U3) should be prioritised.

86. National transmission services include the wholesale provision of national leased line services that provide high-bandwidth connectivity between distant locations (e.g. different cities) within South Africa. These services are used by ISPs and MNOs to build their core networks where these lines connect the providers' PoPs. The lines aggregate traffic from all the sites connecting into the core network and transmits it between such sites.

87. Metropolitan connectivity includes the wholesale provision of connectivity between local sites within high-density urban and sub-urban areas and metropolitan points of presence, which are located within high-bandwidth ring-networks surrounding each metropolitan area in South Africa.

88. These upstream markets satisfy the factors identified in the approach for market prioritisation, both from a market structure perspective as well as in terms of importance for government policy objectives and materiality.

Structural features of the market and likelihood of competition concerns

Market concentration

89. Based on data received from operators, Telkom holds the largest market share by a considerable margin in national transmission and metropolitan services, as discussed below.

90. Table 2 below provides estimated indicative market shares based on the length of the national fibre networks of the main providers, determined using publicly-available information.

Table 2: Estimated national fibre infrastructure market shares

Competitor	National Fibre	
	Distance (km)	Share
Telkom	75 500	73%
Link Africa	-	0%
Broadband Infraco	14 923	14%
Liquid Telecom	3 000	3%
Dark Fibre Africa	1 057	1%
MTN	3 000	3%
Vodacom	3 000	3%
FibreCo	2 539	2%
Total	**103 019**	**100%**

Source: (i) Telkom – 2017 interim results ; (ii) Link Africa - http://www.linkafrica.co.za/ confirms no national network; (iii) Broadband Infraco – pg. 17 of 2017 integrated report; (iv) Neotel – pg. 4 of Neotel Fibre – A decade of optimal fibre network rollout[56]; (v) Dark Fibre Africa – pg. 48 of Remgro's 2017 Annual Report ; (vi) MTN –assumed (see explanation in main text); (vii) Vodacom – assumed (see explanation in main text); (viii) FibreCo company profile

Note: The length of FibreCo's national fibre lines were estimated using a fibre coverage map from 2014.[57].

91. The indicative share estimates in the table above rely on the assumption that the lengths of the national fibre networks of Vodacom and MTN are the same as that of Neotel/Liquid Telecom, due to the NLD co-build, which all three are party to. Even if this assumption has over-estimated Telkom's share of total national fibre, Telkom is still likely to be many times larger than any other participant; on the estimates above, Telkom's share is 5 times larger than that of Broadband Infraco (BBI), the second largest at approximately 14%.

92. The following further assumptions may be made to estimate indicative shares of metropolitan and access fibre networks too. These estimates indicate that Telkom is also likely to be significantly larger in metropolitan and access fibre than any other participant. This is confirmed by confidential information received by the Authority.

[56] Neotel Fibre – A decade of optimal fibre network rollout, http://www.nstf.org.za/wp-content/uploads/2016/03/Neotel-CSIR-Light-Based-Technologies.pdf

[57] MyBroadband. 2014. This is what South Africa's *Internet* actually looks like. Available online: https://mybroadband.co.za/news/*Internet*/98178-this-is-what-south-africas-*Internet*-actually-looks-like.html

93. All the fibre owned by BBI is national fibre, as it is not involved in the provision of metropolitan fibre.[58]

94. Liquid Telecom (formerly known as Neotel) is assumed to own 10,000km of metro fibre.[59]

95. According to 2014 information, FibreCo's national fibre consists of routes between Cape Town, Bloemfontein, Johannesburg and Durban. As well as Bloemfontein and East London.[60] FibreCo's total network is over 4000km.[61] The difference between this total and the national distance estimated in the table above is assumed to be the metropolitan network (approximately 1,400km).

96. Dark Fibre Africa's ("DFA") fibre is largely metropolitan, with its national fibre consisting only of the route between Durban and Johannesburg/Pretoria via Richards Bay (the route splits to connect Johannesburg and Pretoria respectively around Ermelo). This route is estimated to be approximately 1,057 km in length. It is assumed that the remaining fibre (approximately 8,800km)[62] relates to DFA's metropolitan network.

97. Telkom's estimated total fibre distance of 151,000 km[63] is assumed to be split equally between national fibre, on the one hand, and metropolitan fibre and last mile access on the other.

98. Data for Link Africa, Vodacom, and MTN are not available publicly. Based on estimates contained in confidential submissions made to the Authority, none of these three has built a fibre network comparable in size to that of Telkom/Openserve.

99. Based on the above, it may therefore be concluded that Telkom/Openserve is by far the largest participant in South Africa's metropolitan and access fibre networks. Whilst this exercise does not enable a breakdown of the relative metropolitan infrastructure versus local access infrastructure, it is apparent that however this is divided it will remain a concentrated market.

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[58] http://www.infraco.co.za/TechCapabilities/SitePages/National%20Architecture.aspx
[59] See https://www.neotel.co.za/wps/portal/neotel/AboutUs/EverythingNeotel/CompanyProfile.
[60] MyBroadband. 2014. This is what South Africa's *Internet* actually looks like. Available online: https://mybroadband.co.za/news/*Internet*/98178-this-is-what-south-africas-*Internet*-actually-looks-like.html
[61] See https://fibreco.co.za/fibreco-network/.
[62] See https://www.businesslive.co.za/bd/companies/financial-services/2017-09-22-dark-fibre-boost-for-remgro/
[63] See http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Interim30sep2017.pdf.

100. Combined with its large position in national fibre, Telkom/Openserve is overall, estimated to control approximately two thirds of the total fibre in South Africa.

101. This also largely reflects the finding of the DTPS in 2016 where it states:

> *"Backbone infrastructure is a critical segment of universal broadband services as it enables last mile infrastructure provision. Although multiple players are rolling out national long-distance fibre; the incumbent fixed line operator owns the bulk (approximately 86%) of fibre infrastructure in the country. The incumbent operator owns virtually the entire network that connects the cities, towns and villages and there is no prospect of any other operator replicating this extent of infrastructure."*[64]

> *"Metro infrastructure: The metro network is a regional network comprising a number of interconnected aggregation/switching centres. Most municipal areas have considerable core network infrastructure owned primarily by the incumbent fixed line operator. Recently, municipalities and a few private entities have started to invest in metro fibre networks to meet government and neighbourhood needs."*[65]

Barriers to entry

102. The concentrated market does reflect the fact that the provision of infrastructure is capital intensive and requires a substantial investment. It also requires economies of scale in order for the investment to be economically viable. Vodacom summarises the barriers to entry (and expansion) in the upstream infrastructure markets as follows:

> *"Significant capital investment and labour costs required to deploy ducts, poles, dark fibre and associated facilities. .... Further, based on Vodacom's estimates, where existing facilities and passive infrastructure cannot be accessed, the cost of civil works contributes more than half of the up-front capital expenditure to build a new communications link.*
>
> *The lead times to obtain the required approvals for civil works from local authorities can stretch from months to years.*

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[64] Department of Telecommunications and Postal Services. 2016. *National Integrated ICT Policy White Paper* – 3 October 2016, p. 64

[65] Department of Telecommunications and Postal Services. 2016. *National Integrated ICT Policy White Paper* – 3 October 2016, p. 65

Difficulty in obtaining access to passive upstream infrastructure controlled by Telkom.

Many local authorities in South Africa have a single trench policy, wherein they refuse approval for wayleaves where passive infrastructure has already been deployed, and/or the right for its deployment assigned to another supplier.

The above results in long lead times to deploy passive infrastructure, especially on a national scale." [66]

103. Although barriers are high, there has been entry by a number of providers in national and metropolitan connectivity. For instance, DFA, Liquid Telecom and Link Africa have entered in various metros, whilst a number of providers have developed national trunk capacity (such as FibreCo as well as Vodacom, Liquid Telecom and MTN as part of the NLD co-build project). This reflects the fact that entry in national transmission is generally easier than entry into the last mile segment.

104. To enter the last mile portion, an entrant needs to connect many customers in the same area. In contrast it is easier to enter the national transmission section as a single line (connecting Johannesburg to Cape Town, for example) is able to aggregate a large number of users' demand (those users in Johannesburg and Cape Town).

105. However, it is unlikely that any network provider will be able to replicate the coverage and density of Telkom's national and metropolitan networks. While national transmission along major routes (such as Johannesburg to Cape Town and Durban) may have a number of providers, for a large number of routes the national lines are unlikely to support a number of alternative suppliers. Accordingly, one would expect to find a number of operators on the high-traffic routes, but that there are significant number of routes that are only served by Telkom.

106. For this reason, whilst recognising that there has been entry in national transmission and metropolitan connectivity, these broad markets are identified as priority markets on the basis that the markets are nevertheless concentrated, and there are likely to be a number of routes where Telkom is the only provider. This is also consistent with the views expressed in most of the submissions made to the

[66] Vodacom. 2017. Annexure D Upstream Infrastructure, pg. 35.

Authority, that regulatory intervention by the Authority should focus on upstream services (including national transmission and metropolitan connectivity).

Importance of national transmission and metropolitan connectivity

107. These upstream markets are important for similar reasons identified in respect of last mile access. In particular, they are required by providers, like ISPs, to build a core network and connect to customers. All of the retail services and wholesale services identified in Appendix 1 rely on these services. For this reason, if there are any competition concerns in these markets, these will have knock-on effects in the downstream markets. By prioritising these upstream markets for a market review, there is the potential to have a positive and significant impact across a number of markets.

108. National transmission and metropolitan connectivity are costly to acquire and are likely to represent a significant cost component for providers. Therefore, if these markets are uncompetitive, this is likely to result in uncompetitive prices for all of the products and services that rely on these inputs.

109. National transmission and metropolitan connectivity are key inputs for the provision of fixed broadband, which is important for reasons explained already and is also the focus of government policy objectives. SA Connect, in particular, identifies the following constraints in terms of the infrastructure supporting the provision of broadband services:

109.1. **Domestic backbone or National Long Distance Networks.** There is limited competition in remote areas of South Africa. Despite an increase in competition on some major national routes with consequent price reductions, other routes have remained uncompetitive resulting in the cost to connect remote locations remaining high. National Long Distance networks including Dark Fibre Africa, FibreCo and Liquid Telecom do have elements of wholesale and open access but are focused on main centres. This leaves significant underdevelopment in rural areas in South Africa which due to the legacy of Apartheid have limited infrastructure.[67]

[67] Vodacom. 2017. Annexure D Upstream Infrastructure.

109.2. **Metropolitan networks.** There is a lack of development of infrastructure in townships driven by a misalignment between metropolitan operators and agreed municipal network models. Like in the case of national long distance networks, metropolitan infrastructure remains underdeveloped in township areas due the legacy of Apartheid[68].

Conclusion

110. The Authority's preliminary view is that the markets covering **national transmission services** (upstream market U2) and **metropolitan connectivity** (upstream market U3) should be prioritised for a market review. This is on the basis of a review of the structural features of the market – which indicate a concentrated market with high barriers to entry – as well as a consideration of the importance of the markets, in terms of materiality and government policy objectives. Access to passive infrastructure, such as ducts and poles, is not included in the broad markets identified for the same reasons provided in respect of access services, namely - these are facilities and identifying passive infrastructure as a market for review is unlikely to have any significant impact in the market for a number of providers who would require access at a more downstream level along the supply chain.

Question 5: Do you agree with the Authority's preliminary view to prioritise the National transmission and metropolitan connectivity markets outlined above or should one or both be removed from the list? Please provide reasons for your response.

