Market Definition and Competition Assessment for the Wholesale and Retail Communications Services Markets in Malawi.

Public Version of a Market Analysis Report to Malawi Communications Regulatory Authority (MACRA/IPC/EAD-MDCA/2021/04)

22 July 2022

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1 EXECUTIVE SUMMARY

1.1 Scope of Work

Incyte Consulting Ltd ("Incyte") was selected following a competitive tendering process to assist the Malawi Communications Regulatory Authority (MACRA) with a Market Definition and Competition Assessment for the Wholesale and Retail Communications Services Markets in Malawi. MACRA aims to issue its market review in the first half of 2022, the previous reviews having been published in 2015 and 2018.

A public consultation report was issued on 11 March 2022 following a workshop with industry stakeholders. Interested parties were given until early April to submit their comments. In the event only two submissions were received: a short one from Airtel Malawi and a long one from MultiChoice Malawi ("MCM"). This final report takes account of these responses, and, where appropriate, our analysis and conclusions have been modified.

The main deliverables in this project are to:

- Review and document the existing legislative and regulatory framework in relation to market analysis;
- Review and document the existing market structure for the communications sector (which consists of the electronic communications and broadcasting services markets) and determine the relevant markets for ex-ante regulation;
- Designate operator(s) with dominance in relevant markets; and
- Propose remedies suitable to solve market failure in markets where dominance is found to exist.

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1.2 Structure of the Report

This report presents the consultant's findings on the review of fixed and mobile electronic communications markets and television broadcasting markets. Following principles that are consistent with international best practice, the analysis defines relevant markets and assesses their susceptibility to ex-ante regulation. For those markets deemed susceptible to ex-ante regulation there follows an examination of competition conditions to determine whether any operators are dominant. Where there is a dominance finding, the report proposes an appropriate set of remedies to mitigate the market failures.

This public consultation report is a redacted version of Incyte's report to MACRA. All commercially confidential information, specifically financial information, has been removed and replaced with the symbol **[✂].** Otherwise, the analysis and conclusions remain the same as in the confidential report submitted to MACRA.

The structure of the report is as follows:

- Section 2 contains an overview of relevant legislation in Malawi, specifically the Communications Act, 2016 under which MACRA operates.
- Section 3 presents a review of electronic communications services in Malawi, including fixed and mobile, retail and wholesale markets.
- Section 4 presents a review of broadcasting services in Malawi, including retail and wholesale markets.

1.3 Summary of Findings

Incyte defined and analysed eleven electronic communications services markets in Malawi. Four of these markets we have found to be susceptible to ex-ante regulation, on the basis of high entry barriers and a lack of current or potential competition. In these four markets we have found that:

- Airtel is dominant in the retail mobile services market, and MACRA should impose the following remedies:
  - Obligations of non-discrimination and transparency regarding tariffs and promotional activities
  - Price cap regarding on-net/off-net differentials
  - Non-discrimination of type of call when structuring bundles.
  - Tariff notification and approval
  - Possibly a price cap on entry-level services.
- Airtel is dominant in the wholesale mobile call origination and access market, but no remedies should be imposed unless or until there is clear third-party demand for services in this market (the market currently being characterised by self-supply for the existing vertically integrated mobile operators).
- MTL is dominant in the wholesale fixed termination market, and MACRA should impose a price control remedy through termination charges based on the LRIC+ cost standard using a cost model approved by MACRA.
- Airtel, TNM and ACL are all dominant in the wholesale mobile termination market, and MACRA should impose a price control remedy through symmetrical termination charges based on the LRIC+ cost standard and using a cost model developed by MACRA.

The consultant also analysed four TV broadcasting services markets in Malawi. In two of these markets the consultant found a dominant service provider:

- MBC is dominant in the retail free-to-air TV services market, but no remedies are required because MBC's services are provided for free and are available on subscription TV platforms as well as MDBNL.

- MultiChoice[1] is presumed to be dominant in the market for retail subscription TV services. As well as a requirement to provide subscriber and revenue data to MACRA annually, a further transparency obligation is proposed and considered proportionate. There may be a case for the future imposition of further remedies such as a "wholesale-must-offer" obligation and a set-top box interoperability requirement, but these are not considered to be necessary at the present time.

[1] According to MultiChoice, it is MultiChoice Africa (MCA) that supplies subscription TV (and is therefore the dominant player in the market) while MultiChoice Malawi (MCM) only provides subscriber management services. However, while MCM is a licensed player in Malawi, MCA is not. Therefore, MACRA may either have to licence MCA or it will have to impose remedies on MCM its licensed proxy.

2 Legal Framework for all Market Reviews

2.1 Requirements of the Communications Act

Two objectives of the Malawi Communications Act, 2016 (the Act) which are set out in section 2, must be borne in mind when MACRA carries out any of its functions and exercises any of its powers and specifically when it carries out those powers and functions that are set out in section 6(2) of the Act, read with Part IV. These are:

- "(b) …remove unnecessary barriers to entry, and attract investment in the communications sector"; and
- "(f) …facilitate the provision of affordable communication services".

However, it is also relevant in the context of the scope of this project that MACRA:

- "(c) protect the interests of consumers, purchasers and other users of communication services";
- "(e) promote efficiency and competition among entities engaged in the provision of communication services or in the supply of communication equipment"; and
- "(o) carry out projects to promote the development of the communications sector…"[2]

This project requires a review of the "communications services" market. "Communications service" is defined in the Act as "<u>any electronic communications service, broadcasting service</u> or postal service". It is the first two markets that we are concerned with in this project and in this report. The methodology followed to define a market, determine if there is a dominant licensee and if there is market failure, and to determine appropriate remedies, is therefore the same for both electronic communications services and broadcasting services.

For completeness we note that the following terms are defined like this in the Act:

- "<u>electronic communications</u>" means, "the emission, transmission or reception of signals, including content or intelligence of any nature, partially or fully transmitted by any radio, electro-magnetic, photo electronic or photo optical system, but does not include__ (a) wire or direct oral communication; (b) communications made through a tone-only paging device; (c) communication from a tracking device; (d) electronic funds transfer information stored by a financial institution in a communications system used for electronic storage and the transfer of funds; or (e) postal or broadcasting service "
- "<u>broadcasting service</u>" means, "any service that consists of broadcasting, but does not include__ (a) a service that provides only data or text, whether with or without associated still images; (b) a service in which the provision of audio-visual material or audio material is incidental to the provision of that service; or (c) a service or a class of service that the Authority may, by regulation, prescribe "

[2] Other objects of the Act captured in section 6(2).

- "broadcasting" means "any form of transmission of content intended for reception by the public whether conveyed by means of radio or electronic communications ".

It may be noted that "subscriber management services" are not defined in the Act but MACRA has created a licensing category for the service.

In 2017, Incyte Consulting Ltd carried out a limited market review of certain electronic communications services in order to prepare cost models for MACRA for use in setting tariffs[3]. The cost modelling project was undertaken in terms of section 57 of the Act read with sections 58 and 66. MACRA is required to undertake annual market analyses in terms of section 57(1).

The process requires MACRA to publish for the following year, a list of all:

(i) retail and wholesale communications service markets that, in the Authority's opinion, require ex ante regulatory control; and
(ii) licensees deemed as holding a dominant position for each identified communications service market.

Section 58 of the Act deals with remedies or pro-competitive conditions that may be applied where dominance is established.

2.2 International Best Practice

MACRA is now very familiar with various internationally accepted approaches to competition regulation in the communications sector. Indeed, the draft Guidelines on Regulation of Market Dominance in the Communications Industry in Malawi ("the Guidelines")[4] are aligned in almost all ways with the approach adopted by the EU as part of its package of regulatory reforms introduced in 2002[5]. Annex A summarises the steps to be taken under the Guidelines, for comparison with the European framework.

The European framework has four main steps:

1. Market definition (among other methods, using the Hypothetical Monopolist Test (HMT));

2. Identification of markets subject to ex-ante regulation using the three criteria test (3CT);

3. Market analysis/identification of participants with Significant Market Power (SMP); and

4. Selection and imposition of remedies.

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[3] A similar exercise was carried out by Berkeley Research Group (BRG) in 2018 and by Research ICT Solutions in 2015. We summarise the findings of these reviews in section 2.3.

[4] The draft is dated October 2020.

[5] See C (2007) 5406, 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. This has been amplified by 2014/710/EU: Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation; and modified by the Commission Recommendation of 18.12.2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code.

Market Definition and the Hypothetical Monopolist Test (HMT)

Market definition is a critically important first step in competition analysis. Unless the market is defined and its boundaries in terms of services and geography are known, it is not possible to determine the extent and effectiveness of competition in that market and whether any one or more operators have SMP.

Markets for the purpose of competition analysis are defined in terms of the boundaries of material substitutability of supply and demand. This means, on the *demand-side*, that if services are not substitutes for each other to a material extent, then they are not in the same market. On the *supply-side*, it means that if one firm is not a potential alternative source for goods and services provided by another firm, then the firms are not in the same market for those specific goods and services.

Substitutability of services in terms of their characteristics and the extent to which it might be expected that users and consumers might be prepared to change to use or to increase the usage of one service in the absence or high price of another, is also one of the approaches that may be used. In terms of *supply-side substitutability*, the analysis would consider the existence and geographic reach of alternative suppliers.

The HMT, however, uses the notion of a hypothetical monopolist and asks whether a small but significant (taken to mean a 5-10% increase) non-transient (at least 1-year's duration) increase in price for the focal product is likely to be profitable for that supplier. This will depend on the number of customers that move to a substitute service or/and the extent to which alternative suppliers are enticed into the market. If the small but significant non-transient increase in price (also known as the "SSNIP") is profitable, then this will be evidence of the absence of appropriate substitutes, and therefore of the boundaries of a discrete market. If the increase is not profitable, the service definition needs to be expanded to include the substitute service(s).

Market Susceptibility to Ex Ante Regulation for Dominance and the Three Criteria Test (3CT)

Ex-ante regulation is a set of rules that are applied to specific companies as a means to prevent anti-competitive behaviour taking place in the future. This is in contrast to ex-post regulation which is designed to detect and punish anti-competitive behaviour that has taken place in the past by companies in a dominant position.

The EU framework defines a process through which decisions are made about which companies and which products are regulated and how this should be done. The 3CT refers to the three criteria that, in the EU legislation, must all be realized before a market is considered to be susceptible to ex-ante regulation – that is, before a market can be considered to be appropriate for regulation in advance of anti-competitive behaviour or abuse of dominance is alleged.

The application of the 3CT is accepted best practice. Application of the test enables a full-scale dominance analysis to be avoided in appropriate cases that are best treated in some other way.

The three threshold criteria are:

1. whether the telecommunications market under consideration is subject to high and non-transitory barriers to entry;
2. whether the telecommunications market under consideration would naturally tend, in the short or medium term, toward sufficient competition to protect the interests of customers, even without regulatory intervention; and
3. whether ex-post remedies[6] alone, in the absence of ex-ante remedies in the same telecommunications market, would likely be sufficient to address concerns related to market dominance.

These criteria need to apply all together. If the barriers to entry are not enduring, and if there is evidence of recent increased competition and likely further increased competition in the short to medium term, or if there is some reason to believe that ex post intervention by a regulatory authority might be effective, then there is good reason to refrain from regulating and not intervene with ex-ante remedies for SMP. Instead, the regulatory authority might decide to monitor developments to see if the identified market actually does develop in a competitive manner.

To assist regulators in EU Member States, the European Commission used the HMT to define a series of telecommunications product and services markets and used the 3CT to assess whether these markets were liable to ex-ante regulation. The result was a list of relevant markets which national regulatory authorities may use as the basis of their market analysis, and it was open to regulators to exclude some markets and to add others but, if they did so, they had to justify their actions based on the HMT and the 3CT. In practice most regulators chose instead to analyse the relevant markets as listed by the Commission.

Market analysis/identification of participants with Significant Market Power ("SMP")

SMP is defined in the European framework to be equivalent to the concept of "dominance" which is applied in general competition law. Specifically, a company "*shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers*."[3]

The assessment of competition and determination of single or joint dominance are therefore part of the same analysis. A market which is effectively competitive is one that does not have any players that have single or joint SMP. Conversely, if any company does have SMP, then the market is not effectively competitive. SMP can be determined by the analysis of various factors:

1. **Assessment of market share**. Market share is the primary indicator of dominance. In the EU framework market share of at least 40% creates a rebuttable presumption

[6] That is, regulatory or judicial intervention to address situations after anti-competitive conduct is alleged to have occurred, in contrast to ex ante remedies which are applied in response to or in anticipation of market failure, but before any allegation might have been made of anti-competitive conduct.

of dominance[7]. Operators having more than 40% market share in the EU will be presumed dominant unless further analysis provides clear evidence to the contrary; similarly, operators having less than 40% market share will be presumed not to be dominant unless further analysis provides clear counter-evidence.

2. **Consideration of other factors affecting dominance**. If a supplier in a market is found to exceed the defined market share threshold, then a preliminary conclusion can be drawn that this operator is dominant in this market. This conclusion can then be tested by assessing a range of additional criteria such as those mentioned in the EU Recommendations:
    a. Stability of market share
    b. Scale of the supplier
    c. Control of essential facilities
    d. Technological superiority
    e. Countervailing buyer power
    f. Access to capital
    g. Economies of scale
    h. Economies of scope
    i. Economies of density
    j. Diversification of products
    k. Vertical integration
    l. Superiority of distribution network
    m. Barriers to service expansion
    n. Absence of potential competitors
    o. Number of suppliers in the market
    p. Pricing behaviour
    q. Ability to earn above-normal profits.

    Regulatory authorities typically have discretion as to how these criteria are to be used but it is accepted that several factors can and should be taken into account depending on the circumstances of the review.

    If it appears that licensees could find it more productive to pursue a common strategy or policy in the market, and could prefer co-operating to competing with each other, then the regulator will need to consider whether the market is characterised by joint dominance – and whether the operators should be considered to be jointly dominant.

If the market was fully competitive, no one operator would be dominant – there would be a more or less equal distribution of market power between all licensees providing services within the designated market. In this context market failure means that the market, left to its own devices and without any regulatory intervention, has been or will be unable to sustain a level of effective competition or to deliver the consumer welfare benefits of cost-reflective prices, innovation, and improved productivity, that are sought through the mechanism of competition.

[7] In other countries a different market share threshold is used.

The OECD published a report in 2020[8] in which it identifies some potentially 'new' forms of harm arising in so-called digital markets:

- **Forced free riding** occurs in situations where firms rely on a dominant firm for access to consumers (e.g. the dominant firm is a platform), and the dominant firm appropriates their innovations.
- **Abusive leveraging** occurs when a dominant firm uses its position in one market to gain or increase market power in a related market.
- **Privacy policy tying** occurs when a dominant firm imposes data collection terms on consumers that allow it to enter new markets with overlapping consumers and, in so doing, entrench its position in its original market.

These new theories may in fact be similar to traditional abuse of dominance theories in some cases (forced free riding could be subject to similar analysis as refusals to deal; abusive leveraging could be considered a refusal to deal or tying). The traditional theories described in the sections above are not necessarily exhaustive – new forms of exclusionary conduct may arise. However, where new theories depart from established theories, care may be needed given the impact on market participant certainty and the need to ground exclusionary concerns in economic analysis.

Whatever the market, internationally it is the case that a finding of dominance and consequent conclusion that there has been market failure requires some action to be taken in the form of remedies.

Selection of remedies

The remedies should be no more than is required to contain the risk of harm presented by the licensee's dominance in the designated market. Regulatory authorities are required to consider existing obligations in the form of regulations to assess the likely effect of the proposed remedies licensee; choose remedies that are appropriate for specific market conditions and aimed at addressing the market failures identified by the market analysis; and ensure that remedies are proportionate to the failure (or harm to competition) that has been identified.

EU regulators are guided by the common position adopted by the European Regulators Group (ERG, now known as BEREC - Body of European Regulators for Electronic Communications).[9] This common position proposes that the following five wholesale obligations, as set out in the EU Access Directive[10], are sufficient to resolve most market failures:

- Transparency
- Non-discrimination
- Accounting separation
- Access

[8] OECD (2020), Abuse of dominance in digital markets, www.oecd.org/daf/competition/abuse-of-dominance-in-digital-markets-2020.pdf at page 56.

[9] ERG (06)33, Revised ERG Common Position on the approach to Appropriate remedies in ECNS regulatory framework.

[10] Directive 2002/19/EC

- Price control and cost accounting.

In the broadcasting services market, several remedies have been considered, depending on the findings that may be made. The broad category of remedy contained in section 58(f) of the Communications Act which provides that "*The Authority shall require any licensee found to be a dominant market player to – (f) comply with any other obligation as determined by the Authority from time to time*", read with the Guidelines, suggests that appropriate remedies will include:

- Transparency and non-discrimination;
- Accounting separation;
- The requirement to provide particular services, or conversely, to limit the provision of specific services;
- Limitations on the amount and type of premium content that may be acquired or the period for which it may be acquired;
- Rights-splitting (specifically in relation to premium sports content);
- Unbundling;
- Distribution, access and reselling obligations including a wholesale "must-offer" obligation; and/or
- Set Top Box ("STB") interoperability obligations.

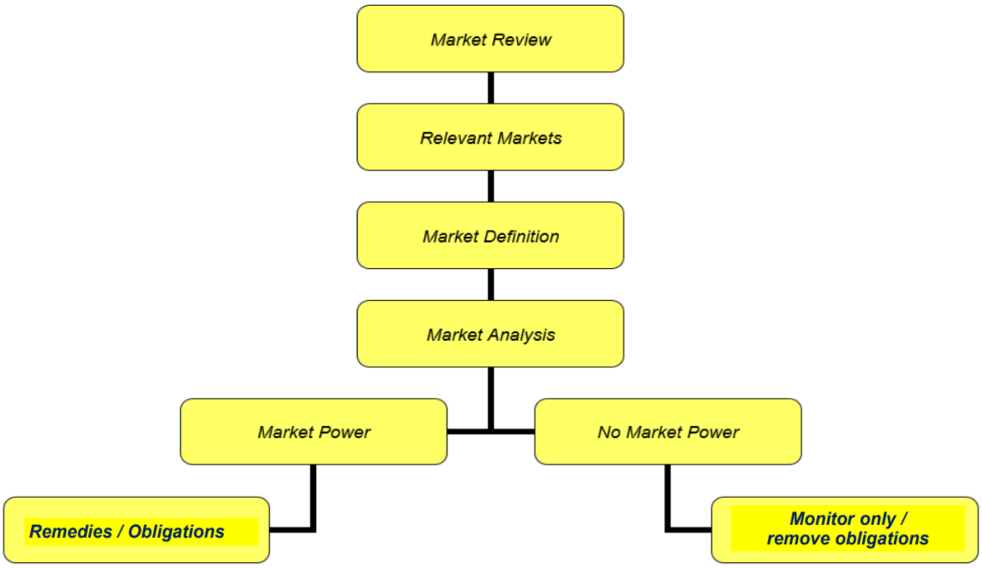
In addition, the following principles are proposed when considering remedies:

- Technology neutrality, ensuring that no technology changes are required and that technology does not influence a decision on remedies
- A specific time horizon when the remedies will be reviewed
- The modified greenfield approach, reviewing competition in retail markets before moving to consider upstream markets (ensuring that retail remedies are only applied as a last resort).

2.3 Previous Market Reviews in Malawi

2.3.1 The 2015 Market Review

The 2015 market review preceded the introduction of the Act and was based on international best practice, specifically the then applicable framework from the EU, with some modification. The simplified process proposed in the course of that project was summarised as follows:



Source: researchICTsolutions, 2015

The findings of this market review can be summarised as follows, across three principal markets:

Voice

- Fixed is very small and provided solely by MTL unless VOIP services are allowed for data service providers – MTL is therefore dominant
    - Remedy: Open up competition by enabling ISPs and other entrants to offer VOIP services, at least to closed user groups
- Mobile is dominated by Airtel & TNM because of the demand for GSM, over 90% of traffic is on-net (these licensees are co-dominant); ACL and a new entrant will be at peril without a reduction in MTRs and access to 900MHz GSM frequencies
    - Remedy: Reduce MTR to US$ 0.02 or below on a glide path, which will be to the advantage of the third operator and new entrant; offer the existing third operator (Access) a minimum of 5MHz GSM spectrum in the 900MHz band, as well as enable the fourth operator (Celcom) to operate at 900MHz; re-price 900MHz progressively in blocks as a scarce resource, including to existing operators

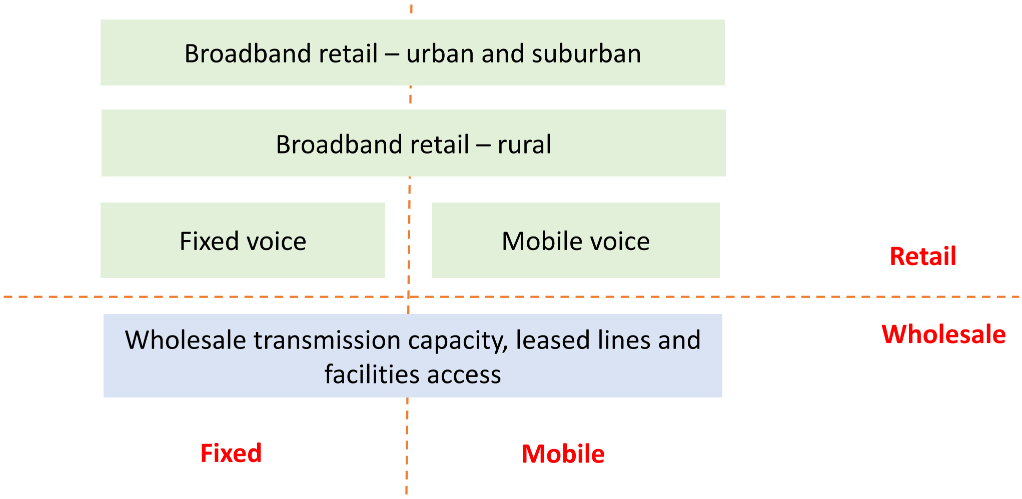
Data / Internet

- There are several high-quality business customers, including VPNs, MPLS, upper–end consumers and small businesses in the mobile broadband (retail, urban and suburban) markets
    - Remedy: No remedies are necessary in the retail market, but the quality of service in the wholesale market is influenced by continuing wholesale constraints; impose a remedy at the wholesale level which requires an improvement in quality of service

Upstream fibre, bandwidth and international access (wholesale transmission capacity, leased lines)

- The markets are largely competitive but there is a duopoly, as MTL and ESCOM are both dominant; pricing is improving but could be accelerated and both parties could ensure services become more accessible
  - Remedy: wholesale capacity must be made available on an Open Access basis, but without accounting separation i.e. impose a requirement for non-discrimination and a published reference pricing offer (no remedy is needed for international access).

The markets defined in the 2015 Market Review are summarised in the figure below:



During the course of the 2017 project in which Incyte Consulting Ltd prepared draft cost models for MACRA, it became clear that additional work in the area of competition regulation would be useful, particularly since the Act allows MACRA an opportunity to create the appropriate framework from the ground up. Incyte proposed a number of steps that might usefully be taken to give effect to a new framework. These included:

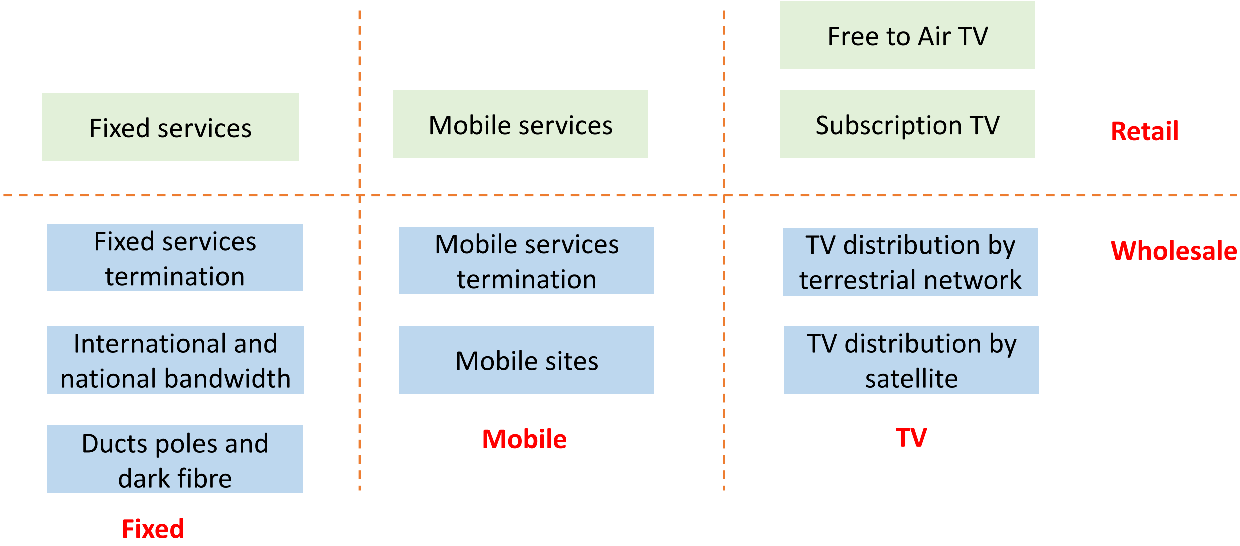
1. Listing the common elements including market definition which is mentioned briefly in section 57 in more detail;
2. Setting out MACRA's preferred approach to competition regulation e.g. to define and if necessary, to regulate wholesale markets prior to regulating the linked retail market. There are of course some service markets that are purely retail in nature – mobile money might be such a market;
3. Addressing the concept of "essential facilities" (which is mentioned in the Act), in more detail, particularly as regards the relationship to the determination of dominance;
4. Linking specific remedies to identified market failures other than in a general way as set out in section 58, and perhaps indicating with more specificity which remedy might be applied to which type of failure; and
5. Addressing the relevant or appropriate time horizon for a forward-looking review of the markets identified.