WHOLESALE SUPPLY OF MOBILE NETWORK SERVICES AND RAN SERVICES

111. The Authority's preliminary view is that the markets for provision of **wholesale mobile RAN services** (upstream market U5) and of **wholesale mobile network**

[68] Vodacom. 2017. Annexure D Upstream Infrastructure.

services (wholesale market W3) should be prioritised. See Appendix 1 for further details describing the product and geographic scope of these markets.

112. For reasons explained in this section, these markets satisfy the factors identified in the approach for market prioritisation, both from a structural perspective as well as in terms of importance for government policy objectives and materiality.

Structural features and likelihood of competition concerns

113. Licensed MNOs are the only participants in market U5 or market W3.

114. In the case of market U5 (wholesale provision of mobile RAN services), only two licensed MNOs, Vodacom and MTN, are currently active in the provision of national roaming services[69]. MNOs that lack national coverage, by definition, cannot offer national roaming services, and are instead dependent on Vodacom or MTN for this service.

115. There are four licensed MNOs active in market W3 (wholesale provision of mobile network services). MVNOs by definition cannot offer wholesale mobile network services. They are consumers of these wholesale mobile services, along with other customer-types, such as certain licensed MNOs themselves, and ISPs.

116. As discussed below, the barriers to entry into or expansion within these two markets are significant. This naturally limits the number of market participants and therefore naturally generates relatively high concentration levels. This, combined with the fact that MNOs are all vertically-integrated into the retail market, which itself is also concentrated, limits the incentives of MNOs to introduce competitive wholesale markets, or nurture their development. Competitive wholesale markets are necessary to create opportunities for non-MNOs to compete more effectively in the provision of certain mobile services at the retail level.

Barriers to entry and expansion

117. To participate in the U5 and W3 markets, **regulatory constraints** and significant **capital expenditure requirements** must be overcome. These constitute material barriers to entry (which are likely to be more onerous for later entrants), or to the expansion of smaller MNOs (who may have entered the market much later). These

[69] Whilst the new operator Rain may offer some roaming on its data network, this is neither national nor is it apparent yet whether this will be open to all third parties.

barriers naturally generate high levels of concentration at the retail level and also at the wholesale level.

118. As far as **regulatory constraints** are concerned, the availability and the distribution of **spectrum** across competing South African MNOs acts a primary barrier to entry and expansion. Among other factors, constraints on the availability of spectrum limit the number of MNO licenses that can be licensed. This view is underscored by the fact that Rain's entry has been made possible on the back of WBS' spectrum, which had been obtained by WBS previously.

119. Some operators pointed out in their submissions to the Authority that the quality of spectrum available to an MNO also matters to operating and capital expenditure costs, and that this quality is not uniform across South Africa's MNOs.[70] For example, Telkom currently does not have access to sub-1GHz spectrum, which, is likely to raise its costs relative to MNOs that do have spectrum in this range. The table below depicts the spectrum holdings of the various MNOs

Table 3: Spectrum holdings by operator (MHz), 2017

Name of operator	800MHz	900MHz	1800MHz	2100MHz	2300MHz	2600MHz	3500MHz
Cell C		2x11 MHz	2x12 MHz	2x15 MHz			
MTN		2x11 MHz	2x12 MHz	2x15 MHz 1x10 MHz			
Vodacom		2x11 MHz	2x12 MHz	2x15 MHz 1x5 MHz			
Rain			2x12 MHz			1x15 MHz	
Liquid Telecom	2x4.92 MHz		2x12 MHz				2x28 MHz
Telkom			2x12 MHz	2x15 MHz	1x60 MHz		2x14 MHz

Source: ICASA Spectrum usage and availability, Quarter 1 2016. Available from: https://www.icasa.org.za/legislation-and-regulations/engineering-and-technology/radio-frequency-spectrum-management/frequency-spectrum-usage-and-availability

120. Another regulatory constraint that is specific to the development of an operator's RAN, through the deployment of new base stations, is the **environmental impact studies** that are required for each new base station investment. This barrier was

[70] These echoed points made in articles and documents such as https://www.itweb.co.za/content/2JN1qPvOLwy7jL6m and https://www.ellipsis.co.za/wp-content/uploads/2015/10/Cell-C.pdf (pg. 12).

recognised by the Commission in the merger proposed merger between *Vodacom/Neotel,* which concluded that it can restrict the number of sites available in specific areas.[71]

121. Concerning the second major category of barriers to entry or expansion, i.e., **capital expenditure requirements**, the Commission in Vodacom/Neotel also highlighted that an entrant developing a network will have to incur significant capital expenditure in order to achieve scale.[72]

122. The Commission stated that the building of RAN sites is expensive and that costs required to provide sufficient coverage can be prohibitive.[73] This was echoed in certain submissions, which stated that deploying new sites constitutes a major investment cost that creates a barrier to entry or expansion.

123. In addition to the cost of building a RAN with sufficient coverage, entry into either the wholesale market W3 or the upstream market U5 would also require the development of a core network

Market concentration

124. It is widely accepted that Vodacom and MTN control significant shares of the **retail** market for mobile services, and that these market positions have proven to be durable over time. Retail market dynamics, such as network or 'club' effects and customer stickiness in the post-paid segment, shore up the market positions of Vodacom and MTN, who both benefited from first-mover advantage.

125. However, the concentrated nature of the retail market in South Africa may also reflect concentration or competition bottlenecks at the wholesale level, in the markets U5 and market W3 (described in Appendix 1). What follows does not conclude definitively on this question, but rather merely indicates the likelihood of competition concerns in these wholesale markets. It would be for a potential market review process to determine precisely whether and to what extent competition concerns at the wholesale level are important drivers of retail market outcomes.

126. Before discussing the potential competition concerns at the wholesale level, we briefly summarise the degree of concentration evident at the retail level. The reason

[71] Competition Commission. 2016. Merger and Acquisitions Report – Vodacom/Neotel, par. 232 pg. 82-83. Available online: https://www.comptrib.co.za/assets/Uploads/vodacom-neotel_non-confidential-report.pdf
[72] Competition Commission. 2016. Merger and Acquisitions Report – Vodacom/Neotel, par. 235 pg. 84. Available online: https://www.comptrib.co.za/assets/Uploads/vodacom-neotel_non-confidential-report.pdf
[73] Competition Commission. 2016. Merger and Acquisitions Report – Vodacom/Neotel, par. 232 pg. 82-83. Available online: https://www.comptrib.co.za/assets/Uploads/vodacom-neotel_non-confidential-report.pdf

for doing so is that policymakers and government agencies including the Commission have often linked retail market structure to what they perceive to be sub-optimal market outcomes, particularly in respect of mobile broadband. There is a widely-held view in government that competition in the provision of mobile services could be made to be more effective, and that this would reduce the cost to communicate in South Africa.[74]

Retail market structure

127. The entry of Cell C, seven years after the launch of Vodacom and MTN in 1994, and the entry of 8ta/Telkom Mobile, 16 years thereafter, have had limited impacts on market concentration at the retail level. The same is true of the introduction of cost-based voice termination rate regulation in 2014[75], which was designed to facilitate price competition in voice. While the later entrants did lower their prices in response to the introduction of these regulations, this did not translate into significant increases in their shares of the retail market.

128. This is indicated by the revenue and subscriber shares in the tables below. They show the following:

128.1. Vodacom's revenue share has remained stable between 2013 and 2016, while MTN's share has declined only slightly, and, combined, these two MNOs accounted for approximately 87% of revenue on average over the period (see the table below).

128.2. The slight decline in MTN's revenue share is reflected in the small revenue share gains of Cell C and Telkom Mobile over this period. Considering that Cell C has been active in the market for approximately 16 years, and has attempted to compete aggressively on price, particularly in response to the introduction of termination rate regulation, its revenue share remains particularly low. Telkom Mobile's revenue share is insignificant despite being active in the market for over six years.

[74] Government policy positions are covered later on in this section.
[75] *Gazette* No 38042 in Notice No 844

Table 4: Service revenue share estimates 2013 – 2016

	2013	2014	2015	2016	Average
Vodacom	51.5%	52.8%	50.2%	50.1%	51.1%
MTN	37.2%	34.7%	36.4%	35.4%	35.9%
Cell C	10.1%	11.1%	11.5%	12.0%	11.2%
Telkom Mobile	1.1%	1.3%	1.9%	2.6%	1.7%
HHI	4 146	4 120	3 976	3 909	4 038

Sources: (i) Vodacom integrated annual reports for FY2015 and FY2016[76] (ii) MTN Data Sheets[77] (iii) Cell C – (a) Blue Label Telecoms Limited's 2017Circular to Blue Label Shareholders[78], (b) Cell C's reports on the 2016 financial year[79]; (iv) Telkom annual reports for FY2014 and FY2016[80].

129. A similar picture is depicted by active subscriber shares (see the table below). While MTN's share has dipped slightly since 2013, Vodacom's has not, and combined they have accounted for approximately 78% of active subscribers on average over the period.

130. The active subscriber shares of Cell C and Telkom Mobile have shown limited growth over the same period. The fact that the active subscriber shares of the two later entrants exceed their revenue shares reflects their limited ability to penetrate the post-paid segment and secure high ARPU customers. The positions of Vodacom and MTN in the post-paid segment are stronger than their positions in the overall retail market.

[76] Available here: http://www.vodacom.com/pdf/integrated-reports/integrated-report-2015/iar-full.pdf and http://www.vodacom-reports.co.za/integrated-reports/ir-2016/pdf/full-integrated.pdf.
[77] Available here: https://www.mtn.com/en/investors/financial-reporting/annual-results/Pages/default.aspx [Last accessed: 10 November 2017].
[78] See pg. 103. Available here: https://www.bluelabeltelecoms.co.za/pdf/circular-2016.pdf [Last accessed: 10 November 2017].
[79] Available here: https://www.cellc.co.za/cellc/newsroom-detail/2016-financial-report [Last accessed: 10 November 2017].
[80] Available here http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Annual_telkom_2014.pdf and http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Telkom_Annual_Results_Booklet_WP_2016_Final.pdf.

Table 5: Active subscriber share estimates 2013 - 2016

	2013	2014	2015	2016	Average
Vodacom	42.8%	39.7%	41.3%	41.2%	41.3%
MTN	37.7%	35.2%	39.4%	37.1%	37.4%
Cell C	17.2%	22.8%	16.5%	18.4%	18.7%
Telkom Mobile	2.3%	2.3%	2.8%	3.3%	2.7%
HHI	3 559	3 342	3 538	3 424	3 466

Sources: (i) Vodacom integrated annual reports for FY2015 and FY2016[81]; (ii) MTN Data Sheets[82]; (iii) Cell C – (a) BusinessTech[83], (b) Cell C's reports on the 2016 financial year[84]; (iv) Telkom annual reports for FY2014 and FY2016[85].

Notes: Definitions of 'active subscribers' may differ slightly across the operators.

The likelihood of competition concerns at the wholesale level

131. The following indicators of concentration and competition concerns at the wholesale level are evident.

132. Vodacom and MTN are the only two MNOs that possess national coverage, and they possess significantly greater network coverage and network capacity than Cell C or Telkom Mobile. This makes Cell C and Telkom Mobile dependent on Vodacom or MTN for national roaming services. This dependence is unlikely to diminish over time given that Vodacom and MTN also possess greater capacities to invest in the future development of their networks.

133. MVNOs in South Africa collectively control a smaller share of the retail market than Telkom Mobile. The competitive irrelevance of MVNOs in part reflects the absence of any competition at the wholesale level for the provision of wholesale inputs to MVNOs. Only Cell C has entered this wholesale activity, while Vodacom and MTN have elected not to do so.

134. Finally, there appears to have been limited development of wholesale markets for mobile network services, particularly in respect of mobile data. ISPA and the DTPS are two prominent proponents of the argument that competitive wholesale markets

[81] Available here: http://www.vodacom.com/pdf/integrated-reports/integrated-report-2015/iar-full.pdf and http://www.vodacom-reports.co.za/integrated-reports/ir-2016/pdf/full-integrated.pdf.
[82] Available here: https://www.mtn.com/en/investors/financial-reporting/annual-results/Pages/default.aspx [Last accessed: 10 November 2017].
[83] Available here: https://businesstech.co.za/news/mobile/85752/sa-mobile-subscribers-vodacom-vs-mtn-vs-cell-c-vs-telkom/ [Last accessed 10 November 2017].
[84] Available here: https://www.cellc.co.za/cellc/newsroom-detail/2016-financial-report [Last accessed: 10 November 2017].
[85] Available here http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Annual_telkom_2014.pdf and http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Telkom_Annual_Results_Booklet_WP_2016_Final.pdf.

for mobile data will generate pro-competitive and pro-consumer gains at the retail level.

National roaming

135. As mentioned, Vodacom and MTN are the only two networks with national coverage.

136. Vodacom currently has a 2G, 3G and 4G/LTE population coverage of 99.9%, 99.3% and 76.7% respectively. Vodacom's coverage in LTE-A is further enhanced by its roaming arrangement with Rain.[86]

137. MTN currently has a 2G, 3G and 4G/LTE population coverage of 98%, 95% and 60% respectively.[87]

138. The extent to which this exceeds the coverage of Cell C and Telkom Mobile is indicated by the fact that Vodacom and MTN each have at least double the number of mobile sites than Cell C and Telkom Mobile:

138.1. Vodacom and MTN operate around 12,000 sites[88] and 11,000 sites[89] respectively.

138.2. Information for Cell C indicates that it has over 5,000 sites.[90]

138.3. Telkom Mobile has 2,663 sites.[91]

139. The two smaller MNOs are therefore dependent on Vodacom or MTN for national roaming services, which are important to the ability of the two smaller MNOs to offer competitive retail services. To date, Cell C has always obtained national roaming services from Vodacom, while Telkom Mobile has always done so from MTN. This suggests limited competition between Vodacom and MTN to provide national roaming services.

140. Cell C's submissions to the Authority confirm the importance of national roaming to its ability to compete effectively, but also indicate that the service obtained from

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[86] See https://www.itweb.co.za/content/xo1Jr5qx2kb7KdWL and https://mybroadband.co.za/news/cellular/230925-vodacom-reveals-rain-roaming-details.html.
[87] See http://www.mtn-investor.com/mtn_ar2016/pdf/full-integrated.pdf and https://mybroadband.co.za/news/cellular/210690-vodacom-lte-now-covers-75-8-of-south-africans.html.
[88] See https://businesstech.co.za/news/mobile/97395/more-vodacom-lte-sites-for-the-western-cape/.
[89] See https://it-online.co.za/2018/01/08/mtn-goes-live-with-africas-first-5g-trial/.
[90] MyBroadband. 2017. What Cell C's network really looks like. Available online: https://mybroadband.co.za/news/cellular/234880-what-cell-cs-network-really-looks-like.html [Last accessed 13 November 2017].
[91] See http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Telkom_Annual_Results_Booklet_WP_2017_Final.pdf. .

Vodacom is not necessarily competitive. This echoes previous submissions by Cell C to the Authority on the issue of national roaming. In such submission, Cell C stated that there was no competition between Vodacom and MTN for the provision of national roaming at the time when Cell C entered, in 2001. Only Vodacom was willing to provide these services to Cell C.[92]

141. Cell C further stated that although MTN is now a potential alternative, evidenced by its supply of national roaming services to Telkom Mobile, this potential competition has not, in Cell C's view, ensured a competitive national roaming solution from Vodacom. Specifically[93]:

141.1. Vodacom has not responded to Cell C's request for seamless handover. This service is required to ensure that calls do not 'drop' when Cell C's roaming subscriber moves between Cell C's and Vodacom's network.[94]

141.2. Cell C is of the view that the price it pays for (voice and data) national roaming is higher than a competitive price, which is believes to be the regulated wholesale voice termination rate. Cell C is of the view that the price along with other requirements set by Vodacom, including minimum monthly payments regardless of use, result in national roaming being a substantial input cost for Cell C.

142. The potential for Cell C or Telkom Mobile to self-provide national coverage depends on their capacities to invest in RAN infrastructure outside of urban areas, which is one among many potential investment objectives given the speed at which mobile communication technology develops. More generally, the ability to invest in network expansion and upgrades is an important determinant of the ability to become or remain an effective competitor over time.

143. In this context it is relevant to note that Vodacom and MTN possess significantly greater capacities for ongoing network investments than do Cell C or Telkom Mobile, which is in part a consequence of the fact that the former two MNOs have always controlled significantly larger shares of the retail market.

144. For example, Vodacom, through Frontier Economics, indicates that Vodacom and MTN each invested more than $3 billion USD between 2012 and 2016, while Cell

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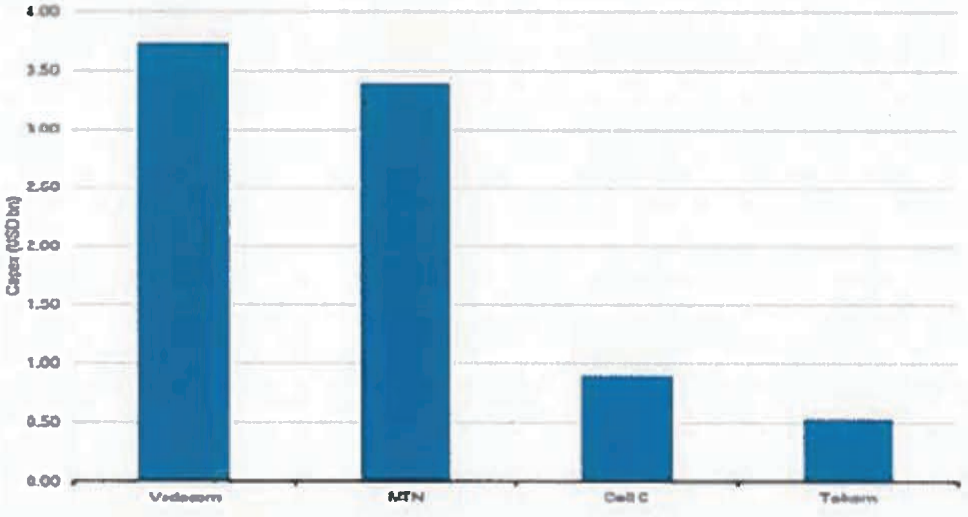
[92] Cell C. 2017. Cell C cover letter to ICASA priority markets.
[93] *Ibid.*
[94] See https://businesstech.co.za/news/mobile/42202/cell-c-losing-patience-with-vodacom-over-roaming/.

C invested less than $1 billion USD, and Telkom Mobile approximately $0.5 billion USD, over the same period.[95] This is shown in the Figure 2 below.

Figure 2: Frontier Economics estimated cumulative capital expenditures in South Africa from 2012 to 2016 (USD Billions)



Source: Frontier Economics Figure 10, p.41 (Vodacom submission – Annexure E)

145. Because the continued ability to invest depends on current profits and expected future profits, and because the market positions of Vodacom and MTN at the retail level tend to remain stable, it is likely to be the case that these two MNOs will continue to be able to invest significantly more than Cell C or Telkom Mobile into the future.

146. This in turn suggests that Cell C and Telkom Mobile will remain dependent on national roaming arrangements with Vodacom and Cell C as the former two are unlikely to have the resources to invest in the required improvements in their existing network infrastructure as well as to self-provide national coverage. This certainly appears to be the case in respect of Cell C, which has stated that is it not in a 'capex race' with Vodacom or MTN, and will focus only on improving its own network in urban areas.[96]

MVNOs in South Africa

147. MVNOs by definition do not own mobile RAN infrastructure or spectrum. Depending on their business model, an MVNO may own its own core network, but this model

[95] Annexure E of Vodacom's submission. Frontier Economics, 2017. The priority markets review in South Africa, pg. 41.
[96] Fin24, 15 March 2017. "Cell C boss: We're not in a capex race." Available at https://www.fin24.com/Tech/Companies/cell-c-boss-were-not-in-a-capex-race-20170314. Last accessed 14 December 2017

does not currently exist in South Africa. South African MVNOs are all so-called 'lite' MVNOs, which depend on MNOs for core network and RAN services. The MVNOs provide retail services only, including marketing and subscriber management (incl. billing).

148. MVNOs in South Africa are thus dependent on competitive mobile wholesale markets for their ability to become competitive at the retail level. As mentioned above, Cell C is currently the only provider of wholesale services to MVNOs in South Africa, and, collectively, MVNOs account for a smaller share of the retail market than the smallest MNO, Telkom Mobile.

149. The incentive for an MVNO to invest in core networks also depends on the competitiveness of the remaining wholesale inputs that such an MVNO would require from MNOs. Obviously, MVNOs with core networks gain control over a greater proportion of their own operating costs compared to 'lite' MVNOs, and are therefore more capable of bringing competitive pressure at the retail level.

150. Vodacom's and MTN's decisions not to contest for MVNO customers as evident from the lack of MVNO's on their networks suggests that there is limited incentive to do so. This in turn limits the potential for the MVNO segment to develop, and also the potential for MVNOs to affect competition at the retail level. Even if Vodacom and MTN did enter this wholesale activity, it is not clear that they would have any incentive to facilitate the development of an MVNO that could materially influence retail competition.

Wholesaling of mobile data

151. ISPA has stated more than once that the wholesale market for mobile data is not competitive.

152. In its submission to the Commission's recently-launched market inquiry in the mobile data services, ISPA argues that the development of a competitive wholesale market for Telkom's ADSL network led rapidly to significant retail price reductions and improvements in consumer choice and service quality, because of the ability of ISPs to obtain competitive wholesale inputs.[97]

153. ISPA points out that the pro-competitive impact of ISPs in the fixed broadband market, following reductions in the price of Telkom's IP Connect product and

[97] ISPA 2017. "ISPA submission on the inquiry into the data services market". Available at https://ispa.org.za/wp-content/uploads/2012/06/ISPA-DSM-Inquiry-Submission-20171101.pdf. Last accessed 14 December 2017.

expansions in international connectivity, has not been replicated in the mobile broadband market precisely because of bottlenecks at the wholesale level.

> *"ISPA has long argued that the benefits of competition in the fixed broadband market are markedly absent from the mobile broadband market and that this is due to failures in the wholesale market for mobile broadband services."*[98]

154. The DTPS would also appear to be of the same view as some of their policy proposals for increasing competition in the provision of mobile data services at the retail level involve addressing the wholesale network services.[99]

Importance of wholesale supply of mobile network services and RAN services

155. Wholesale mobile network and mobile RAN services are key inputs into the provision of services in the retail market for mobile services. Therefore, the importance of ensuring competitive outcomes at the wholesale level lies in the potential this has for improving competition and reducing pricing levels at the retail level.

Materiality

156. Mobile penetration in South Africa is high, and significantly exceeds the penetration of fixed voice or Internet services. Mobile is the primary and often sole mode of telecommunication available to most South African households, and this is especially so in respect of Internet access. For example, ICASA estimates show that in 2015 mobile data subscriptions formed 98% of total internet and data subscriptions. Fixed Internet accounts for the remaining 2%.[100]

157. This is reflected in growth of mobile data services. The combined revenue of Vodacom, MTN and Cell C from mobile data services has grown by 83% between 2012 and 2016. Data revenue in South Africa has grown to point where, for some MNOs, it is either equal to or exceeds their voice revenues.