2.3.2 The 2018 Market Review

The 2018 review was carried out by Berkeley Research Group ("BRG"). This review also included a review of broadcasting services.

BRG's high-level finding was that the electronic communications market could be divided into retail and wholesale markets, namely:

1. two retail markets, namely mobile and fixed; and
2. five wholesale markets, namely ducts, poles and dark fibre infrastructure; international and national bandwidth/leased lines; mobile sites; mobile termination; and fixed termination.



In BRG's analysis of competition in these markets, they found that the mobile market shares are very stable with the two large mobile operators together having a very large market share. However, BRG also found that that prices for both mobile voice and mobile data are around the middle of the range for comparative countries in the region; and that these prices have generally been coming down over time and the dynamic tariff discounting systems deployed by both large mobile operators for voice traffic are benefitting customers by offering them prices that are significantly below the headline rates.

Alongside this finding in 2018, BRG made several very useful notes regarding how the market could be managed in the future. These were:

- The mobile operators should be "put on watch" that the assessment of apparently effective competition in the market was finely balanced on specific factors observed at that time, and that any indications that competition was weakening should be met with regulatory measures.
- The market for ducts, poles and dark fibre infrastructure was then in an early stage of development. Several entities owned or had rights to such infrastructure (both operators and other entities) but typically on a limited selection of routes. However, at the time there were also limited barriers to new players developing their own passive infrastructure and BRG therefore concluded that this market is competitive.

- The wholesale market for international and national bandwidth was considered to be in a similar position at that time. BRG noted that there were only a few players in this market but new infrastructure had been developed over previous years and operators did compete with each other for business. This market was regarded as competitive at the time.
- The wholesale market for mobile sites, on the other hand, is heavily concentrated in the two large mobile operators – TNM and Airtel. The characteristics of this market mean that competition is not working effectively and we conclude that these two operators are jointly dominant.
- Each operator is dominant in the provision of wholesale termination.
- In common with their retail market analysis, BRG noted that any significant changes in the structure of the wholesale markets (e.g. consolidation of long-haul fibre operators) might also lead to a significant lessening of competition; and suggested that MACRA should monitor market developments closely and intervene if necessary.

The 2018 Market Review also covered the broadcasting services market, which comprises radio and television, and included services that are distributed over terrestrial and satellite networks. BRG defined 8 markets –

1. 3 retail markets, namely radio, subscription TV and free-to-air TV; and
2. 5 wholesale markets, being radio signal distribution, TV signal distribution via terrestrial networks, TV signal distribution via satellite, radio content production and TV content production.

BRG noted the discrepancy between the positions of each of MCM and MultiChoice Africa (supplying SMS under a licence, but subscription television services without a licence, respectively) but concluded, "*Despite this licensing structure, it is more appropriate to define the market based on the service being consumed by the customer which is subscription-based TV. This can be considered as a bundle of two products – subscriber management and the content itself. Hence, even though one of these products is produced outside of Malawi, they are consumed together and should therefore be considered as a single market.*"

BRG made the following findings:

- MBC was dominant in the free-to-air TV market but BRG did not recommend that any regulatory remedy be applied to it as its services are provided free to end-users
- Competition in the radio market and the subscription TV market was likely effective given that the market for subscription TV appeared to have admitted several new players whose growth and hence ability to constrain MultiChoice Africa, was anticipated
- In the wholesale markets, the only dominant player is MDBNL which was dominant in the market for terrestrial distribution of TV signals. As a result, MDBNL should be regulated and be required to offer distribution services on a cost-oriented and fully non-discriminatory basis

2.4 Approach to the 2022 Communications Market Review

During the course of 2021, MACRA issued draft Guidelines on Regulation of Market Dominance in the Communications Industry. The consultant understands that the final version of the Guidelines has been approved by the MACRA Board but has not yet been published. Nevertheless, these Guidelines have been taken into account in this review.

We note from the draft Guidelines that: "*The legislative mandate to evaluate and address market failures in the communications sector stems from the Malawi Government's policy of creating a competitive environment in the communications services sector through the Authority and the entire economy through the Competition and Fair Trading Commission under the Competition and Fair Trading Act*."

The Guidelines provide for co-operation between MACRA and the Fair Trading Commission (FTC). We also note that the Guidelines do not replace or amend the Act and may be amended themselves from time to time. We have therefore adopted them precisely as a guide rather than a rule, to be adopted only when consistent with the Act and in accordance with international best practice.

The following principles are highlighted as underpinning each market review to be undertaken by MACRA:

1. **Market forces** – to the extent that markets or market segments are competitive, MACRA will primarily rely on negotiated private terms and voluntary compliance, subject to minimum requirements designed to protect consumers and prevent anti-competitive conduct.
2. **Effective and fair competition** – recognising the effectiveness of market forces in promoting consumer welfare, MACRA will endeavour to take resolute measures to promote and maintain effective and fair competition; such as a) Remove or minimize any artificial form of impediment to market entry and exit; b) Curtail any concentration of market power that has the effect of unreasonably restricting competition; c) Eliminate anti-competitive behaviour among operators in the communications service sector; d) Ensure that operators in the communications service sector have easy access to information on market conditions; and e) Ensure that there is reasonable access to networks to prevent impediments to effective competition and market growth.
3. **Encourage infrastructure-sharing** – licensees should not be investing in infrastructure that constitutes duplication of infrastructure already deployed by other competing licensees. MACRA wishes to promote full utilization of existing infrastructure, subject to technical feasibility.
4. **Collaboration with relevant stakeholders** – MACRA intends to foster collaboration with agencies and sectoral regulators whose mandates contribute to promoting competition in the communications service sector, to avoid duplication of effort and conflicts.
5. **Pro-active regulatory intervention** – MACRA can act if it determines that a licensee has engaged in conduct that is likely to substantially lessen competition in the communications service sector, whether or not competitive injury has resulted.

The Guidelines also set out the various steps to be followed in undertaking a market review, which are largely in alignment with the international approaches described above.

We note also that the Minister of Information, MACRA, together with the e-government Department and MBDNL met on 14 February 2022 to launch a review of the National ICT policy and the Malawi Digital Broadcasting policy[11]. Other draft Regulations published on the MACRA website are to be finalised in the coming months. This report has been framed within the context of the documents available at the date of the report.

2.5 Responses to the Public Consultation

Incyte presented its draft findings at a stakeholder workshop held in Lilongwe on 5 April 2022. Following the meeting a Public Consultation Report was distributed and responses invited from the industry.

MACRA specifically requested responses, supported by evidence, on:

- the methodology and conceptual framework to identify markets and determine their relevance for ex-ante regulation;
- the conclusions regarding the dominant supplier; and
- the proposed remedies to be imposed on the dominant licensees in markets where there is market failure.

In the event only two responses were received, even after MACRA extended the deadlines for submission. These responses were from Airtel and MultiChoice Malawi.

2.5.1 Airtel

In a short response to the public consultation, Airtel submitted that:

- *"The rules set in the draft Guidelines as developed by MACRA in consultation with the industry, set the market share threshold of 30% to determine dominance. On that basis Airtel does not object to the conclusion that Airtel Malawi plc is a dominant player.*
- *"By the same rules, we are however surprised that the Consultants have singled out Airtel to be dominant. It is evident that both Airtel Malawi plc and TNM plc have market shares in excess of 30% in the retail mobile markets. The guidelines are clear that in such a situation both Airtel Malawi plc and TNM would have been declared dominant. Singling out Airtel amounts to selective application of the guidelines, and brings unfairness. We feel that if MACRA upholds the recommendations of the Consultant, this will not create a level playing field in the market. We therefore request the Authority to review this advice from the Consultants and accordingly declare joint dominance to bring fairness.*

[11] Malawi to review the National ICT policy and Digital Broadcasting policy - MACRA

- *"We also submit that while Airtel and TNM should be declared jointly dominant, the two operators have not demonstrated abusive behaviours of misuse of their dominant market positions. Airtel is also aware that in such a case, MACRA has the mandate to observe the behaviours demonstrated by the two operators*."

Airtel concluded by calling for restraint on the part of MACRA not to invoke its mandate of applying the associated remedies as advised by the Consultants in the report on Airtel alone to avoid stifling innovation and growth in the industry.

2.5.2 MultiChoice

MultiChoice Malawi ("MCM") submitted a long and detailed response to the public consultation, supported by a report from the consultants Genesis Analytics ("Genesis"). The submissions were made in relation to the approach taken to the market review of the subscription broadcasting television market in particular, despite the fact that MCM insisted that they did not represent MultiChoice Africa ("MCA") which is the entity responsible for distributing content into Malawi, for reception on set top boxes ("STBs") distributed by MCM.

Since section 104 of the Act provides that, "*A person who is not a citizen of Malawi shall not, directly or indirectly_- (a) exercise control over content service; or (b) have a financial interest or an interest in voting shares or paid up capital in content service licence, exceeding 20%",* we have clarified with MCM whether or not they require us to consider a market for subscription management services in which they participate, or whether they do in fact consider there to be a subscription television market in Malawi for the provision of content services to Malawians in which case MCA must apply for a licence.

(For convenience, we refer to "MultiChoice" in this report as constituting both MCM and MCA where submissions are concerned, although we draw a distinction between the two when we consider which markets are relevant.)

In 2018, the market for subscription television broadcasting was considered as part of the market review undertaken at the time by BRG, whose report stated, "*It is worth noting that the way licenses for DTH-based services are structured in Malawi since 2015 is that the licensable activity is "subscriber management". A key reason for this is that the only activity that is taking place within the territory of Malawi is the management of subscribers and the TV stations have no broadcasting or content production activities within the country. Despite this licensing structure, it is more appropriate to define the market based on the service being consumed by the customer which is subscription-based TV. This can be considered as a bundle of two products – subscriber management and the content itself. Hence, even though one of these products is produced outside of Malawi, they are consumed together and should therefore be considered as a single market."*

Incyte has reviewed and responded (in Chapter 4 of this report) to the various points put forward by MultiChoice and Genesis to demonstrate the validity of the market definitions, their susceptibility to ex-ante regulation, the determination of dominance and the proposed remedies.

The overall argument put forward by MCM was that the approach to the analysis of TV markets in the public consultation report was less rigorous than that applied to electronic communication markets. This conclusion appears to have been reached, at least in part, because the TV market analysis (Chapter 4 of this report) was addressed separately from the theoretical framework that in the previous chapter was woven into the analysis of electronic communication services markets (in Chapter 3). This structural issue is perhaps unfortunate, but it arose because of the extension of the project scope to cover TV markets. It does not of itself make the findings in TV markets any less robust: the same theoretical framework has been used in both electronic communications and broadcasting markets (which are both included in the Act's definition of "communications services"), it is just the presentation that varies. This was and is quite clear from the headings in section 2 of the Report.

MultiChoice also argued that "*it is important to consider the dynamic nature of competition which, in the communications industry, is fuelled by significant rapid and ongoing technological developments and structural changes, which add considerable uncertainty to market activity*." This point may be valid, and indeed appears to have been the main reason why MultiChoice was not found dominant in the 2018 market review, when the market was found to be prospectively competitive. However, our analysis has shown that no such development occurred in practice between 2018 and 2021 – a more than reasonable period over which to assess the development of competition; and MultiChoice has provided no good reason, absent regulation, to believe that it will change in the next three years either. Despite several comments being made in each of the letter from MCM, the submission made by MCM ostensibly on its own behalf, and the Genesis report, there is no evidence provided of an increase in competition in the subscription television broadcasting market or indeed in the SMS market, that would demonstrate that imposing remedies on MCM and/or MultiChoice Africa at this stage would be improper or disproportionate or unreasonable.

We agree with MultiChoice that there is a need to ensure a cautious and impartial approach in the assessment of competition and the design of competition regulation in communications markets (including broadcasting and content service provision). However, it is also important to understand the entities you are supposed to be considering in a particular market. It appears to us – despite protestations to the contrary from MultiChoice – that MCA naturally and legally falls to be regulated within the borders of Malawi if it is to continue to provide services within Malawi. MultiChoice is, on any measure, dominant in the market for subscription television broadcasting in Malawi, and should therefore be regulated by MACRA, whether this is through direct regulation of MCA or indirect regulation of MCM as proxy for MultiChoice. We expand on this in Chapter 4 of the report.

3 ELECTRONIC COMMUNICATIONS SERVICES MARKET REVIEW

3.1 Market definition

Market definition is the first essential element within the overall assessment of competition and market power.

As in other countries, retail electronic communications services in Malawi are mainly voice, messaging, access to the internet and leased lines, and include both fixed and mobile services. Retail services can be national or international. International mobile roaming may also be provided. Wholesale services include access and call origination, transit services, and dedicated capacity in the form of leased lines, and termination. Wholesale services are available on both fixed and mobile networks. Wholesale access to fixed networks may also cover passive network elements such as ducts and poles and mobile site-sharing includes towers. Wholesale capacity may be national or international.

There are two main risks when defining market boundaries:

- defining a too narrow market – making competition appear more limited
- identifying excessively broad market boundaries – leading to a conclusion of greater levels of competition.