158. Despite mobile broadband being the primary means of accessing the Internet for most South African households, there remains significant potential for growth in

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[98] Ibid, para. 6.
[99] DTPS 2016. "National Integrated ICT Policy White Paper," pg. 65. Available at https://www.dtps.gov.za/images/phocagallery/Popular_Topic_Pictures/National_Integrated_ICT_Policy_White.pdf. Last accessed 14 December 2017.
[100] ICASA Report on the state of the ICT Sector in South Africa 15 March 2016, pg. 13.

mobile broadband uptake. This demand gap suggests that a large share of South Africans are not able to afford these services.

159. Vodacom and MTN have 3G population coverage of 99% and 95%[101] respectively, as well as 4G/LTE population coverage of 76.7% and 60%102 respectively. But According to Statistics South Africa, only 54% of South Africans have access to the Internet through a mobile phone in 2016.[103]

160. Access to the Internet through a mobile phone is unequally distributed across South Africa's various geographical areas. 61.6% of metropolitan households had this type of access, as well as 58% of urban households. However only 38.3% of rural households have the least access to the Internet using a mobile phone, far below the national average. [104]

Government policy objectives

161. South African government policies reflect a keen focus on broadband connectivity (both fixed and mobile) in South Africa. In respect of mobile broadband:

162. The NDP,[105] which sets the overarching framework for South Africa's ICT policy, recognises the ubiquity of mobile phones but identifies that the further expansion of mobile services is constrained by equipment prices and the extent of network competition:

> "*More South Africans use mobile phones (29 million) than listen to radio (28 million). Despite this, growth in South Africa's ICT sector has not brought affordable, universal access to the full range of communications services. The performance of most state interventions in the ICT sector has been disappointing. South Africa has lost its status as continental leader in Internet and broadband connectivity. The price of services and equipment remains a significant barrier to expanding mobile phone and fixed-line use, with limited network competition further increasing costs.*"[106] (own emphasis)

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[101] Refer above
[102] Refer above.
[103] Stats SA. 2017. *General Household Survey 2016*. p. 51. Available: http://www.statssa.gov.za/publications/P0318/P03182016.pdf
[104] Stats SA. 2017. *General Household Survey 2016*. p. 51. Available: http://www.statssa.gov.za/publications/P0318/P03182016.pdf
[105] National Planning Commission (2011), National Development Plan 2030: Our Future – Make It Work ("NDP")
[106] Ibid, pg. 190.

163. The NDP has also expressed that spectrum is the biggest bottleneck in the provision of mobile technologies, as such the allocation of spectrum should be streamlined:

> "*Spectrum allocation is perhaps the biggest regulatory bottleneck in the deployment of wireless technologies that will, in the short to medium term, meet the diverse needs of society and economy. The radio spectrum is a scarce resource that needs to be optimally allocated to meet both economic and social objectives. Significant high-capacity spectrum will become available with the shift from analogue terrestrial television broadcasting to digital terrestrial broadcasting. This should be swiftly allocated to ensure that services based on emerging technologies can expand.*" [107] (own emphasis)

164. SA Connect[108] also highlighted the importance of mobile broadband:

> "*The slow deployment of fixed broadband services (ADSL), and its relatively high costs meant that over the last five years mobile broadband rapidly became the primary form of broadband access; rather than providing a complementary service to fixed services as it has done in mature economies. Despite this take-off in mobile broadband, South Africa's broadband penetration remains poor to that of other lower-middle income countries. South Africa has lost its status as 'continental leader' in broadband and Internet, and the last two decades has seen South Africa's steady decline on global ICT indices*"[109] (own emphasis)

165. The DTPS also recognised in its 2016 White Paper the importance of mobile broadband and also the need to improve market outcomes in this service—these concerns underpinned its proposal for a WOAN. The DTPS also issued a policy directive relating to the prioritisation of broadband markets for a market review to the Authority in March 2016.[110] This directive emphasises the need for effective competition in broadband markets through established government documents which include the NDP and SA Connect.

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[107] Ibid, pg. 192.
[108] Department of Communications. 2013. South African Connect: Creating Opportunities, Ensuring Inclusion – South Africa's Broadband Policy – 20 November 2013
[109] *Ibid* at pg.3
[110] Department of Telecommunications and Postal Services. 2016. Government Gazette No. 39781 – 4 March 2016.

166. Finally, the Commission has also recently initiated a data services market enquiry. The Commission's Terms of Reference (ToR) suggest that the enquiry will address both fixed and mobile services at wholesale and retail levels. [111]

Conclusion

167. The Authority's preliminary view is that the markets covering wholesale mobile network services (wholesale market W3) and mobile RAN services (upstream market U5) should be prioritised for a market review. This is on the basis of a review of the structural features of these markets and their importance in a policy sense.

168. The structural features include high barriers to entry and expansion; limited incentives on behalf of MNOs, who are all vertically integrated into the retail market, to develop competitive wholesale markets; certain instances where wholesale market concentration is very high; and relatively high concentration levels at the retail level.

169. The promotion of competitive outcomes in the wholesale and retail mobile markets is a key government policy objective, primarily due to the fact that mobile services constitute the sole means of telecommunication for most South Africans.

170. Access to passive mobile network infrastructure is not included in the broad markets identified since these form part of facilities that are dealt with under chapter 8 of the ECA. It may be the case that the Authority finds, following a market review, that some form of regulatory intervention is required to expand the scope of the Facilities Leasing Regulations. However, such a finding can only be determined as part of a market review process.

Question 6: Do you agree with the Authority's preliminary view to prioritise the Wholesale supply of mobile network services and RAN services markets outlined above or should one or both be removed from the list? Please provide reasons for your response.

[111] Competition Commission. 2017. Data Services Market Inquiry – Terms of Reference, par. 3.2 pg. 8. Available online: http://www.compcom.co.za/wp-content/uploads/2017/09/Data-Market-Inquiry-ToR.pdf

MARKETS NOT PRIORITISED

171. This section focuses on the markets not identified for prioritisation in this Inquiry. We begin with the upstream markets and proceed with wholesale and retail markets. As outlined earlier, this does not preclude these markets from being prioritised at a later stage following the completion of the market reviews for the priority markets identified above.

UPSTREAM MARKETS

172. The only upstream market that is not identified for prioritisation is that for **international transmission services**. The main reason is that South Africa's international bandwidth has increased significantly in period from 2009 to 2015[112], with further capacity increases predicted for the period of review. This capacity expansion has brought with it a plurality of owners of different undersea cables, which has improved competition for international transmission services.

173. Specifically, there are five of undersea cables currently servicing South Africa. These include SEACOM, WACS, SAT-3/WASC, SAFE and EASSY. The WACS, SAT-3/WASC cables connect to South Africa at Yzerfontein on the western coast of South Africa, and the EASSY, SEACOM and SAFE cables connect to South Africa at Mtunzini on the east coast of South Africa

174. There are a number of additional submarine cables projects with South African connections in the process of being planned and completed over the period of review. These include:

174.1. the ACE cable, which will eventually connect Europe to Africa[113];

174.2. the South Atlantic Express Cable (SAex), which will eventually connect South Africa to South and North America[114]; and

174.3. the BRICS cable, which will eventually connect South Africa to Russia and Brazil.[115]

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[112] My Broadband. 25 June 2015 How South Africa's international bandwidth problem was solved. Available online: https://mybroadband.co.za/news/broadband/129072-how-south-africas-international-bandwidth-problem-was-solved.html Last accessed 11 December 2017

[113] Business Report. 7 January 2016. Work starts on ACE cable. Available online: https://www.iol.co.za/business-report/companies/work-starts-on-ace-cable-1967696 Last accessed 11 December 2017

[114] TechCentral. 25 October 2012. Duncan Mcleod. 16Tbit/s SAEx cable deal signed Available online: https://techcentral.co.za/16tbits-saex-cable-deal-signed/35811/ Last accessed 11 December 2017

[115] TechCentral. 3 May 2012. Craig Wilson. The inside story of the $1.5bn Brics Cable Available online: https://techcentral.co.za/the-inside-story-of-the-15bn-brics-cable/31530/ Last accessed 11 December 2017.

WHOLESALE MARKETS

175. The following wholesale markets were not identified for prioritisation:

175.1. The supply of mobile termination services (market W1);

175.2. The supply of international mobile roaming services (market W2 as well as a potential segment of market R1);

175.3. The supply of fixed termination services (market W4);

175.4. The supply of fixed call access, origination and transit (market W5); and

175.5. The supply of Internet connectivity (market W7).

176. **Fixed and mobile voice termination** (market **W1** and market **W4**) are both already regulated through a section 67 process and these regulations[116] are now subject to periodic review in terms of section 67(8) of the ECA.

177. The Authority's preliminary view is that the international mobile roaming services, including the wholesale international roaming services falling under market W2, nor the retail segment of international roaming services that fall under retail market R1, should not be prioritised for a market review for the following reasons:

177.1. The parties that may benefit from the regulation of wholesale international roaming services (wholesale market W2, i.e., the provision of wholesale services to foreign MNOs and their customers by South African MNOs) are not South African. There is no pro-competitive or consumer welfare argument that may justify the expenditure of regulatory effort in this market currently.

177.2. There are two main components of the international roaming charges applied to South African consumers by South African MNOs when those consumers travel outside of South Africa (a segment of retail market R1), being:

177.2.1. the wholesale input provided by foreign MNOs to the South African MNO. This charge cannot be regulated by the Authority as the foreign operators lie outside the Authority's jurisdiction; and

[116] *Gazette* No 38042 in Notice No 844

177.2.2. the retail mark-up over that wholesale charged applied by the South African MNO. This falls within the market for the retail supply of mobile services (market R1).

177.3. The portion of retail prices for international roaming paid by South Africans could, in principle, be regulated by the Authority, but doing so would not meet the materiality criterion in the approach to prioritisation outlined earlier. This suggests that a small minority of South Africans make use of international roaming services. In addition, users who are not business-people have the option of avoiding international roaming charges by acquiring a local SIM card. However, given the current high roaming charges for those that have little choice, this market may be subject to prioritisation in the future once the current priority markets have been subject to a market review.

178. The Authority's preliminary the view is that the market for the supply of **fixed call access, origination and termination services** (market **W5**) should not be prioritised for a market review for the following reasons:

178.1. Authority's most recent State of the ICT Sector report (2017) found that mobile voice revenue in 2016 exceeded fixed voice revenue by six times; it accounted for 86% of total voice revenue, as opposed to 14% for fixed voice revenue.[117] According to Statistics South Africa, in 2016 only 9.5% of South African households had access to a landline, while over 90% had access to a mobile.[118] Fixed voice revenue is therefore less material than mobile voice currently;

178.2. at a business level where fixed voice is more material, managed VoIP services over broadband connections offer an alternative to traditional PSTN voice services that have made inroads into the market. Reflecting this, Telkom's fixed voice volumes and revenues have fallen by 26% and 17%, respectively, between FY2013 and FY2017.[119] These are shown in Figure 3 below.