To avoid these risks the market definition process begins with a proposed initial set of markets ("candidate markets") and then tests their boundaries in order to understand the limits of demand and supply side substitution among services. If two services constitute a price constraint on each other they should be considered part of the same market. If not, they are in separate markets.

3.1.1 Candidate markets

The set of candidate markets suggested for the analysis is:

- Mobile retail services
- Fixed retail services
- Retail leased lines
- Wholesale fixed infrastructure access
- Wholesale fixed call origination
- Wholesale broadband access
- Wholesale mobile access and call origination
- Wholesale mobile infrastructure access
- Wholesale fixed termination
- Wholesale mobile termination
- Wholesale leased lines
- Wholesale access to international capacity

The proposed set of markets also corresponds to the services currently offered in Malawi by the licensed operators. The data request distributed to and returned by operators, and in some cases the services advertised in their websites, are the main sources for defining the set of proposed markets. It is unfortunate that we did not receive as full a set of data as asked for. This list of candidate markets includes three markets not considered in MACRA's previous market analyses:

- Retail leased lines
- Wholesale fixed call origination
- Wholesale mobile access and call origination.

Delineating candidate markets

According to established best practice, the methodology adopted in previous reviews and the Guidelines, the definition of the retail and wholesale markets in Malawi is based on an analysis of demand and supply substitutability between different services which could potentially form part of one or more markets. The process of definition of a market consists in identifying all services that are sufficiently substitutable, not only in terms of their intrinsic characteristics, by virtue of which they are particularly suitable for satisfying the needs of consumers, but also in terms of their prices or their intended use.

The limits of substitution are typically addressed through an analysis of what would happen if a hypothetical monopolist within the candidate market were to make a small but significant non-transitory increase in prices, which is often referred to as a SSNIP. A SSNIP typically means a 10% increase in prices sustained for 1 year. This is referred to as the Hypothetical Monopolist Test (or HMT) and forms part of MACRA's approved methodology. The most relevant question, that of demand-side substitutability, is whether users would move on to other services or products in response to such a SSNIP. If they would, then those other services or products should be considered to be in the same market.

In the course of this analysis we have also considered the possibility of substitution between access, voice calls and data services and then we analysed whether the segmentation of the market between residential and non-residential customers is relevant.

The geographical dimension of market definition defines a market in terms of the common location where the needs of consumers co-exist with the products or services designed to meet those needs. Geographical considerations are important to determine the limits of substitutability of supply and demand. Traditionally, the value and nature of goods and services would significantly determine how far customers could go to purchase goods and services and how far companies could go to supply or deliver them. The geographic dimension of markets is undergoing a profound change with the development of electronic commerce and payment systems, particularly those accessed via the public Internet. However, within the scope of telecommunications regulation, there is still a general propensity to define markets as national, unless there are demonstrable regional variations in supply or demand. In this market review, we do not consider digital markets.

In accordance with both best practices in the electronic communications sector and the Guidelines, the definition of the geographic scope of a market is generally determined with reference to the area covered by a network and the existence of legal and other regulatory instruments such as the licence terms which may oblige operators to provide services or networks or both, within a defined area. Unless there are factors that suggest this is not the case, each identified market is considered to be national. This perspective is probably also supported by the fact that existing operators operate at a national level and do not differentiate their services in terms of price and availability between different geographical regions of Malawi. Temporary promotions at a local level should not be considered to justify regional differences as this would be likely to skew the market definition.

In summary, in defining the markets for electronic communications services in Malawi, we conclude that all electronic communications markets are national in scope.

3.1.2 Mobile retail services

Mobile retail services include access, voice calls, text messages and internet access. Mobile phone services can be provided in Malawi using a mix of technologies which include 2G, 3G and 4G, depending on the extent to which they have been deployed in the relevant networks. However, market analysis uses a technology-neutral approach. Therefore, when defining markets there is no distinction between the technologies on which mobile services are provided. We note that the 2015 review did consider the way in which spectrum was allocated between operators and that was a useful way to characterise the market at that point in time. However, as we understand that MACRA has granted substantially equivalent rights to licensees subsequent to this review, we do not consider this further.

Three mobile operators are currently licensed and operating in Malawi. From the supply point of view, the mobile market has considerable barriers to entry, which restricts the substitution of the supply side by a fixed network operator e.g. the fact that a user can be mobile while maintaining a call which is not possible on a fixed network, , access to spectrum and the size of the investment required to build a mobile network.

In defining mobile services market it is important to determine whether market boundaries should include substitute services from the demand perspective, and a similar analysis took place in 2018. In that review, BRG noted, "*The choice of approach to market definition depends partly on the economics of the national market under consideration and the relative complexity of the retail landscape*." The potential substitutes are:

- Mobile access and mobile call services
- Prepaid and post-paid mobile access
- Voice calls and text messages
- Voice calls and short messages using applications accessible via mobile internet access and mobile voice and text messaging services
- On-net and off-net calls
- Fixed calls and mobile calls
- Service bundles.

Access and calls

Mobile access and mobile services are complementary, as customers need mobile access to use mobile voice services, send text messages or access the Internet. In addition, several of these services are generally included in the same offer, that is, the purchase of access includes voice minutes, text messages or Internet access. We believe, therefore, that these services are part of the same market.

Post-paid and pre-paid mobile access

Mobile phone services are generally offered on a prepaid or post-paid basis. Prepaid customers are granted credit for a specified amount paid upfront, which can be used for a certain number of calls and other services such as text messages or mobile Internet access. Post-paid mobile customers sign a long-term contract with the service provider, in which an amount is paid regularly (usually monthly) in exchange for the services for the term of the contract.

In general, prepaid rates tend to target a specific subset of customers (that is, low-use customers and those who cannot afford a long-term plan or are too risky to make credit available). Post-paid services are, however, frequently offered at promotional discounts (for example, a deduction of minutes or free text messages) to encourage a long-term contractual commitment. Some prepaid promotions may also include free voice minute grants or text messages, but the promotion is usually for a smaller amount compared to post-paid. On the supply side, prepaid and post-paid services are able to provide the same basic functionality (i.e. voice calls and text messages).

There is some substitution on the demand-side between services in each type of contract, as the prices per unit of prepaid and post-paid services appear to be similar and the services are identical in terms of quality and availability. The only significant barrier to switching from prepaid to post-paid is that customers are required to make a substantial deposit to subscribe to a post-paid contract and pass a credit review. Conversely, it would be extremely easy for a customer with a post-paid contract to obtain a prepaid SIM and enjoy the services. On the supply-side, it would be relatively easy for a service provider to enter the prepaid market from the post-paid market or vice versa. All mobile service providers in Malawi already offer both services; therefore, a market trend towards a specific product offering that is made available by one of the three mobile operators can be followed quickly by another with little additional cost on the part of either operator.

For these reasons, we propose that access to prepaid and post-paid mobile services be considered as part of the same market.

Voice calls and text messages

Both voice calls and text messages are a means of direct communication between two subscribers, so the latter can be an appropriate functional alternative to voice calls, even if only for a subset of calls. While text messages could replace shorter voice calls, they are unlikely to replace all calls. Service revenue data in Malawi suggest that voice calls are still widely preferred over text messages, the latter representing only 6% of voice service revenues. Similarly, while voice services have shown strong growth in 2021, SMS revenues have remained flat.

The strong preference for voice calls over text messages among mobile subscribers in Malawi can be price-driven or just be contextual. Without further evidence, for example a market study among users of mobile services, it is not clear whether a SSNIP for mobile voice calls would lead to a significant replacement of those calls by text messages on the demand side. In Malawi, both services show no signs of decline over the years but there is not a clear pattern of substitution. On the supply side, voice and text messages can be bought individually in Malawi. However, it is also possible to buy packages that include voice and text messages.

In summary, there is no evidence of substitutability on the supply side but in functional terms there is potential for substitution on the demand side, so we may conclude that voice calls and text messages belong to the same market.

OTT applications

Traditional voice calls and SMS services can in some situations be substituted by voice calls and short messages using applications accessible via mobile internet access (known as "over the top" services or OTT). Usually voice services (often referred to as voice over IP or VOIP) or voice messages, offered over the internet offer no guarantees as to the level of quality obtained. This is because the providers of these services have no control over the underlying mobile network – the providers can be the network operator themselves, or internet service providers (ISPs) or OTT providers. Consequently, OTTs are transmitted based on a "best efforts" principle.

OTT services can therefore be an adequate functional substitute for traditional mobile voice calls and text messages, and they are often cheaper or even free. The only costs for the user of these services are related to access to the mobile data package that they subscribe to and the amount of mobile data that is consumed in the use of the OTT application.

However, the low penetration of smartphones in Malawi (even after some years) means that the demand for applications that enable these services is low and, therefore, voice calls and text messages are likely not easily replaceable for most mobile subscribers. In addition, as we say above, these services do not offer the same level of reliability or quality as more 'traditional' mobile phone services. It should also be noted that currently the coverage and capacity of mobile 4G data networks in Malawi is still limited. As voice networks have more extensive coverage, subscribers have a greater opportunity to make a successful and satisfactory quality call through the operator's access network than a VOIP or OTT call on the operator's mobile internet access.

On the supply side, it is possible for an operator to introduce its own VoIP or instant messaging services accessible through data services, which suggests a degree of substitutability, although issues related to service quality and coverage remain. However, for a new provider of instant messaging (OTT) or VoIP applications to enter the mobile market would be difficult and expensive, as this would require very substantial capital investments (for example, infrastructure costs to become a mobile network operator) and access to spectrum, which is a scarce resource.

Therefore, we do not consider VoIP services over mobile broadband and instant messaging or OTT services to be full substitutes for mobile voice and text services in Malawi at the moment. However, this is an issue that needs to be kept under review as the market develops.

Fixed-mobile substitution

In analysing mobile markets, it is common to analyse the extent to which the service provided at a fixed location constitutes a substitute product for a mobile voice call. The two services present some similar characteristics: both services are associated with a unique phone number, both allow end users to make and receive calls to and from other fixed and mobile users; and both services generally have a usage-based pricing component. However, there are several important aspects in which fixed and mobile services differ, considered briefly above: mobile access is not restricted to a fixed location; mobile services can be used while the user is on the move; and mobile numbers are usually associated with a single individual, while a landline can be shared between multiple users who live or work in the same location.

Currently, the penetration of fixed lines in Malawi is very low compared to the number of mobile subscribers. In general, in Africa, where the penetration of fixed services is low, these are purchased mainly by the corporate segment, with penetration in the residential segment being less relevant. The cost of fixed services is a more significant barrier to demand for the residential segment as it implies a continuous cost of access even without use. Fixed-line subscribers number fewer than 1 per 100 households; mobile-cellular services are expanding but network coverage is limited and is based around the main urban areas; with mobile-cellular subscriber numbers at roughly 52 per 100 households in 2020[12].

The distinct characteristics of fixed and mobile services suggest that fixed and mobile access are not substitute services. It is better to see them as complementary services, since we note that many of the fixed-line users also use mobile services. It is reasonable to assume that consumers will not switch from a mobile subscription to a fixed line in response to a mobile SSNIP, given the convenience and mobility inherent in the former. Likewise, business users would be unlikely to abandon their fixed lines if a SSNIP was applied, given the quality and reliability of calls and the specific convenience of the different functionality. Thus, and for the reasons mentioned above, fixed voice services, if any, do not form part of the market for mobile voice services.

National and international calls

Mobile voice calls and text messages can be segmented according to the destination called, that is, national or international. As for the possible replacement of national, international and roaming calls, obviously their functionality allows us to say that they are not substitutes. The same applies to text messages. Roaming calls also have their own characteristics that differentiate them from national and international calls. Roaming on international networks allows customers on a mobile network to make or receive calls while abroad, or both, when dependent on another operator.

Each service has different price characteristics based on the type of call made or message sent, with national services usually being substantially lower in price than international services and frequently having different functionalities. There is no possible substitution between national and international services due to a price increase (SSNIP) in any of these services.

In addition, while international calls vary significantly by destination, national calls generally vary only in some limited dimensions (on-net vs. off-net and / day vs. night or geography). Due to functional and price differences between national and international services and the

[12] Malawi - The World Factbook (cia.gov)

ability to separate access from international services, we can conclude that there are separate retail markets for national voice and text message services and the corresponding international services.

In general, customers of mobile networks have very different perceptions about national, international and roaming calls and their prices. Roaming and international voice calls are sold in separate bundles from national calls. Airtel significantly differentiates the price between national on-net and off-net calls. In order to make off-net calls, Airtel clients have to buy a different bundle and pay much higher rates as shown below.

Airtel national calls tariffs of daily bundles (2022)

Voice Bundles	Bundle name	Type	Price (MKW)	Minutes	Price/Min
Daily Bundles	Chezani 100	On-net	100	8	13
	Chezani 200	On-net	200	18	11
	Chezani 500	On-net	500	100	5

Airtel Kugulula voice tariffs (MKW/min./2022)

Call type	Day rate	Night rate
On-net	30	5
Off-net	30	30

Airtel also advertises low calling rates to other Airtel customers with a product called Airtel Zone. The client has to dial *135*0# to check available discounts. For subscribers buying at least 1000 MKW bundles, of either voice or data, Airtel's Khethekhethe Loyalty programme provides bonus in voice minutes or Mb of data that must be used within 24 hours.