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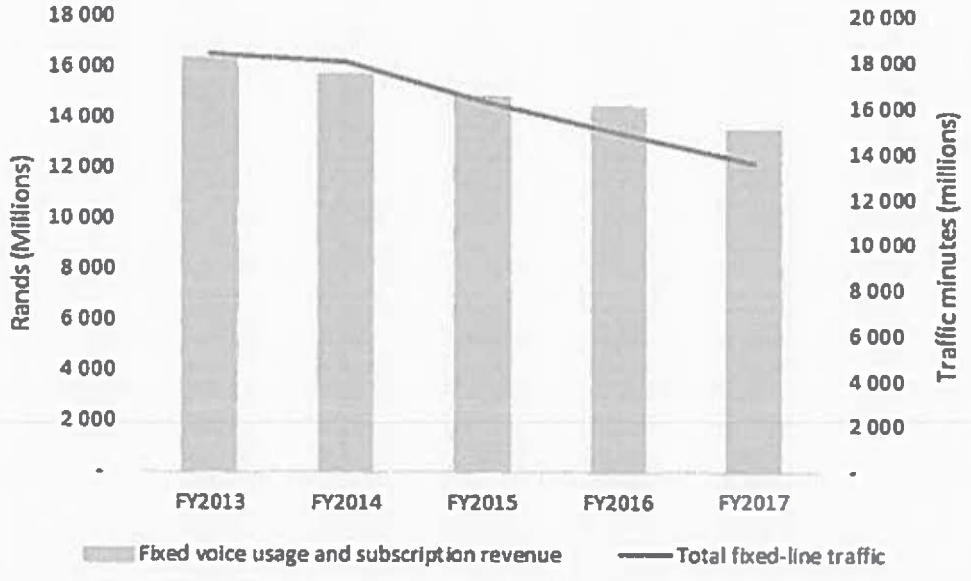
[117] ICASA 2nd Report on the state of the ICT sector in South Africa, dated 31st March 2017, at p.13 and 14. Available online: https://www.ellipsis.co.za/wp-content/uploads/2017/05/ICASA-Report-on-State-of-SA-ICT-Sector-2017.pdf [Last accessed: 12 December 2017].
[118] Statistics South Africa. 2017. General Household Survey – 2016, pg. 57. Available online: http://www.statssa.gov.za/publications/P0318/P03182016.pdf
[119] See the following Telkom annual reports:
http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Annual_telkom_2014.pdf
http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Telkom_Annual_Results_Booklet_WP_2016_Final.pdf

178.3. The prioritisation of fixed local access as well as national and metropolitan transmission services are likely to enhance VoIP competition going forward, placing increasing competitive pressure on fixed call origination. Once these market reviews are complete, this market can be reassessed for whether it needs to be prioritised or not.

Figure 3: Telkom fixed voice revenue and traffic from FY2013 to FY2017



Source: Telkom annual reports

Notes: (i) Telkom's financial year is runs from the 1st April to the 31st March.

179. The Authority's preliminary the view is that the market for the supply of wholesale internet connectivity (market W7) should not be prioritised for a market review on the grounds that competition concerns are unlikely to exist in this market on current information before the Authority.

180. There are a significant number of peering and transit service providers. Peering service providers include both MNOs (e.g. Vodacom, MTN and Cell C) and ISPs (e.g. Internet Solutions and Vox Telecom). Transit service providers include Liquid Telecom, Cogent, PCCW, TeliaSonera and NTT.

181. Vodacom also indicates that peering is generally done settlement free with no purchase or lease involved.[120]

http://www.telkom.co.za/ir/apps_static/ir/pdf/financial/pdf/Telkom_Annual_Results_Booklet_WP_2017_Final.pdf

[120] Vodacom submission. 2017, Annexure C- Fixed Retail and Wholesale at p. 21.

182. Vodacom[121] and other operators also stated that market participants view the market as being competitive with noteworthy price declines in recent years and no concerns expressed by ISPs.

RETAIL MARKETS

183. The Authority's preliminary the view is that the retail markets identified in Appendix 1 should not be prioritised for market reviews given that, as mentioned in the discussion of the approach to prioritisation, it is preferable to first determine whether *ex-ante* regulation is required at the wholesale level. These retail markets include:

183.1. The supply of mobile services (market R1);

183.2. The supply of voice telephony at fixed locations (market R2);

183.3. The supply of access to the Internet from fixed connections (market R3); and

183.4. The supply of managed data network services (market R4).

184. Most of the licensees who responded to the Authority agree with the principle that wholesale markets are the preferred markets to be prioritised.

185. Cell C emphasises that, "*It is widely regarded at best practice to (i) first examine the underlying markets that feed into or form the basis for retail services and products (the upstream markets – those that are defined as having the least replicable inputs) and regulate these markets first, and (ii) only if regulation at this level is inadequate, to review and possibly regulated associated retail market (the downstream markets).*"[122]

186. Vodacom proposes that if competition is not effective in the retail markets, "*Regulation should focus on upstream bottlenecks.*"[123]

187. MTN states that, "*Regulatory intervention more generally could effectively be addressed at targeting the specific bottlenecks in the provision of better quality and*

[121] Vodacom submission. 2017, Annexure C- Fixed Retail and Wholesale at p. 45.
[122] Cell C. 2017. Cell C response to ICASA priority markets – p. 2 at para. 1.4
[123] Vodacom. 2017. Annexure C Fixed Retail and Wholesale. See pg. 50-51 Response to *Question 41*.

affordable mobile services, rather than adopting a general interventionist approach."[124]

188. Telkom notes that the, "*Widely accepted principle that regulation should be targeted at the wholesale market wherever possible.*" [125]

189. In keeping with that principle, there is no need, presently, to screen the retail markets identified for the likelihood of competition concerns.

190. This does not imply that there are no potential competition concerns in any of the four retail markets identified in Appendix 1. This is evident in the discussion of the wholesale market for mobile network services and the upstream market for RAN services. Consideration was given to structural features of the retail market for mobile services as these features are also likely to be present in some wholesale or upstream activities, given the vertically-integrated nature of MNOs.

191. For these reasons, the retail markets identified in Appendix 1 may still be prioritised in future, and subjected to potential market reviews. This would be the case if, for example, market reviews in the wholesale and upstream markets identified above for prioritisation lead to the introduction of ex-ante regulations, but that these regulations generated no pro-competitive or pro-consumer impacts at the retail level.

Question 7: Do you agree with the Authority's preliminary the view not to prioritise the above markets or should any of these markets be added to the priority list? Please provide separate reasoning for each market you propose to add to the list.

[124] MTN. 2017. MTN response to ICASA priority market study, pg.23 at para. 5.17.
[125] Telkom. 2017. Telkom response to the ICASA questionnaire, pg. 31. See response to *Question 41*

APPENDIX 1: IDENTIFICATION OF MARKETS

1. This appendix provides the identification of the different markets in the electronic communications sector for assessment in terms of the prioritisation exercise and the reasoning behind their identification.

RETAIL MARKETS

2. The markets described in this section include all markets in which services are purchased by end-users, including consumers and business customers.

Retail market R1: The retail supply of mobile services

3. This market includes the retailing of mobile voice, data, and SMS services, delivered across all mobile network technologies, to all customer-types. This market is national in geographic scope.

Exclusion of fixed services

4. For the purpose of the Inquiry, this market excludes any similar retail services delivered over fixed line network technologies or fixed-wireless network technologies.

5. Fixed-line and fixed-wireless[126] voice and internet services are excluded because these technologies are highly unlikely to place a competitive constraint on the prices and quality of mobile services, nor is this likely to become so in the time period applicable to the Authority's market prioritisation process (i.e. to 2021) to warrant the identification of a single retail market. The broad reasons for this separation of markets is as follows:

   5.1. *demand-side substitution is limited due to fundamental differences in functionality and price.* Mobile voice and data services are available at any location with network coverage, providing the benefit of mobility which is something that cannot be replicated by fixed-line or fixed-wireless services. This applies equally to all of the other services enabled by mobile devices

[126] Although it is highly likely that fixed-wireless services are a substitute to fixed-line services, this question can be assessed properly in the context of a potential market review. For now we note that previous cases do not place fixed-wireless in the mobile market (see for instance EC Commission Decision, COMP/39.525 Telekomunikacja Polska, .22.06.2011, pp. 15, para 592 and EC Commission Decision, Case AT.39839 Telefonica/Portugal Telecom, 23.01.2013), and, further, that the only difference between fixed-line and fixed-wireless is that the latter makes use of, *"... wireless technology in the delivery of last mile access that enables subscribers to connect to the fixed line network without the need for cables."* (Ofcom 2014, "Review of the wholesale broadband access markets: Statement on market definition, market power determinations and remedies." See pg. 71).

that can be accessed at any location, including text messaging services. For smartphone users, which are an important consumer segment for South African MNOs from a revenue perspective, the range of additional services extends well beyond communication services, into areas such as navigation and location-based services which are built around mobility specifically. No fixed-line or fixed-wireless technology can offer an individual user these additional services at multiple locations. In addition, large price gaps between fixed and mobile voice and data prices exist at the retail level;[127]

5.2. *supply-side substitution is unlikely due to regulatory barriers or investment requirements.* Entry into mobile by fixed line operators is limited due to regulatory constraints, including spectrum licensing constraints, as well as the time and costs to roll out a RAN.

Potential segmentation by customer-type

6. No further segmentations are necessary for the purpose of the Inquiry as the retail mobile market is a logical collective of services for a market review purpose. However, it is recognised that it may be relevant in the South African context to segment this market on the basis of the demand-side differences between customer segments.[128] This is also not without precedent. For example, in a recent set of transactions whereby Nashua Mobile disposed of its service provider business, the Competition Tribunal ("Tribunal") considered a post-paid subscriber market segment.[129]

7. The demand-side differences between the post-paid and pre-paid segments are summarised below.

8. Demand conditions in the pre-paid segment differ markedly from the post-paid segment. Specifically, pre-paid customers tend to be more price-sensitive than post-paid customers, i.e., the price elasticity of demand in this segment is relatively high. This is partly because search and switching costs are much higher for post-paid customers. Once acquired, a post-paid customer is unlikely to switch to

[127] Additional demand-side factors should be assessed in the context of a formal market review. These include any differences in the characteristics of mobile and fixed/fixed-wireless retail packages; in prices and quality; and in consumer preferences and usage patterns, the analysis of which falls outside the scope of this document.
[128] In contrast, supply-side substitution may mean that there are no reasons to segment by service type (voice, data, messaging), or by network technology. However, there may be sources of differentiation between participants in this market based on other supply-side features such as network quality which means they are stronger or weaker competitors for one segment relative to another.
[129] See MTN and Nashua Mobile Proprietary Limited (Case No.:019018), Vodacom and the Vodacom subscriber base of Nashua Mobile Proprietary Limited (Case No.:019034), Altech Autopage Cellular Proprietary Limited and Nashua Mobile Proprietary Limited (Case No.:019166).

another MNO in response to a particular offer, and indeed typically can switch only once every two years. As a result, customer churn in the pre-paid segment is significantly higher than in the post-paid segment and competition for pre-paid customers may be more oriented towards price.

9. Post-paid customers tend to generate significantly higher ARPUs than pre-paid customers, by consuming significantly larger volumes of voice, data, and messaging services. This makes post-paid customers, more valuable to MNOs. This matters in a context where competition between MNOs is partly determined by the capacity to invest in new technology and additional capacity to meet growing demand for new services.

Potential segmentation of mobile data services

10. In the context of a potential market review, it may be appropriate to consider the mobile data or mobile broadband segment separately. Demand for mobile data may diverge from demand for mobile voice and SMS such that the three are not always demanded as a bundle at the retail level, or not demanded as a bundle to the same degree as they have been historically. This may be related to growth in the use of devices that are enabled for data only. In addition, differences in the speed, coverage and quality of data services across MNOs may result in differences of competitive conditions for data relative to voice services. The potential for OTT services to provide some competitive pressure on voice and SMS only may reinforce differences in competitive conditions for data as distinct from the other services.

Potential segmentation of international roaming (for SA customers)

11. MNOs also provide their domestic customers with international roaming services, for voice, data and SMS. Whilst the wholesale prices for roaming may be a function of the behaviour of operators in other jurisdictions, the retail margins placed on top of the wholesale prices are determined by the domestic MNOs. These retail margins may not be constrained by the purchase of a local SIM card for customers requiring access on their SA mobile number (e.g. business travelers) nor by general competition for domestic services.