TNM's standard tariffs for national voice calls (TNM Yofewa) stands currently at 28 MKW/min. for both on-net and off-net calls. Yofewa further offers bigger savings between 10pm and 6am. Customers can call at a rate of MKW 4.95/minute. Comparing the price of international calls originating on Malawi mobile networks with the price of national calls, shows the former is usually much higher than the latter.

Airtel international calls tariffs (2022)

Zone	Tariff (MWK/min)
South Africa	172
Zone 1	93,5
Zone 2	140
Zone 3	230
Zone 4	250
Zone 5	280
Zone 6	350
Zone 7	450
Zone 8	720
Zone 9	4000

TNM international calls originating on its mobile network have similar values but zones are classified in a different way. Additionally, TNM zone 7 has a cost of 100 MKW/minute, a much lower tariff than all the other zones. Tariffs to South Africa are of the same magnitude as Airtel's tariffs. International calls originating on the fixed and mobile networks have similar price levels.

It could be argued that country-specific routes should be treated as separate markets, as they are generally not substitutable. However, a detailed analysis of the route-by-route market is not justified at this time, since there is no current intention or reason to regulate the market in this way. In other jurisdictions it is sometimes suggested that, when national, international and roaming calling services are offered in bundles, although there is no substitution on the demand side, there is substitution on the supply side. An operator may enter the market following a small, non-transitory price increase whenever it is possible to profitably acquire and sell the wholesale elements necessary to provide that service. It should be noted, however, that all operators that are in a position to provide national, international and international roaming services in Malawi already effectively provide these services. Thus, it is not relevant to consider substitutability on the supply side.

The international calling services provided by Airtel and TNM compete against a variety of alternative means of international communication, including:

- VOIP and OTT communications, such as Skype, Viber and WhatsApp;
- social networks and other messaging services, such as Facebook, Instagram and Twitter;
- incoming calls, insofar as where the price (in another country) for calls to Malawi is cheaper than the price (in Malawi) for outgoing calls, regular callers tend to favour the option of using incoming calls. This can occur, for example, between companies and families in circumstances where price is an important factor.

As noted above, international calls using traditional telecommunications networks have been affected by the availability of calls on application-based services (OTTs) available on the internet. These services provide a direct replacement for these calls at a much lower price or even free of charge (where the call takes place via an Internet connection). Neither MACRA nor the operators in Malawi have data on the extent of use of these applications for international calls or text messages. International estimates may not apply to the specific case of Malawi. However, they are not exact substitutes as the quality of voice calls is lower and requires the other end to have the same application.

Considering that the analysis of markets is not an end in itself but part of a process of analysis of the relevant markets, in order to assess in the next steps, the need for regulatory intervention in relation to operators with possible significant market power, the preliminary position is to consider that text messages and voice calls to national subscribers and recipients outside Malawi are part of the same market. Although there is evidence for disaggregation of calls and messages into separate national and international markets, this is not necessary as it is unlikely to alter the conclusions regarding the current level of competition.

Mobile internet access

Mobile internet access services are used to make it possible, through a mobile web browser, to access different pages and / or to run Internet-based applications on a mobile handset.

So, from the point of view of substitution they are a totally different service from voice and text messages. In Malawi, mobile internet access services were estimated to account for 40% of mobile services total revenues[13] in 2021. This is not a small segment of the market, however, as still only a fraction of the mobile subscribers is able to access the internet through a mobile handset because of the high cost and low-income average. Also, the supply of mobile services in Malawi allows consumers to buy distinct packages for each individual service so mobile internet access can be excluded.

A minimum amount of capacity for data is normally required for the service to be of sufficient quality although different capacities are necessary depending on the use (for example, accessing a text page requires less capacity than streaming a video). In the past, mobile bandwidth capacity may have been limited compared to fixed access, but mobile access "speeds" have improved substantially. 3G can usually achieve download rates of over 40 Mbps, subject to congestion, and will increase further with 4G already available in Malawi in urban centres and certain districts. As a result, applications that were previously limited to fixed broadband are increasingly accessible using mobile services.

For purposes of the definition of the market in the mobile sector, no distinction is made between the technologies on which mobile services are provided, unless there is a functional difference due to technical limitations or restrictions. Mobile broadband internet is generally aimed at customers who want to access the internet on the move, thus differentiating them from fixed services. The usage characteristics of mobile broadband differs significantly from that of fixed and fixed wireless broadband. Mobile access is also more personal. Users of fixed internet access services tend to have much higher bandwidth requirements and expectations than mobile users, because the types of applications typically used with a fixed connection consume more bandwidth and resources and / or are designed to be used with a stable internet connection. Such stability sometimes does not exist in mobility.

Mobile internet access is generally offered to residential and business customers, with little price discrimination or difference in service between the two groups of customers. While there may be mobile broadband offers with higher levels of service and at a higher price, these services do not appear to be widely provided by mobile operators in Malawi, nor have we observed significant demand among business customers to justify the existence of separate markets for residential services. Therefore, we believe that there is a single market for residential and business consumers.

Service bundles

Mobile service providers often provide voice, text and data services together as bundles that are defined by the price, quantities and expiration time. In markets where these services are mostly sold together as bundles and/or do not exist as separate services, it is common to consider them collectively.

In the case of Malawi, it was not possible to find evidence of the sale of bundled voice, SMS and data services. Therefore, it's assumed that a significant proportion of these services are sold as individual services and a significant share of mobile subscribers still only buy voice

[13] Voice, text messages and internet access services

and SMS services. Consumers buy access to services through the purchase of a SIM card and usually pay based on usage. The price paid by consumers for each individual service is the advertised rates by each operator. However, promotional offers are common in Malawi. Dynamic tariffing can make available attractive offers at different areas of the country and at different times of the day. Promotional offers should be temporary but we believe they probably renew themselves continuously. As a result, consumers end up paying a much lower rate than the headline tariffs. This makes it even more difficult to assess the effective rates that consumers end up paying.

Conclusion

There appear to be two distinct retail mobile services markets:

- Retail mobile voice and text message services which includes residential and business segments and both national and international destinations;
- Retail mobile internet access that covers the residential and business segments, and is distinct from retail fixed broadband access services.

Alternatively, it would be possible to define a single retail mobile services market, as it is unlikely that this choice will have a significant effect on the assessment of competition.

3.1.3 Fixed retail services

The provision of access to communications services at a fixed location is made via a connection that allows end-users to make and receive local, national and international voice calls and/or data communications, at data rates that are sufficient to allow some form of internet access. In Malawi, according to information provided by the licensed operators, access to services at a fixed location is possible through copper pairs, ADSL technology, fibre, 4G wireless access, WiMax and VSAT.

In Malawi the fixed services market is very small, especially when compared to the mobile segment. In September 2021 the total number of fixed service subscribers in Malawi was estimated at around 14,000, a relatively stable number in the last four years, but voice-only subscribers continue to decline. It was also possible to quantify the number of subscribers of fixed broadband services. The number of subscribers corresponds to slightly more than half of the total fixed subscribers and, for the years in which data is available, is shown as a growing segment:

Retail fixed services number of subscribers (2018-2021)

	2018	2019	2020	2021*
Total Fixed services	15 002	15 678	15 006	14 059
Fixed voice only	9 512	9 263	7 536	6 026
Fixed broadband	5 490	6 415	7 470	8 033

This distinction between voice-only and broadband services raises the question whether separate retail markets should be considered for fixed access/voice calls and fixed broadband internet access. In Malawi there is only one supplier of fixed voice services (MTL), which is the same position as that observed in previous market analyses, whereas there are several competitors for the fixed broadband segment. Also fixed services are not sold as voice and internet access bundles: consumers in Malawi have to buy these services separately.

Fixed access and voice services

In most jurisdictions a user typically purchases access at a fixed location in the form of an initial connection charge and a subsequent monthly payment to keep the access line active. The monthly rental can be paid in advance or on a post-paid basis. The same option can exist for call charges. In both schemes the subscriber usually pays calls based on actual usage at pre-defined rates for each type of call. In pre-paid schemes, usage is deducted from the number of minutes initially purchased until the total amount is spent. Often, users of pre-paid schemes are bound to spend the minimum amount's worth of calls monthly or annually, but other variations may exist.

Access services are an input needed for making calls over the fixed network. This means that although they may be perceived by end users as one product, the two (access and calls) are not substitutes but rather complementary products[14]. If there was a Carrier Pre-Selection service, end-users could purchase calls from one operator while buying access separately from another. However, to date in Malawi, there is no operator providing such services. If a hypothetical monopolist applies a SSNIP for access or calls, end users would still be obliged to buy access and calls from the same operator.

Given the different functionality of these services, fixed access and fixed calls could be considered to constitute separate markets. However, if these services are only sold as bundles and cannot be bought separately then we must conclude that both services belong to the same market. Therefore, one needs to understand how fixed services offers are structured in the Malawi market in order to define this market.

MTL is still the only provider of voice services at a fixed location. MTL's pricing structure of fixed services shows a clear distinction between residential and businesses with tailor-made offers to each of the segments. For residential consumers, only prepaid fixed phone services are available. Subscribers pay in advance by topping up their account with airtime credit available through a number of means of payment available in the market. Subscribers also appear to have the freedom to subscribe to a number of pre-packaged, time-limited bundles that make the service even more affordable and tailored to suit different customer spending habits. However, the structure and pricing of these bundles is not available at MTL's website.

The pricing structure is more favourable to post-paid contracts:

[14] On the demand-side, it is commonly accepted that there may exist a significant proportion of customers whose demand for the access service is structurally different from the demand for telephone services. For example, there may be customers who are reluctant to make calls, one reason could be the price, but who highly value access for the possibility of being contacted. As such, features of access services and of publicly available telephone services at a fixed location aim at fulfilling different needs, and therefore do not constitute a substitute for each other.

MTL retail fixed services call prices (2021)

Call prices (Kw/min)		2021	
		Prepaid	Postpaid
On-net	Peak	30	20
	Off peak	30	20
Off-net	Peak	39,1	30,51
	Off peak	39,1	30,51

Business customers can contract post-paid fixed phone services that allows them to make and receive phone calls and pay at the end of the month. According to MTL, post-paid fixed line services, provided through copper network or any medium that supports data or internet access, offer higher reliability and trustworthiness to customers because they are provided at a fixed location. MTL's network is advertised as a nationwide phone network that allows business customers to have service and be reachable by their customers wherever they have a presence.

The price of voice calls originating on a fixed network to customers outside Malawi depends on the destination country. There are 8 zones offered by MTL, each zone aggregating a number of countries, but their unit prices exhibit large differences:

MTL retail international call prices (2021)

Zone	Call prices Kw/min
1	50
2	100
3	200
4	300
5	500
6	700
7	1000
8	2000

The difference between national on-net or off-net voice calls and international voice calls is substantial. The most expensive zone price is 100 times the on-net national call tariff.

Fixed broadband services

For residential consumers (and probably small businesses) MTL has separate offers for internet access. MiNET is a broadband internet access service offering high speeds to individuals and medium sized enterprises. Maximum download speeds are not mentioned. Internet access is offered with data caps and differentiated duration:

MTL retail internet access prices (2021)

Data Cap (Mb)	Price (Kw)	Duration
100	100	1 hour
200	200	2 hours
5	40	1 day
15	100	2 days
25	150	3 days
100	500	7 days
500	2 500	14 days
2 000	5 000	1 month
10 000	20 000	1 month

BusinessNET, offered by MTL, is described by MTL as a "*high-quality broadband Internet service for enterprises which is ideal for organisations with demanding internet computing requirements. It connects the business community to the Internet through a high quality, low latency submarine fibre optic cable gateway. Last mile transmission can be through copper (xDSL), fibre or wireless connections. The internet access is provided as a dedicated service with symmetrical bandwidth for the uplink and downlink. The service uses public IP addressing at no additional charge*." BusinessNET 256 is the entry level service with an advertised speed of 256 Kbps and customised BusinessNET solutions of more than 2048 Kbps can be provided upon request. Prices are not disclosed.

The available data shows that MTL has distinct packages for different retail fixed line services. Generally, the cost of access is paid on a regular basis in equal monthly instalments, and this is set irrespective of the number of calls made by the customer or hours spent browsing the internet. In the case of MTL a rental cost for accessing the fixed services is not advertised so either it does not exist or is set separately from usage prices but is not visible on MTL's website.

In defining retail fixed services markets for regulatory purposes, a number of key issues need to be considered:

- Fixed mobile substitution
- National and international calls
- Voice and data services.

Fixed mobile substitution

Fixed access can be substituted by mobile access. However, mobile access is functionally different from fixed line access; the most obvious difference is the mobility factor. Basically, a customer can access a mobile network independently of his location, but to access a fixed line needs to do it from a fixed access point. In this regard, if prices rise substitutability is likely to be in one direction as customers would consider replacing fixed access with a mobile access service but not vice versa. The only constraint would be if the prices of the mobile service were much higher than those of the fixed service.

Reliability of the service is a functional characteristic that can also differentiate mobile and fixed line access. The reliability of mobile access depends on the usage of the network at a particular point in time within the area covered by a particular base station and whether or not there are any restrictive physical barriers such as the characteristics of the landscape, high buildings in cities, tunnels or inside buildings. Access via a standard fixed telephone network is more reliable as most of these adverse effects in access through a mobile network are not commonly experienced in a fixed network. However, a high shared usage of a fixed connection at a certain point in time to access the internet may degrade the speed.

It should also be mentioned that fixed line access and mobile access provides users with a set of distinct services that further contribute to distinguishing the functionalities of the two. Fixed access, for example, may allow services such as fax. Mobile access, on the other hand, facilitates data services by way of text messaging. Moreover, the use of mobile wireless to access the internet is becoming increasingly powerful in terms of reliability and bandwidth which may provide a suitable substitute for fixed access for those wanting and able to access the internet.

Despite these differences, a few households in Malawi do subscribe to both fixed line access and mobile access, and where they do so it is usually in order to obtain fixed internet access service. It therefore appears that, in the case of voice services, mobile telephone services are an effective substitute for telephone services provided at a fixed location, if only in a limited geographic area.

One could also question whether there should be separate markets defined in terms of access to the internet from a fixed location and access to the internet from a mobile service. The usage behaviour of mobile services differs significantly from that of fixed and wireless fixed access to the internet. The characteristics of fixed internet access offers differ substantially from mobile offers, with high installation values and constant and high monthly charges. Thus, it does not seem credible that a SSNIP for fixed access would lead to the replacement of fixed internet access by mobile access.

On the supply side, existing operators would need considerable investments to be able to offer these fixed internet access services, so it only makes sense to consider whether this increase would lead to new operators entering this market specifically to offer fixed internet access services. This possibility also seems unlikely as this market is still very small and probably would not have the demand to enable an operator that would only offer services in this segment to successfully enter the market.

National and international calls

Voice services at a fixed location include national and international calls, and national calls can be on-net or off-net, i.e. directed to another networks or staying on the originating network. In the context of this analysis, one could ask if national and international voice calls are part of the same relevant market, taking into account the way providers and users supply and consume the services and their different competitive dynamics. As for the calls originating on mobile networks, as we have seen, international calls and national calls are not substitutes. Domestic and international calls cannot be considered demand-side substitutes because, among other reasons, a caller would not switch to making an international call instead of a domestic call, in response to a SSNIP. However, a customer is likely to expect to be able to make calls to all national and international destinations from its fixed line and therefore might consider the overall set of different types of calls before switching to an alternative product.

International retail fixed calls prices are much higher than calls to a national number. However, this reflects tariff structures that take into account the higher transit and termination costs associated with international calls, rather than indicating separate product markets.

It is proposed that domestic and international voice calls from a fixed location constitute one market while mobile international calls constitute a separate market for purposes of this analysis.

Voice and broadband data substitution

Internet-based voice services supported on broadband accesses could be considered to be substitutes for voice services provided at a fixed location.

In general, internet-based voice services show different functionalities from those provided in traditional telephone services, as the offer is not associated to a telephone number which is integrated in a numbering plan and caller location is not possible in case of a call to an emergency number, for example. These services would also require additional equipment such as a personal computer and an internet access.

However, the Malawi fixed services market is small and voice fixed services are in decline, as indicated above. This means that a voice over broadband (VoB) service, when made publicly available as an electronic communications service that allows the receiving and making of calls to and from numbering plan numbers, could constitute a substitute to traditional voice calls over the public network. For a VoB service to be operational, the use of a gateway for the connection between the IP network and the public telephone network is required. Experience from jurisdictions where these services are available say that end users usually do not perceive differences between the VoB service and the traditional telephone service, as they appear to offer the same set of features and to charge similar prices for the service.

The available data in Malawi regarding the evolution between narrowband and broadband subscriber numbers suggests there is actual substitutability between narrowband access supporting the provision of the telephone service at a fixed location and broadband access supporting the provision of VoB services. Moreover, the high cost of international calls is a driver for substitution as free calls through existing applications can supply enough quality for most usage.

This substitution, actual and potential, could support the hypothesis that there is a single market for fixed retail services including access, national and international voice calls, and broadband internet access.

Residential and business services

We have also considered the extent to which there are separate markets for the residential and business segments and which services would be included in each one. Given the characteristics of the known fixed offers, this appears not to be the case in Malawi. A clear distinction between residential and non-residential customers is difficult to draw. For some access products and tariff options the demand of both customer segments overlaps. While only non-residential customers demand very high-capacity connections, both residential and non-residential segments could demand lower capacity connections, namely SMEs.

In more developed markets, such as in Europe, broadband fixed telephone access has replaced "traditional" fixed telephone access (based on the copper network) at the residential level and is purchased separately. This is due to the launch of packages of services with monthly charges close to, or in some cases, lower than, the value of the analogue fixed telephone service provided in the scope of the Universal Service (US) that must be provided over the copper infrastructure. Packages which include free-to-air television service, telephone access at a fixed location and associated services namely broadband internet access, often include free-of-charge calls to the national fixed network and a limited set of international destinations, and costs less per month than "traditional" fixed telephone access over the copper network. This shows that broadband access can be a substitute for traditional access, but not the other way around.

Conclusion

Considering the existing understanding of how the retail fixed services are currently offered in Malawi it is proposed that there is a single market for fixed access, including both voice and internet services and comprising both the residential and corporate markets.

Although an alternative approach would be possible, in which separate markets are defined for voice and internet access, the small size of the fixed services market, the decline of voice-only access and the potential substitution of traditional fixed voice services by VOIP and mobile, supports the conclusion that there is a single market for retail fixed access and services.

3.1.4 Retail leased lines

A leased line is a fixed, permanently connected communications link providing symmetric capacity between two locations and is dedicated to the exclusive use of the customer or customers, if more than one is involved. The typical characteristics of a leased line include:

- scalable bandwidth;
- uncontended connectivity;
- guaranteed availability (resiliency and security); and
- symmetric capacity.

Retail leased lines are offered to end-users as a retail service, mainly targeting businesses seeking to connect office sites or seeking a fast, reliable and efficient connection to the Internet. Wholesale leased lines are also available in Malawi and we discuss them in this report as well.

In general, for a consistent analysis of the leased lines market, the following information is particularly relevant:

- the type of technology supporting the retail offer;
- the technical characteristics of the service;
- analysis of migration patterns between different technologies; and
- the prices charged for each of the services under consideration.

According to the MTL website it offers a leased line service to retail customers, called MTL BusinessCONNECT which is defined as "*a dedicated Virtual Private Network (VPN) solution* *which enables the sending and receiving of data and voice securely between branches across Malawi. It is ideal for an organisation that has shared resources in a geographically sparse network and would like all branches to enjoy real time access to these resources. We offer VPN services on different access media including Fibre, Radio and Copper. Unlimited usage with speeds of up to 2 Gbps or more are available*."

Leased line bandwidth and technology

Leased lines are usually offered at different bandwidths. The availability of different bandwidths is important as it allows end-users to choose depending on their capacity needs. Historically bandwidths up to 2Mbit/s were offered based on analogue technology and then using digital SDH leased lines. These types of leased lines were typically sold in multiples of 64kbit/s (referred to as the "minimum set of leased lines" in the EU regulatory framework[15]).

A demand-side substitutability analysis was usually carried out between low-speed digital circuits leased services and analogue circuits, since both services provided a permanent and dedicated connection between two points, with symmetric capacity, which allowed the transmission of voice and data traffic. As technology developed there was a "chain of substitution" between leased lines of various bandwidths which implied that different capacity services are mutually substitutable and that all are in the same market. Substitution occurred from the lower capacity levels to the higher capacity.

For bandwidth exceeding 2Mbit/s, digital SDH leased lines supporting data rates above such as 34Mbit/s, 45Mbit/s, 155Mbit/s (STM-1), 622Mbit/s (STM-4) 1Gbit/s and 2.5Gbit/s became available as well as Ethernet connections, which are typically offered at a range of dedicated data rates of 10Mbit/s or above. The same characteristics between higher capacity digital lines and Ethernet suggests including all the technologies in the same market.

It is reasonable to assume for the present purposes that there is a significant degree of substitutability between leased lines in the capacity range available in Malawi. On the supply side there is also a chain of substitutability between lower and higher capacity leased lines and operators.

In the past, it was possible to separate the two due to the infrastructure or technology supporting leased circuit services. The infrastructure comprised two distinct elements: the access part, which connects end-users to the network and a core network, which consists of the transport layer over which dedicated capacity is transmitted. The technology options for the access part of the network were either copper or fibre. The supply of higher capacity circuits was normally supported on fiber optic / SDH networks, while for lower speed circuits the copper network was used, especially on the access network.

In addition, leased lines with a capacity greater than 2 Mbps had greater implementation complexity and there may also be, given the large volume of associated traffic, increased needs in terms of security. Thus, in the case of a small but significant and non-transitory

[15] The minimum set of leased lines, defined under the terms of points 1 and 2 of Article 23 of the Regulations for the Provision of Public Telecommunication Networks (Dec.-Law no. 290-A/99), mandated the Concessionaire of the public telecommunications service, as well as the public network operators with significant market power in the leased lines market, to provide a leased lines service, assuring interfaces for network access with certain specified technical characteristics for a set of analogue and digital leased lines.

increase in the prices of circuits up to 2 Mbps under the HMT, it is not credible that there would be operators starting to offer the service using higher speed lines (34 Mbps or higher) without having to incur significant investments, associated with fundamental changes in the configurations and functionalities of the network. The existence of a break point in terms of capacity at 2 Mbps, implies that there is no substitution on the supply side between circuits with capacities equal to or less than 2 Mbps, and those with higher capacities.

In the case of Malawi, the different levels of capacity, market shares per capacity and relative prices are not known. If leased lines with a capacity lower and greater than 2 Mbps were similar in terms of total volume of lines, as well as in the volume of revenues there would be a reason to justify two separate markets. But further clarification would be necessary to reach this conclusion.

Retail business data services provided at a fixed location could potentially be part of the leased lines market. Initially, regulators separated national leased line services from business data services. Business data services included managed data services such as internet leased lines and MPLS, as well as various legacy packet and other switched data services. In many markets there was substitution when customers withdrew from using leased lines while searching for cost and other advantages associated with managed services.

There could also be a separate market for international leased lines, i.e. lines which have one point in Malawi and the end point outside Malawi. On the demand side there is no substitution between national and international leased lines, but there could be suppliers of either national or international leased lines which could relatively easily establish the other service in response to a SSNIP by a hypothetical monopolist.

Given the limited scale of the leased line market in Malawi it is considered sufficient at present to consider a single retail market comprising both national and international leased lines.

Conclusion

Assuming legacy networks based on analogue and low speed digital have been phased out or are in substantial decline, the retail market includes national and international leased lines services of all bandwidths and could also include retail business data services[16] such as managed data services.

3.1.5 Wholesale fixed infrastructure access

Electronic communications service providers can build their own networks, but in the short term this results in significantly higher costs compared with buying access to another operator's network. Thus, there is a potential market for wholesale access to physical network infrastructure, such as ducts, poles and towers. Wholesale access to the

[16] There is no information available regarding the provision of these services in Malawi. The market scope for business data services could for example include managed connectivity services delivered via IP/MPLS, Ethernet, ATM and Frame Relay networks as well as Internet Leased Lines.

infrastructure market is concerned with a physical wholesale input used in the provision of a range of retail services, whether voice telephony services, the internet, television and other services over the physical network of the access provider.

Operators have, if we consider this in a simplified way, three options[17] to provide access to potential customers according to the so-called 'investment ladder' (starting with the lowest investment step, and not counting pure resale):

- They make use of (active) wholesale offers that allow them, quickly and without significant initial investment costs, to provide retail services to any user covered by the operator's network that makes these offers available to them at a wholesale level - these are generally called bitstream offers, which allow a reduced differentiation of services compared to the service offer of the wholesale (vertically integrated) provider.
- They use wholesale passive offers (such as Local Loop Unbundling) that allow them, with a higher level of investment, namely more equipment and their own network elements, to connect to access points (namely, to locations where the local loops end) and provide offers with a greater level of differentiation and autonomy compared to those of the operator that provides access to them.
- They invest in their own network infrastructure up to the end customer (usually based on fibre installed in existing ducts or poles or illuminating dark fibre), becoming totally independent in the implementation and definition of their retail offers.

The choice of one of the alternatives identified above depends on several factors, including, for example, the population density in any given area (including the type of dwellings), the experience and knowledge acquired in the market, the available financial resources, and flexibility (which operators want) in defining the services they provide in retail. Operators may also resort, as they expand their own network coverage, to different alternatives in a complementary manner in different geographic areas. In any case, the network (access and backhaul) of smaller internet service providers has been built on (often regulated) access to passive and active infrastructure, and such access has, in many places, been essential for enhancing and sustaining service-based competition in the retail services market.

Wholesale access to physical infrastructure is therefore important, but it is not always necessary to define a separate market for this purpose. In a recent report[18] BEREC addresses the different approaches taken by European regulators regarding access to physical infrastructure. Regulatory authorities have rarely included access to physical infrastructure such as ducts and poles in the context of market analysis. Most of the times

[17] An additional option that is becoming more frequent in Europe would be network sharing agreements.