Mobile OTT services (messaging and telephony)

12. The Authority has previously determined that OTT services do not fall within the same market as retail mobile services.[130] These services are after all, on top of an existing retail mobile service. In addition, OTT services cannot constrain mobile data services. However, in the context of a market review, the strength of any potential constraint on traditional voice and SMS services presented by mobile OTT services should be considered. This would include an assessment of how many customers can access such services (e.g. this would exclude users of 2G-enabled handsets), the relative quality of such services (e.g. unmanaged VoIP is usually considered to be a separate market due to quality considerations) and the extent to which customers actually make use of such services in substitution to traditional mobile services (e.g. use of OTT for voice calls as opposed to messaging).

Retail market R2: The retail supply of voice telephony at fixed locations

13. This market includes the retailing of voice access and origination (receiving and making voice calls[131]) over the fixed-line PSTN, controlled by Telkom, and managed VoIP services delivered over fixed-line and fixed-wireless broadband connections (including those of Liquid Telecom). This market is national in geographic scope.

Inclusion of managed VoIP.

14. The inclusion of managed VoIP services, which are more popular among business customers than residential customers, is unlikely to materially influence the consideration of this market for prioritisation, but should be included for the following reasons:

    14.1. managed VoIP services are likely to be perceived to be similar to PSTN (narrowband) voice services in terms of quality.[132] In addition, most managed VoIP providers compete against Telkom for voice services to business customers that operate over Telkom's access and core networks;

    14.2. in South Africa the second national operator, which built an IP-based network with fixed-wireless last mile access, was licensed specifically to compete against the PSTN in access and origination. Liquid Telecom remains active

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[130] *Gazette* No 41132; para. 3.1.1.1
[131] This includes all call types, i.e. to fixed and mobile locations, locally, nationally, or internationally.
[132] Ofcom. 2013. *Review of the fixed narrowband services markets - Statement on the proposed markets, market power determinations and remedies.* Para 4.158.

in the retailing of fixed voice telephony in South Africa, in competition with Telkom, both for business and residential customers.

Exclusion of other services

15. This market excludes any similar retail services delivered over mobile network technologies.

Mobile voice services

16. Mobile voice services are excluded from this market for the following reasons:

16.1. *Quality and characteristics of voice over fixed connections* - Fixed voice services offer superior quality (which is consistent over time and is not affected by the location of either participant), security and reliability, and, in the case of PSTN connections, independent power supply.[133] In contrast, the quality of mobile calls can vary depending on location and time due to congestion on individual cells.[134] This is likely to be particularly important for business customers.

16.2. *Complementarity of mobile and fixed voice* - Of those South African households with fixed connections, 99% also owned mobile connections in 2015.[135] This suggests that fixed and mobile voice are complementary services, rather than substitutes, from the perspective of consumers that can actually choose between the two.

16.3. *Availability* - Many mobile-only households in South Africa have no choice between mobile or fixed, due to the unavailability of a fixed service, or prohibitive and ongoing access costs (installation, line rental, etc.). Thus the high rate of mobile-only households in South Africa does not indicate a widespread preference for mobile over fixed voice telephony.

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[133] As a result, fixed voice services over PSTN are desired for systems which require continuous electrical supply, and will not fail in the event of a power cut, such as alarm and monitoring systems, or call centres. See EC. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*. Footnote 29, p. 21

[134] EC. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*. p. 21

[135] See Stats SA. *General Household Survey – 2015*. p. 54. Available: http://www.statssa.gov.za/publications/P0318/P03182015.pdf. The figure of 99% is derived from the reported proportions of households with fixed and mobile connections, and fixed connections only, respectively.

16.4. *Differences in price.* There is also a difference in the prices, especially for bulk business calls, and especially in the context where termination rates have been regulated towards cost.

Unmanaged VoIP

17. Unmanaged VoIP services are excluded from this market for the following reasons:

17.1. *Quality* - Unmanaged VoIP services over fixed broadband connections are subject to variable quality.[136]

17.2. *Users require a specific software and devices* - In the case of unmanaged VoIP applications like Skype, both the initiator of the call and the receiver of the call must have the appropriate software and hardware to be able to communicate.[137,138]

17.3. *The need for a retail fixed access line in order to use unmanaged VoIP over fixed broadband* - The ability of unmanaged VoIP over fixed broadband to constrain fixed voice is limited by the fact that both are typically accessed via the same connection and customers cannot avoid a price increase in the latter.[139]

Potential segmentation by customer-type

18. Further segmentations by customer type are not necessary for the Inquiry. However, it is recognized that the characteristics of demand for access and origination may differ appreciably as between business customers and household customers, with the SOHO sub-category included under the household customer segment.[140]

19. For example, business customers may demand access to fixed voice services via digital access technologies, and may demand high-quality services with significant

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[136] Ofcom. 2017. *Narrowband Market Review Consultation on the proposed markets, market power determinations and remedies for wholesale call termination, wholesale call origination and wholesale narrowband access markets.* Para 2.14, p. 18-19

[137] EC. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*, p. 25.

[138] *Ibid*, p. 25

[139] Ofcom. 2017. *Narrowband Market Review Consultation on the proposed markets, market power determinations and remedies for wholesale call termination, wholesale call origination and wholesale narrowband access markets.* Para 4.60, p. 57; para 4.167, p. 79

[140] The EC abandoned this segmentation in 2007 on the basis that similar contractual terms, products, and suppliers are available to both customer types. These factors would need to be investigated in the context of a market review before a similar conclusion can be reached for South Africa.

degrees of flexibility and support. Household customers, on the other hand, are typically satisfied with traditional analogue access (in the case of the PSTN) or the cheapest fixed-wireless solutions (in the case of Liquid Telecom), and typically do not demand high levels of support or flexibility. Pricing to larger business customers is also often bespoke (and bundled with other services) and diverges from the tariff filings that apply to residential and smaller customers.

20. The same features are likely to apply to demand for VoIP services. Business customers are more likely than household customers to purchase a managed VoIP service (that runs over the PSTN), or to purchase more sophisticated access and service packages from Liquid Telecom.

Retail market R3: The retail supply of access to the Internet from fixed connections

21. This broad market includes the retailing of Internet access services to all customer types via various fixed access technologies, including narrowband, asymmetric broadband and leased lines. This market excludes all Internet access services based on mobile broadband technologies (including devices that enable nomadic services, such as mobile broadband modems, and devices that offer truly mobile services, such as smartphones). This market is national in geographic scope and should be segmented as follows:

    21.1. narrowband internet access via analogue dial-up and ISDN, which offer download speeds no higher than 256 kbps. Whilst this service is rapidly becoming irrelevant, it remains as a service offering for now,

    21.2. asymmetric broadband internet access via copper, fibre, or fixed-wireless last mile solutions[141], which offers download speeds higher than 256 kbps and is 'always on', among other features that distinguish it from narrowband access technologies. While copper and fibre fixed-line access technologies would likely fall into the same segment, a potential market review should consider whether fixed-wireless access technologies should be included in this segment. Thus, potential further segmentation of this segment, between fixed-line and fixed-wireless, should be considered in the context of a market review.

[141] Fixed-wireless refers to the provision of retail *Internet* access services by providers that rely on wireless last mile solutions, and excludes nomadic mobile *Internet* access technologies, which are included under mobile *Internet* access.

21.3. leased line or symmetric broadband internet access which offers symmetric download and upload speeds, guaranteed transmission speeds, and dedicated capacity, among other features that distinguish it from narrowband and asymmetric broadband access technologies.[142]

22. The segmentation above broadly corresponds to a potential segmentation by customer type.

23. While some of the households that can access fixed internet services may still use dial-up, most make use of asymmetric access services over copper or fibre lines where such services are available.

24. Similarly, while some small businesses may still use ISDN, most small businesses and SOHOs use asymmetric access services over copper or fibre lines where such services are available.

25. Large businesses, particularly those with multiple sites, make use of leased lines, and often bundle their purchase of leased line access with managed data network services. Whilst some access points may not use leased lines due to a lack of availability or for the purposes of redundancy, the main demand is for leased line access.

Exclusion of mobile Internet access

26. Mobile internet access services are typically placed in a separate market.[143] The main reasons are that speeds, data allowances, and service quality differ significantly as between mobile and fixed access technologies. The reasons for exclusion of mobile internet access are expanded on below.

26.1. *different speeds* - achieved mobile broadband speeds are generally lower than the speeds achieved over fixed broadband access technologies, due in part due to mobile signals being hampered indoors[144], and to network

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[142] This is in line with UK regulatory practice, where *Internet* services over leased lines are seen as a distinct market from *Internet* services via asymmetric broadband, such as ADSL. See Ofcom. 2010. *Review of the wholesale broadband access markets Consultation on market definition, market power determinations and remedies.* p. 26.
[143] (i) Ofcom. 2013. *Review of the Wholesale Broadband Access Markets*. pp. 48-49.
(ii) EC. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*, pp. 35-36.
(iii) In Hutchison 3G Austria/Orange Austria the merging parties themselves conceded that, *"a number of differences between the product offerings suggest that fixed line services are not fully substitutable with mobile data services."* The EC agreed with this proposition, concluding that the limited substitution and the defining characteristic of mobility suggests that the two markets should be kept separate. (See Comp/M.6497 dated 12 December 2012, pp. 18-19.)
[144] Ofcom. 2013. *Review of the Wholesale Broadband Access Markets*. para 3.87, p. 45

congestion, which means that actual speeds are typically well below headline advertised speeds;[145]

26.2. *data allowances* - monthly data allowances for mobile broadband services tend to be lower than fixed broadband services[146], even in the case of 4G/LTE.[147] In general, fixed broadband packages allow for larger data allowances and 'uncapped' options are also frequently available;

26.3. *quality* - the reliability and resilience of mobile broadband services are typically lower than fixed.[148]

26.4. In South Africa, even with greater LTE and LTE-A rollout in future, this differentiation between mobile and fixed broadband services is likely to persist. There is no indication when or how spectrum constraints, which already hamper greater LTE rollout, will be overcome — indicating that mobile broadband data allowances and prices will remain higher than fixed despite potential increases in mobile speeds. In addition, fixed networks will continue to develop too, ensuring that South African customers that can currently choose between fixed and mobile internet access options will continue to make use of both. Further, the fact that the majority of South Africa households are unable to choose between fixed and mobile internet access options does not indicate strong substitutability between the two. For households and business that do have this choice, it is clear that fixed and mobile internet access technologies are complementary.

Retail market R4: The retail supply of managed data network services

27. This market includes the retail provision (in the sense of business-to-business sales) of MDNS over leased lines and any similar high-bandwidth access technologies. MDNS enable corporate customers to connect all their sites and business applications in various geographic locations to enable the communication and data exchange. These services are specifically designed to meet the requirements of the customers in terms of speed, prioritisation of traffic, security and other requirements.

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[145] *Ibid.* para 3.95, p. 49
[146] *Ibid*, para 3.90, p.46
[147] *Ibid*, para 3.87, p. 45; para 3.94, p.47-48
[148] EC. 2014. *Commission Staff Working Document Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*, pg. 35.

28. This market includes all MDNS that are IP-based VPN and is national in geographic scope.

WHOLESALE MARKETS

29. The markets described in this section include all markets in which complete and clearly-defined wholesale services are purchased by licensed service providers as inputs into the provision of retail services.