[18] BEREC Report on Access to physical infrastructure in the context of market analyses, available at:https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/8597-berec-report-on-access-to-physical-infrastructure-in-the-context-of-market-analysis

access to ducts and poles has been used as a remedy imposed on operators which are dominant in another market.

This is consistent with the EU regulatory approach that access to physical infrastructure such as ducts and poles can be deemed a self-standing remedy leading to the improvement of competition on downstream retail markets, which may be imposed irrespective of whether the assets that are affected by the obligation are part of the relevant market, provided that the obligation is necessary and proportionate.

Market entry to supply telecoms fixed physical infrastructure access would take considerable time and certainly requires significant sunk costs. Therefore, it is not usually considered possible to have supply-side substitutes for access to fixed physical infrastructure.

If a separate market for wholesale access to passive infrastructure is to be defined two key questions need to be addressed:

- Are there separate markets for access to the passive infrastructure of fixed and mobile networks?
- Should access to non-telecoms infrastructure be included in the market?

Telecom network infrastructure

In the 2018 market analysis undertaken by BRG in Malawi, two separate markets for access to passive infrastructure were identified:

- a wholesale market for the provision of (physical) access to passive fixed network infrastructure such as ducts and poles and dark fibre, and
- a separate market for wholesale access to mobile towers and sites.

Our focal product is the supply of fixed physical infrastructure access for seekers willing to deploy any type of telecoms network. Demand-side substitutability is used to measure the extent to which access seekers are willing to substitute other products for the product in question. As an alternative to fixed network elements, we analyse if wireless passive network elements are a constraint. In practice, sometimes telecoms operators use wireless in place of fixed elements. This is usually to take advantage of lower deployment costs.

The degree to which wireless elements can be used, in what form, and at what level in the network architecture, depends on what services are being provided. For example, at the fixed access network part a wireless connection could be used instead of physical infrastructure that can house cables or aerial poles. In this case wireless could sometimes, but not always, represent a potential constraint on a hypothetical monopolist of access to fixed physical infrastructure. Microwave backhaul is widely used by mobile network operators to link their radio access network to the core network. However, there are several reasons that make microwave links a poor substitute for mobile backhaul products on fixed networks:

- Microwave links support only lower capacity links compared to fibre-based backhaul;
- There is a requirement for line-of-sight connectivity;
- There is a limited transmission range when compared to fibre-based backhaul links; and

- There is a risk of failure because microwave antennae are hosted in the open air.

Given the growth in mobile data usage and corresponding increase in bandwidth requirements, microwave will be an even less viable substitute compared to fibre-based fixed lines.

Core mobile networks are based on fixed elements so there is no case for substitution.

Non-telecoms infrastructure

Access to non-telecoms physical infrastructure is widely identified as being potentially useful in the deployment of telecoms networks. Therefore, we may consider whether access to non-telecoms physical infrastructure would be a direct competitive constraint using the HMT, of wholesale access to telecoms physical infrastructure for deploying a telecoms network. The relevant question is whether a telecoms provider using telecoms physical infrastructure would switch to non-telecoms physical infrastructure in response to a SSNIP.

There may be some specific circumstances when using non-telecoms physical infrastructure to deploy a telecoms network makes sense and is feasible. For example, there is fibre installed along-side railway lines and highways or sewers and local authority ducts used in their network deployments. However, the use of this infrastructure is limited because it usually represents just a fraction of the total network deployment needed. The characteristics of non-telecoms physical infrastructure also vary, for example, railways do not reach end user premises and so cannot be used for deployment of access networks.

More generally non-telecoms physical infrastructure is not an attractive alternative to infrastructure that has been specifically built for a large deployment of telecoms network facilities. Furthermore, in the specific instances where access to non-telecoms infrastructure would be helpful, a service provider can arrange this through a commercial contract independently, without affecting the dynamics of the telecommunications market. Therefore, for the purposes of a regulatory market analysis, it is reasonable to exclude non-telecoms physical infrastructure from the relevant product market.

However, in Malawi an important provider of other utility services also operates within the telecoms market (ESCOM)[19] . So, in the specific case of ESCOM, it makes sense to include its physical infrastructure (whether built for or currently used for telecoms services) in the same market as telecoms infrastructure built for the purpose of accommodating networks.

Conclusion

The product market is the supply of wholesale access to fixed physical infrastructure. There is a separate market for access to mobile passive infrastructure.

3.1.6 Wholesale fixed call origination

Origination services provide switching and routing functionality at the origination of a call. Unlike fixed voice call termination service (where the customer receiving the call does not control or pay for the call), with call origination, if the calling customer has cheaper

[19] ESCOM pylons were built for electricity distribution.

alternatives compared to the price charged for call origination, he may seek to transfer his access service to another provider, if there is one. Thus, at the wholesale level the originating network service provider does not have an automatic monopoly as in the case of call termination.

In Malawi this service is still not operational. It could become operational if a Carrier Pre-selection Service (CPS) is agreed between two operators or imposed by the regulator. If a service like this exists a customer can choose to have, for example, international calls conveyed by a service provider other than the one providing the fixed access service. If in such a case, the provider of the fixed access service increases the costs for call origination to the pre-selected carrier, that increase would most likely be passed on to the customer. The customer is therefore directly impacted by the originating service provider's actions at the wholesale level, and may have the option of switching to another fixed access provider.

Wholesale origination services in networks that provide access at a fixed location, at present, is a notional market and therefore should not be considered a relevant market for ex-ante regulation.

Conclusion

Wholesale call origination services in fixed networks constitutes a notional market, therefore should be disregarded in relation to ex-ante intervention. Origination services are only provided for self-supply.

3.1.7 Wholesale broadband access

Wholesale broadband access is a wholesale service usually defined as the provision by a network operator of a high-speed access link to a customer's premises and making bi-directional capacity on this access link available to one or more third parties to enable them to provide high speed data services to their end customers i.e. that comprises a local access component plus a backhaul to a node in the core network[20]. Allowing access at different aggregation points of the access network usually allows different levels of investment and service that can be provided by ISPs seeking this wholesale access service. Therefore, wholesale broadband access services are wholesale services provided at the access part of the network.

Wholesale broadband access services were included in the data request sent to the operators. In the answer to the data request, two operators reported wholesale broadband access revenues, namely MTL and Simbanet, as shown below:

[✂].

However, analysing the MTL and Simbanet wholesale products as advertised on their

[20] This basic definition is completely independent of the network technology used. When defining markets what is important is the functionality provided by this type of wholesale service. Cable based networks reaching the customer's premises could also allow access seekers to switch from ADSL or fibre networks when facing an increase in price. However, in Malawi there are not cable operators offering these services.

websites there appears to be no such service provided at the access network level. For example, according to MTL:

- CarrierLINK is "a data/voice transport service offered between any points of presence across the MTL network. Offered to other carriers such as telecommunication companies (telcos) and Internet Service Providers (ISP), CarrierLINK helps streamline our customers' growth through a nation-wide, high-capacity backbone network that allows them to provide service to their customers anywhere in the country with minimal investment."
- CarrierNET is a "wholesale Internet service offered by MTL to other carriers in Malawi such as ISPs and Telecommunication operators. It connects the carrier community to high quality, low latency submarine fibre optic cable. Carriers buy Internet bandwidth at wholesale price and resell it to their customers. This allows our customers (carriers) to unlock their business potential through technologies that enable them to be innovative, get more things done within a short period of time and reduce costs because of the increased efficiency."

So, both wholesale products offered by MTL are essentially dedicated capacity at the core network. The same reasoning applies to Simbanet where no wholesale product at the access network appears to be available.

In the face of this analysis, we consider that based on an appropriate understanding of the current market structure, that no wholesale broadband access market exists in Malawi. ISPs buy dedicated capacity from Simbanet and MTL but they use alternative means in the last mile to reach their retail clients.

Conclusion

There is currently no market for wholesale access. In order to proceed with the market analysis in terms of the size of the different markets and markets shares of the operators, the wholesale broadband access revenues reported by MTL and Simbanet are included within the wholesale leased lines market.

3.1.8 Wholesale mobile access and call origination

If a company that does not have its own network wants to start providing mobile services to end users, it must first ensure the implementation of the various components of the value chain, that is, access to a specific mobile network, the origination service, transmission (including routing and switching) and termination. Without the provision of these network services, no third party would be able to provide a mobile service to its customers.

These companies are generally referred to as mobile virtual mobile operators (MVNOs), indirect access providers, or merely service resellers. Unlike the mobile voice call termination service, where the customer who receives the call does not control or pay for the call, in the origination service, if the customer does not want to accept the price that is charged for the call, he may seek to transfer to another operator, if one exists (which is not the case in Malawi at present). Thus, at the wholesale level, the origination service provider does not have a monopoly as is the case with call termination.

The mobile services market in Malawi is currently organized according to a vertical integration model: the same entities - the three network operators - operate in the wholesale and retail markets. In other countries, different models can be found, each of which requires wholesale mobile access and call origination services. These models are:

- MVNO services (where service providers that require access are licensed to be MVNOs);
- Call selection and pre-selection of mobile network operator services (e.g. for international calls);
- National roaming, where access and origination services are provided by one operator to others within a restricted geographical area. This can be achieved through commercial negotiation or regulatory mandate, e.g. as a temporary remedy that allows a recent market entrant to obtain greater coverage while not having full roll-out of its own network.

Regulators usually consider that the provision of wholesale access and origination services to an operator’s own retail business itself should be included in this market, since there should be no distinction between services provided internally or provided to third parties (non-discriminatory access). This also means that, if a network operator increases the price of its wholesale access and origination services, it will increase the cost of access for the third-party service provider but also for its own downstream retail business. Therefore, both wholesale services should face the same price restriction.

The inclusion of internal and externally-provided services in the same market is consistent with the HMT. If a SSNIP applied only to wholesale access and call origination services offered to third parties such as MVNOs, it would increase the price of mobile retail services for the MVNO but would not do so for the host mobile network operator. As a result, MVNOs could lose customers to integrated network operators. Thus, the hypothetical monopolist of wholesale access and origination services would lose revenues while the integrated operator's wholesale business would increase its revenues.

The competitive constraint on the hypothetical monopolist would thus come from substituting demand at the retail level. As demand-side substitutability tends to be strong, internal supply of wholesale access and origination services should be included in the relevant wholesale market.

From a supply side perspective, depending on network capacity, it is fairly easy for an existing MNO to switch from the provision of retail services to wholesale access and call origination services in response to a SSNIP. In essence, the infrastructure required by the MNO is already available and no significant investments are needed in order to switch between the provision of such services.

Conclusion

Access and origination services to mobile networks includes all wholesale access and call origination services that can be provided by a mobile network and includes self-supply in the case of vertically integrated mobile operators. At present this market is only functioning for self-supply in Malawi.

3.1.9 Wholesale mobile infrastructure access

A mobile licensed operator requires spectrum and a wireless access network to provide mobile wireless services. A mobile network typically consists of a radio access network (RAN), a backhaul and core network. The RAN includes sites and equipment such as towers which in turn hold antennas. The core network includes equipment such as switches and routers. The so-called backhaul, using either fibre or microwave, connects the RAN and the core network.

Wireless service providers negotiate wholesale arrangements with each other for the provision of various wholesale services. As stated earlier these may be roaming services, MVNO access, but also passive elements of the RAN such as tower- and site-sharing. Tower and site-sharing commercial deals between operators enable one of them to install wireless equipment on the other operator's sites and towers in areas where it holds spectrum licences but has no physical network coverage. These arrangements enable the operator seeking access to the other operator's infrastructure, to deploy its network in a cost-effective and efficient manner, and in turn minimize the number of towers in a country.

With respect to the relevant market, both tower- and site-sharing could be considered to be in the same product market as they are generally complementary to one another although they could also be substitutes. An operator seeking access to another operator's tower will also require some site space where the tower stands to install its own equipment and energy supply.

From the demand side substitution perspective there are multiple options for mobile operators to deploy their mobile wireless networks, such as building their own towers, seeking access to other operator's towers and sites, or using towers and sites owned by third parties. In urban centres, roof tops on high buildings can also provide alternative solutions. However, there is no other passive telecom network element that can provide the same functionality as towers. If the price of site and tower access were to suffer an increase in price by a hypothetical monopolist, an access seeker would have the option of looking for other suitable sites or, theoretically, building its own tower. Only if the access seeker needs to build a tower in the same area and there are no suitable and alternative sites, would the access seeker have to accommodate the price increase.

In Malawi, there is a mobile wholesale infrastructure access market with ongoing sharing of passive elements of mobile access networks among the three mobile operators. This was already the situation reported when the last market analysis was performed in 2018 (described as the "Mobile sites market").

As stated above, based on a demand substitution analysis, there are two separate markets for fixed and mobile physical infrastructure access. Mobile radio access networks have substantially different characteristics from those of fixed access networks such as ducts or poles. In some cases, wireless technologies can be used to substitute fixed access networks but they are still considered a partial and poor substitute.