Wholesale market W1: Wholesale supply of mobile termination services

30. This market includes the wholesale supply of termination services for voice calls and SMS's to a mobile location that terminate on each MNO's network inside South Africa.[149] This wholesale market should be segmented into wholesale voice and wholesale SMS termination services. Furthermore, termination from international locations should be segmented from those terminating from within South Africa. There are no substitutes for each MNO's wholesale termination services inside South Africa. This market is national in geographic scope.

Wholesale market W2: Wholesale supply of international mobile roaming services

31. This market includes the provision by South African-licensed MNOs to foreign MNOs of access, origination, and termination services, such that foreign MNOs can offer voice, data, and SMS services to their customers while those customers are inside South Africa. This market is national in geographic scope.

Wholesale market W3: Wholesale supply of mobile network services

32. This market includes the wholesale supply by MNOs of mobile network services that may be demanded by any customer-type. The mobile network services typically demanded at the wholesale level include voice, data, SMS, and access point name ("**APN**") services. This market is national in geographic scope.

Potential segmentation by network service

33. Segmentation by mobile network service type may be warranted on demand-side substitution grounds. The potential segmentations are for voice, data, SMS, and APN services.

[149] For voice, this aligns with Government Gazette No. 37295, 4 February 2014, pg. 12, para. 2.4.1.

34. Each of these services can be demanded separately at the wholesale level, as opposed to the typical case at the retail level, where these three services (voice, SMS or data) are often demanded together, as a single bundle. In addition, customers seeking wholesale mobile voice, data, or SMS services are likely to be differentiated from customers seeking wholesale APN services. Because of these factors, the lack of demand-side substitutability of each of these services, informs the potential need to segment by network service type. A factor in this assessment would be the degree of supply-side substitution prevalent at the wholesale level between these services and whether conditions of supply are similar for each service.

Wholesale market W4: Wholesale supply of fixed termination services

35. This market includes the wholesale supply of termination services for voice calls to a fixed location that terminate on each ECS/ECNS licensee's network who provides such services inside South Africa.[150] Termination from international locations should be segmented from those terminating from within South Africa. There are no substitutes for each fixed operator's wholesale termination services inside South Africa. This market is national in geographic scope.

Wholesale market W5: Wholesale supply of fixed call access, origination and transit

36. This market includes the wholesale supply of fixed call access (over narrowband access lines), origination and transit services via the PSTN. Fixed call access, origination, and transit services are typically demanded as a bundle at the wholesale level. This bundle does not include physical access to any infrastructure. However, any market review would need to consider the extent to which these may form different market segments (e.g. transit services may be supplied independently of the other services). This market is national in geographic scope.

Wholesale market W6: Wholesale supply of asymmetric broadband origination

37. This market includes the wholesale supply of asymmetric broadband origination services, via fixed-line or fixed-wireless access technologies, and also includes any

[150] Government Gazette No. 37295, 4 February 2014, pg. 12, para. 2.4.2.

backhaul services that are required to allow interconnection between the wholesale provider and its customer(s). This market therefore includes any bitstream services provided by the wholesale provider of asymmetric broadband origination (e.g. IP Connect in the case of Telkom). This market is national in geographic scope.

38. Due to the potential segmentation of the market for the retail supply of access to the Internet from fixed connections into fixed-line and fixed-wireless access technologies, the potential for this wholesale market to be segmented along the same lines would need to be considered in the context of a market review.

Wholesale market W7: Wholesale supply of Internet connectivity

39. This market includes the wholesale provision of Internet connectivity via peering or transit arrangements, or via commercial reseller arrangements. This market is national in geographic scope.

40. This market could further potentially be segmented by customer-type, i.e. the tier at which an Internet provider sits will determine whether it enters into peering arrangements or transit arrangements (as payer or payee). This potential segmentation can be considered in the context of a potential market review as it is a factual matter as to whether such segmentation would be necessary or appropriate.

UPSTREAM MARKETS

41. The markets described in this section include all markets in which individual upstream network services (access/connectivity and transmission services) are purchased by licensed service providers as inputs into the provision of the wholesale or retail services described above. For example, national transmission services may be an input into the wholesale supply of asymmetric broadband origination, while mobile radio access network services may be an input into the wholesale or retail supply of mobile network services.

42. These markets describe services, rather than specific groupings of types of network infrastructure or facilities. These services included are the services that a licensee may provide only to its own downstream service rather than to third parties.

Upstream market U1: International transmission services

43. This market includes the wholesale provision of international transmission services via international leased lines and any other international transmission technology. This market is national in geographic scope.

44. On the basis of demand- and supply-side substitution considerations, segmentation of this market by transmission technology would need to be considered in the context of a market review. The main transmission technologies are fibre-optic cables (sub-marine and terrestrial), satellite, and microwave links.

Upstream market U2: National transmission services

45. This market includes the wholesale provision of national leased line services that provide high-bandwidth connectivity between distant locations (e.g. different cities) within South Africa. This market includes dark fibre capacity, as well as unmanaged and managed transmission services over lit fibre. This market is national in geographic scope.

46. Potential segmentation of this market between dark and lit fibre services would need to be considered in the context of a market review. It is a factual question whether the potential for dark fibre to be activated constrains services supplied over lit fibre national lease lines. Similarly, potential segmentation of lit fibre national transmission services into unmanaged and managed services may need to be considered in the context of a potential market review. It is a factual question whether unmanaged national transmission services constrain managed national transmission services.

Upstream market U3: Metropolitan connectivity

47. This market includes the wholesale provision of connectivity between local sites within high-density urban and sub-urban areas and metropolitan points of presence, which are located within high-bandwidth ring-networks surrounding each metropolitan area in South Africa. This market includes dark fibre, whether managed or not.

48. As above in the case of national transmission services, potential segmentation of metropolitan connectivity is between dark and lit fibre services, and, within lit fibre, between managed and unmanaged lit fibre services, in the context of a potential market review.

49. This market is likely to be local or regional in scope because market dynamics may differ across different local or regional areas. However, any potential market review of metropolitan connectivity should consider whether local or regional geographic market dynamics are sufficiently similar to warrant a national market.

Upstream market U4: Fixed access services

50. This market includes the wholesale provision of local access services or last mile connectivity at a fixed location, enabled by fixed-line or fixed-wireless technologies (incl. microwave technology), to customers of all types. It therefore includes high quality access typically demanded by large businesses or MNOs (e.g. terminating segments of leased lines and/or microwave links), and mass-market access technologies demanded by households and small businesses (e.g. asymmetric broadband access lines).[151]

51. This market should be segmented by access service type between:

    51.1. Wholesale local access, which refers to the wholesale services that allow access via the local loop and is defined as the connection between a customer's premises and the nearest local exchange. These connections are used primarily by households and small businesses; and.

    51.2. Wholesale high quality access refers to the wholesale services that allow access via the terminating segments of leased lines irrespective of the technology used to provide leased or dedicated capacity (and including microwave technology). These are typically used by larger businesses or MNOs. Terminating segments connect a customer's premises either to points in metropolitan ring networks or to national leased line transmission segments.

52. Further segmentation between fixed-line and fixed-wireless access technologies should be considered in the context of a potential market review.

53. This market is local in scope as the services are delivered on a local level and conditions of competition may differ by local area. A market review can consider whether conditions of competition are such that a national market may be defined.

[151] Wholesale services that allow access at higher or more central network layers are covered by wholesale market W6 (wholesale supply of asymmetric broadband origination).

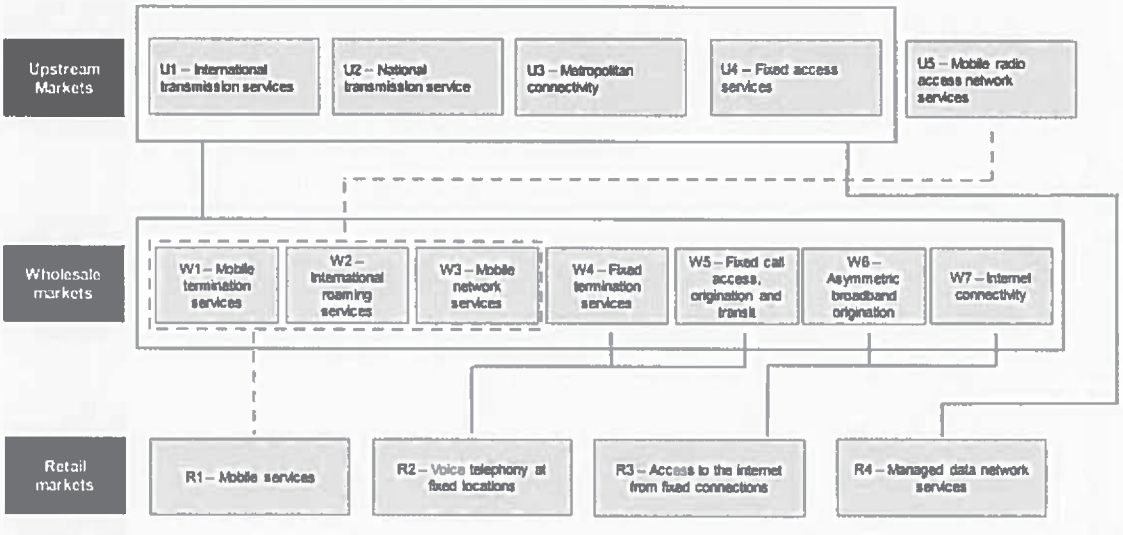
Upstream market U5: Mobile radio access network services

54. This market includes the wholesale provision of RAN based services as distinct from the wholesale supply of mobile services making use of the entire mobile network (incl. core network). This will include national roaming services by a licensed MNO to other MNOs that lack the required RAN capacity in certain (mostly rural) areas. However, it may also include the provision of active RAN sharing services as well as national RAN access for potential MVNOs that invest in their own core network. This market is national in geographic scope.

SUMMARY OF MARKETS

55. Figure 4 below summarises the markets described above, and indicates the vertical relationships between them. Once the Authority has made decisions in respect of the prioritisation of these markets, it may decide to combine markets together, or segment markets, in the context of potential market reviews. Potential segmentations have been discussed above but are not shown in the table below.

Figure 4: Summary of markets and links between them



APPENDIX 2: GOVERNMENT POLICY OBJECTIVES

1. The South African government has in a number of development plans and policy documents emphasised its key policy objectives for the ICT sector. These plans and policies, along with the foregoing responses from market participants, are critical in informing this study in terms of prioritizing markets for market reviews. The key objectives have generally focused on the provision of high-speed and affordable broadband access in order to support economic growth and which must be underpinned by the efficient utilisation of the underlying infrastructure. These key objectives are explored in this appendix, drawing on:

   1.1. The National Development Plan (2011)

   1.2. SA Connect (2013)

   1.3. The DTPS Policy Directive to ICASA (2016)

   1.4. DTPS National ICT Policy (2016)

NATIONAL DEVELOPMENT PLAN (2011)

2. The overarching framework for South Africa's ICT policy and its contribution to the country's development is set out in the NDP published in 2011. The NDP specifically identifies the high cost of telecommunications as one of the stumbling blocks to South Africa's development. These costs are linked to the provision of efficient infrastructure aimed at promoting growth in the economy and a lack of competitive and affordable prices. In this regard it stated that:

   "By 2030, ICT will underpin the development of a dynamic and connected information society and a vibrant knowledge economy that is more inclusive and prosperous. A seamless information infrastructure will be universally available and accessible and will meet the needs of the citizens, business and the public sector, providing access to the creation and consumption of a wide range of converged services required for effective economic and social participation – at a cost and quality at least equal to South Africa's main peers and competitors." [152] (own emphasis)

[152] National Planning Commission (2011), National Development Plan 2030: Our Future – Make it Work ("NDP"), pg. 190

"More South Africans use mobile phones (29 million) than listen to radio (28 million). Despite this, growth in South Africa's ICT sector has not brought affordable, universal access to the full ranges of communications services. The performance of most state interventions in the ICT sector has been disappointing, South Africa has lost its status as continental leader in Internet and broadband connectivity. The prices of services and equipment remains a significant barrier to expanding mobile phone and fixed-line use, with limited network competition further increasing costs." [153] (own emphasis)

"Efficient information infrastructure that promotes economic growth and greater inclusion requires a stronger broadband and telecommunications network, and lower prices."[154] (own emphasis)

3. The NDP strongly emphasizes national access to broadband services at competitive prices as its key objective:

4. The stated goal by 2030 is to, "make high-speed broadband Internet universally available at competitive prices."[155]

5. This is repeated as an economic infrastructure objective: "Competitively priced and widely available broadband."[156]

SA CONNECT POLICY (2013)

6. South Africa's national broadband policy, SA Connect[157], provides a roadmap detailing how the South African government aims to reach the broadband access goals set forth in the NDP. The overall economic context of SA Connect is one in which the cost of communication in South Africa is high and is seen as a constraint to economic development and global competitiveness:

"In South Africa, the lack of competitiveness of always-available, high-speed and high quality bandwidth required by business, public institutions and citizens has impacted negatively on the country's development and global competitiveness."[158]

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[153] *Ibid*
[154] *Ibid* at pg.46
[155] *Ibid* at pg.34
[156] *Ibid* at pg.62
[157] Department of Communications. 2013. South African Connect: Creating Opportunities, Ensuring Inclusion – South Africa's Broadband Policy – 20 November 2013
[158] *Ibid* at pg.3

7. A key observation made in SA Connect in this regard is that fixed broadband growth is sluggish due to high costs and is being superseded by mobile broadband growth. Despite this growth in mobile broadband South Africa's penetration has declined in comparison to other similar countries. SA Connect notes that:

> "*The slow deployment of fixed broadband services (ADSL), and its relatively high costs meant that over the last five years mobile broadband rapidly became the primary form of broadband access; rather than providing a complementary service to fixed services as it has done in mature economies. Despite this take-off in mobile broadband, South Africa's broadband penetration remains poor to that of other lower-middle income countries. South Africa has lost its status as 'continental leader' in broadband and Internet, and the last two decades has seen South Africa's steady decline on global ICT indices*"[159] (own emphasis)

8. The relevant stated objective of SA Connect is the following:

> "*Affordable broadband available nationally to meet the diverse needs of public and private sector users both formal and informal, consumers and citizens.*"[160]

9. SA Connect identifies the following constraints in terms of the infrastructure supporting the provision of broadband services:

   9.1. **Domestic backbone or National Long Distance Networks**. There is limited competition in remote areas of South Africa. Despite an increase in competition on some major national routes with consequent price reductions, other routes have remained uncompetitive resulting in the cost to connect remote locations remaining high. National Long Distance networks including Dark Fibre Africa, FibreCo and Liquid Telecom do have elements of wholesale and open access but are focused on main centres. This leaves significant underdevelopment in rural areas in South Africa which due to the legacy of Apartheid have limited infrastructure;[161]

   9.2. **Metropolitan networks**. There is a lack of development of infrastructure in townships driven by a misalignment between metropolitan operators and agreed municipal network models. Like in the case of national long distance networks, metropolitan infrastructure remains underdeveloped in township areas due the legacy of Apartheid. However, due to the lack of coordination

[159] *Ibid* at pg.3
[160] *Ibid* at pg.13
[161] *Ibid* at pg.27

between operators and agreed models, the wider provision of infrastructure in line with South Africa's broadband goals is limited.[162] SA Connect also recognises that municipalities directly influence the environment for the infrastructure roll-out through the granting of wayleaves and other land and property usage rights. Whilst there are some successes, this outcome is not consistent across municipalities.[163]

9.3. **Access networks**. Mobile coverage, though extensive, is limited to urban areas at high costs. Mobile access mechanism focuses on lucrative urban areas with township areas being underserviced or being serviced at high data costs. SA Connect specifically notes that extending broadband access is dependent on the following:

> *"The allocation of high demand spectrum; and*
>
> *"The provision on high tower density which requires additional investment by mobile operators"*[164]

9.4. ADSL is only provided by Telkom with limited scope for wholesale competition by other Internet service providers. SA Connect notes that Telkom has a relatively small number of ADSL subscribers and that other Internet service providers are limited in their product and service offerings given the cost and point of interconnection to the Telkom network.[165]

9.5. Fixed wireless is only available in limited areas and FTTP is very limited and costly.[166]

DTPS POLICY DIRECTIVE TO ICASA (2016)

10. In March 2016, the Minister of Telecommunications and Postal Services ("Minister") issued a policy directive to ICASA relating to the prioritisation of broadband markets for a market review.[167]

11. This directive emphasises the need for effective competition in broadband markets through established government policy documents which include the NDP and SA Connect. More specifically:

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[162] *Ibid* at pg.28
[163] *Ibid* at pg.28
[164] *Ibid* at pg.28
[165] *Ibid* at pg.29
[166] *Ibid* at pg.29
[167] Department of Telecommunications and Postal Services. 2016. Government Gazette No. 39781 – 4 March 2016.

11.1. the National Development Plan (2013) is cited as identifying the high cost of broadband Internet as a "*major hindrance*"[168] to scientific and technological progress, amongst other things. The NDP is further cited to achieve universal access to broadband, making converged services accessible at a cost comparable to South Africa's peers;[169]

11.2. the linkages between high broadband prices and South Africa's competitiveness and economic growth are highlighted in the Policy Directive through the SA Connect Policy

12. On the basis of these key policy documents, the Minister issued a policy directive to ICASA to prioritise the commencement and conclusion of an inquiry to ensure effective competition in broadband markets. The Minister states the following in such policy directive to ICASA:

> "*2.1 The Authority is hereby directed, in terms of section 3(2) of the Electronic Communications Act, 2005 (Act No. 36 of 2005) to prioritise the commencement and conclusion of an inquiry and the prescription of regulations as contemplated in section 67(4) of the Electronic Communications Act to ensure effective competition in broadband markets.*"[170]

DTPS NATIONAL ICT POLICY (2016)

13. The National Integrated ICT Policy White Paper ("**White Paper**") published by the DTPS in September 2016,[171] outlines, "*An overarching policy framework for the transformation of South Africa into an inclusive innovative digital and knowledge society*".[172] In so doing, it reinforces and extends strategies derived from SA Connect and the NDP. There is a particular emphasis placed on the universal service and access, the role of competition in achieving universal service and access and infrastructure supply-side issues. The White Paper has been approved by cabinet.[173]

14. The key areas of relevance to this priority market study are outlined below:

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[168] *Ibid* at para. 1.1.1, pg. 11
[169] *Ibid* at para. 1.1.2, pg. 11
[170] *Ibid* at para. 2.1, pg. 12
[171] Department of Telecommunications and Postal Services, 2016, *National Integrated ICT Policy White Paper* – 3 October 2016
[172] Department of Telecommunications and Postal Services, 2016, *National Integrated ICT Policy White Paper* – 3 October 2016, at para. 1.2, pg.3
[173] TechCentral, 2017. Cabinet approves ICT policy white paper. Available online: https://techcentral.co.za/cabinet-approves-ict-policy-white-paper/68863/ [Last accessed: 27 November 2017].

14.1. The impact of the dynamic nature of telecommunications markets on competition is highlighted with respect to the South African landscape. Digitisation, convergence and changes in technology impact on telecommunications market structures and the framework for competition.[174] The result is that market definitions evolve as previously distinct services become substitutable. These changes in telecommunications markets can have the following implications on competition:

(i) Certain *ex ante* competition interventions can be relaxed due to consumers having greater choice.[175]

(ii) New competition concerns can arise due to practices like bundling of content services, which result in higher prices and difficulty in switching providers.[176]

(iii) The vertical integration of content and telecommunications providers can also give rise to concerns around limited entry by new entrants and enhanced market power.[177]

14.2. To mitigate these concerns the White Paper suggests a "*more nuanced, proactive and informed ex ante competition regulation rather than a shift to ex post regulation" through "regular reviews of fair competition in individual markets and also require ongoing assessment of the relevance of traditional market definitions, taking into account substitution and new services.*"[178]

15. The White Paper places a particular focus on access and infrastructure supply-side issues. Challenges in the provision of broadband which are highlighted include: ineffective competition, supply bottlenecks, duplication of infrastructure, and inefficient use of scarce resources. Further, limited access to spectrum is seen as a barrier in the mobile data segment. In this regard, the White Paper states

> "*The current infrastructure market, particularly in relation to broadband, is characterised by fundamental market problems of ineffective competition, infrastructure sharing bottlenecks, unnecessary duplication of infrastructure, and inefficient use of*

[174] Ibid, pg. 40
[175] Ibid, pg. 41
[176] Ibid, pg. 41
[177] Ibid, pg. 41
[178] Ibid, pg. 41

scarce resources. Multiple networks have been rolled out across the country, with deployment skewed towards urban areas where infrastructure duplication is prevalent. Competition, in particular in the mobile broadband market, is limited by the number of players that have access to scarce frequency spectrum resources."[179]

16. According to the White Paper, the broadband market is characterized by strong and vertically integrated players who possess competitive advantage through their infrastructure ownership. The White Paper speaks of the following infrastructure ownership.

(i) Backbone infrastructure as a critical component of the broadband service as it enables last mile infrastructure provision. Most of this infrastructure is owned by Telkom which connects cities, towns and villages. This infrastructure cannot be replicated.[180]

(ii) Metro infrastructure being largely owned by the incumbent fixed operator, despite recent investments in fibre by municipalities and private entities. Challenges identified are lack of regulation, lack of coordination in rollout resulting in duplicated infrastructure, and insufficient and inefficient utilisation of network infrastructure.[181]

(iii) Last mile infrastructure is identified as the largest bottleneck in broadband service provision.[182] Issues are distinguished based on the medium through which the last mile broadband services occur. Last mile infrastructure is further characterized as follows.

a. *Fibre-based last mile broadband markets* are concentrated in urban areas, resulting in fibre rollout which is uncoordinated and duplicated in commercially-viable areas.[183] Further, rollout in rural areas are non-existent.

[179] Department of Telecommunications and Postal Services. 2016. *National Integrated ICT Policy White Paper* – 28 September 2016, p. 64
[180] Ibid, p. 68
[181] Ibid, p. 68
[182] Ibid, p. 69
[183] Ibid, p. 69

b. *Wireless last mile broadband access* - this market consists of over 400 licensees which could apply for access spectrum. Only six operators have access to mobile spectrum, however, and are vertically-integrated firms which self-supply and supply externally only on favourable terms, which skews competition at the service level. [2]

1. The White Paper further proposes one of the key applications of the open access approach as involving the establishment of a WOAN and the assignment of spectrum. More specifically:

1.1. All high demand spectrum will be assigned on an open access basis and all currently unassigned spectrum will be allocated this way;[3]

1.2. The WOAN will be a public-private sector-owned and managed consortium and will consist of entities that are interested in participating including holders of ECS and/or ECNS licensees, infrastructure companies private equity firms investors, SMME's, ISPs, OTT players and MVNOs;[4]

1.3. The regulator is responsible for the licensing of the WOAN. The speedy licensing of the WOAN is key to meeting the 2020 targets set out in SA Connect and the overall visions 2030 set out in the NDP;[5]

[2] Ibid, p. 69
[3] Ibid, p. 70
[4] Ibid, p. 71
[5] Ibid, p. 71