Conclusion

The product market is the supply of wholesale access to mobile physical infrastructure. This physical infrastructure is part of the mobile RAN of licensed operators and includes sites and towers. Active elements of mobile networks are not considered. This is a separate market from access to fixed passive infrastructure such as ducts and poles.

3.1.10 Wholesale fixed termination

The wholesale voice termination service is a conveyance service that commences at the point of interconnection and finishes at the network boundary associated with the called customer's service. This is the market for voice call termination services provided on a fixed network to interconnected service providers.

Under the Calling Party Pays (CPP) regime that operates in the majority of countries, including Malawi, the wholesale service provider has a monopoly in relation to termination services. Each fixed network is a separate market for the purposes of voice call termination. The reason is that, if a calling customer wants to call another customer on a particular service, the only route to the called service is via the network to which that service is directly connected. This call route is entirely on the network of the terminating network operator and there is no demand-side or supply-side substitute.

Conclusion

For the termination of voice calls, each fixed network constitutes a separate market.

3.1.11 Wholesale mobile termination

Several types of traffic terminate on mobile networks, such as voice calls and text messages, and these could originate in national networks but also outside Malawi.

Our analysis starts by looking at the termination of voice calls. There are three mobile networks in Malawi: TNM, Airtel and ACL. If a customer making a voice call wants to call a customer on one of the two other networks, the only possible way is through the mobile network to which the called customer is contractually connected. Therefore, each mobile network must be considered a separate market for voice call termination. The call path is entirely on the network of the end customer operator and there is no substitute on the demand or supply side in response to a SSNIP.

The same applies to text messages. When a subscriber of a network sends a text message to a subscriber connected to another network, the operator of the network that terminates the text message must provide a termination service to the operator of the network originating the message. The originating network operator may charge the subscriber for the cost of sending the text message. The operator of the network where the message ends will not charge the customer for receiving the text message but may charge the originating network operator of the text message a termination fee.

On the demand side, end users have several different options for sending and receiving text messages. These options include many of the OTT services now widely available, such as WhatsApp. However, this requires Internet access. Absent such access, there are no substitutes for terminating text messages. If an end user sends a text message, there is only one operator who can end that text message, that is, the operator of the termination network. Therefore, each network operator has a monopoly on the provision of text message termination services on its own network.

The next step is to determine to what extent there is some substitutability between the termination of text messaging services and the termination of voice calls. For this purpose, it is important to check whether the retail demand for text messaging services may in some way influence the demand for mobile termination of voice calls i.e. would a SSNIP for mobile voice termination voice, be sufficient for a significant number of users to replace voice calls destined to other networks by sending messages? As evidenced by the analysis carried out in the retail market, although there may be some demand-side substitutability of text messages, compared to mobile voice calls, and particularly in relation to communications that do not require immediate response, the price differentials between the two types of communication indicate the existence of different markets.

Given that all the mobile operators provide the mobile termination service for both voice calls and text messages, the substitutability analysis on the supply side is irrelevant. The pricing of one type of termination is not constrained by the pricing of another type of termination when carried out by the same operator.

The wholesale international voice call termination service is a service that is identical to the national voice call termination service, except that the traffic originates in another country. The incoming international traffic can be delivered directly to the operator's customers, or alternatively delivered to customers of another national operator, after transiting network of the international gateway operator. If the incoming international traffic is destined to go to another operator, the gateway operator that provides the transit service obtains revenues from the foreign operator (the international termination rate) and pays the value of the national termination to the destination operator.

International best practice does not consider the origin of traffic as a distinguishing factor between markets and the Guidelines do not deal with this specifically. However, a clear distinction has been made in the remedies to be applied in relation to national and international terminating traffic.

While it is common practice to establish a maximum price for the amount to be charged for the termination of national traffic on mobile networks, there is a de-regulation of mobile termination rates for calls coming from outside a country or from countries that do not belong to an economic block, as is the case for example in the EU. This lack of differentiation between national and international calls is now common practice in most EU member states, and the regulation of voice call termination rates on mobile networks establishes extremely low termination rates, while rates charged by network operators outside the EU can be significantly higher.

If operators in Malawi were obliged to set prices for terminating international traffic based on the costs of an efficient operator, it could reduce their negotiating capacity. In fact, national operators might have to pay foreign operators significantly higher termination prices than those in force in Malawi, aggravated by possible asymmetries in international traffic.

For this reason, NRAs usually do not impose price controls on incoming international traffic, and may even impose a price floor so as to encourage inbound international revenues (some of which may be retained by the Government in taxes). Thus, calls that are delivered to national operators and originate outside Malawi would not be subject to the obligation of a price control nor, consequently, to the obligation of non-discrimination and prior publication of prices.

Conclusion

The analysis suggests that, in line with international practice, national and international voice call termination and text messages services can be included in the same relevant market.

3.1.12 Wholesale leased lines

A wholesale market for leased lines generally involves an operator (fixed or mobile) buying leased line dedicated capacity from another operator in order to complement or extend its own network and so offer services to its end-users including, but not limited to, retail leased line services.

In Malawi, for example, MTL offers CarrierLINK as a data/voice transport service between any points of presence across the MTL network. Tailored to other carriers such as telecommunication companies (telcos) and Internet Service Providers (ISP), CarrierLINK allows a national coverage through a high-capacity backbone network that allows other operators to provide service to their customers anywhere in the country with minimal investment. The available bandwidth ranges from 1Mbps up to 1Gbps.

Trunk segments and terminating segments

In defining the scope of wholesale leased lines markets, the European approach formerly distinguished between a trunk segment and a terminating segment of a leased line. Generally, the trunk segment is the part of the leased line where traffic is aggregated, and the terminating segment is the part of the network which connects an end-user to the closest exchange. Therefore, it is common to consider whether to define separate markets for the provision of dedicated capacity over trunk segments of leased lines and the provision of dedicated capacity over terminating segments of leased lines. The boundary between the two may differ across countries depending on network topologies.

In many European countries, suppliers entering the market built alternative infrastructure on major routes connecting large urban centres which led to the market for the trunk segment of the leased lines being considered to be effectively competitive while the terminating sections were still bottlenecks. The terminating segment is generally associated with lower volume and lower value traffic, and, more important, the local supply is dependent on the existing access networks. An operator may purchase a wholesale leased line consisting only of terminal segments (for example the two points belong to the same local exchange), only of trunk segments or including both components (terminal and trunk), depending on the coverage and typology of its own network.

In Europe, market analysis usually concluded that the terminal segments and the trunk segments of leased lines are complementary products and not substitutes, given their distinct nature and the possibility of wholesale customers purchasing these elements separately (which is not possible in the retail market). For this reason, they considered them to constitute separate wholesale markets. The terminal segments market is dominated, in fact, according to this view, by the existing local access network infrastructure, in general associated with strong barriers to entry and expansion due to the high costs of infrastructure, especially ducts, which make the duplication of investment on the same scale economically unprofitable. Terminal segments are shorter in length (typically less than 10km) whereby trunk segments can correspond to hundreds of kilometres.

At the wholesale level, there could be some substitutability between terminal segments of leased lines and the services provided by an unbundled local loop. However, in order to obtain a solution equivalent in functional terms to the lease of terminal segments, additional investment in transmission equipment would be necessary. In addition, the levels of quality of service usually guaranteed by this type of access service are lower than those usually found in a leased lines service offer.

It is also possible to identify a set of broadband services, supported by other technologies, hypothetically capable of substituting for leased lines. Two examples could be ADSL-based services and transmission services provided through a cable television distribution network. However, within the scope of these services, the end user is not guaranteed a symmetrical end-to-end connection and dedicated capacity between two different locations. Also, the maximum guaranteed throughput is relatively low compared to a leased line wholesale customer's needs and it is not possible to guarantee, at the outset, levels of quality of service that are as high as those ensured by the leased lines service. Thus, none of these asymmetric services are considered an effective substitute for leased lines considering the differentiation in terms of functionality.

National and international leased lines

There is also a question whether or not there should be a distinction between national and international markets.

The supply of an international wholesale leased line service would comprise access to a local terminating segment up to the nearest exchange, a national trunk segment up to the international gateway, and the access to a third-party international trunk segment. The international trunk segment would connect the international gateway to the point of interconnection with the international facilities of a third party, which could be provided by terrestrial, satellite or submarine cable. Access to international segments of leased lines is often provided as part of broader regional and international agreements, the dynamics of which are different from those prevailing with respect to national infrastructure.

However, the intended use of the services is not the same. This means that, from a demand-side perspective, an operator purchasing dedicated capacity for an international leased line service would not respond to a SSNIP by a hypothetical monopolist of international leased line services by switching to a national service (or vice-versa).

However, the situation on the supply-side is not so clear cut. There is a significant overlap in the network facilities required to provide national and international leased lines. Thus, it is conceivable that, in the event of a SSNIP, a supplier of international leased lines services would switch to the provision of dedicated capacity over national trunk segments. Conversely, it is also possible that a supplier of dedicated capacity over national trunk segments of leased lines would consider switching its production into international wholesale leased lines.

In Malawi, supply-side substitutability is enhanced by the fact that the same companies are licensed and have constructed infrastructure to provide both a national and international leased lines service. Thus, they compete across the full portfolio of national and international circuits, although the cost and price structure of international leased lines would be significantly different from a national service.

Conclusion

Given the prevailing national characteristics, the demand and supply conditions underlying the provision of dedicated capacity over different segments of leased lines which are available, the proposed hypothesis in the case of Malawi is to define a single market for the supply of dedicated capacity comprising both terminal or trunk segments and both national and international circuits.

3.1.13 Wholesale access to international internet capacity

The wholesale international capacity service is an IP transit service providing access to international networks to ISPs and other telecommunications operators. The IP transit service usually provides international access to the global Internet networks using IP connectivity of high quality, without contention and with low latency, connected directly to the main international backbones of the Internet through points of presence in the United States and Europe. It is supported by international cables, submarine systems and terrestrial transmission systems.

For example, MTL's website advertises "CarrierNET" as a wholesale Internet service to other carriers in Malawi such as ISPs and telecommunication operators, to connect the carrier community to high quality, low latency submarine fibre optic cable. Carriers buy Internet bandwidth at the wholesale price and resell it to their customers. Bandwidth is offered per Mbps starting from 1Mbps.

From a demand side perspective, in response to a SSNIP, customers seeking access to international capacity would, as far as possible, seek to reflect the price increase in their own retail offers. The only other solution, given the hypothetical monopoly, would be to accept the impact of the increase themselves. In both cases, they would be making the increase profitable for the monopolist. There is no other service that customers can use.

On the supply side, a SSNIP would probably be insufficient to attract other market suppliers, given the substantial investment needed to be in this market and the time frames involved in creating and implementing commercial agreements for the creation of new capacity in submarine cable access. In addition, it would need large volumes of demand for international traffic that in the case of Malawi may not yet exist, to allow a greater number of competitors in the market to become viable. From a demand-side perspective one could also consider whether leased lines would be a substitute to transit services. Leased lines require dedicated capacity, a feature that cannot be achieved with transit services. Also, the two services are usually priced differently.

An additional question is whether satellite capacity is a substitute and as such should also be included in this market. Before the existence of submarine cables, international services in many countries, including land-locked countries like Malawi, were provided by satellite. It is understood that some of the satellite contracts are likely to remain in effect and that the satellite's capacity is used as a backup and for specific data connectivity purposes. Based on this observation, it can be concluded that satellite provides a possible substitute service, although it does not provide the same capacity or the same quality of service.

It is clear that wholesale customers in the face of a price increase could replace international connectivity with satellite-based services instead of a submarine cable. However, this is feasible only for applications and products that have relatively low (international) capacity requirements. International experience makes it very clear that this substitutability is limited and that high-speed, high-capacity applications and products require fibre cable technologies. Any substitution in favour of satellite-based services would therefore not be a material restriction on the hypothetical monopoly supplier of submarine cable capacity if it were to increase the price.

Thus, it is considered that the use of satellite as an emergency backup and for other applications does not mean that satellite is an alternative sufficiently capable to be included in the same market as the international capacity provided by submarine cable or fibre terrestrial backbones.

Conclusion

Based on the information available, there is a wholesale international capacity service in Malawi which consists of terrestrial links from an international gateway in Malawi through a neighbouring country and on to submarine fibre cables at cable landing stations (in, for example, Tanzania, Mozambique or South Africa). Theoretically this market also comprises international satellite capacity, but this is a minor component only used in specialized circumstances and for emergency back-up.

3.1.14 Summary of defined markets

As anticipated in the Guidelines, the market analysis process begins with a proposed initial set of markets and based on a focal product, tests their boundaries to understand the limits of demand and supply side substitution among services. The following table presents the list of proposed defined markets in Malawi, following the analysis of data received in response to a written request, from licensees:

Defined Markets	Market definition
Market 1: **Mobile retail services**	Includes voice and text message services and (possibly in a separate market) mobile Internet access services, for both the residential and business segments.
Market 2: Fixed retail services	National and international voice calls and internet access services for both residential and business customers.
Market 3: Retail leased lines	Communications link providing symmetric capacity between two locations, dedicated to the exclusive use of the customer which is usually a business or Government entity.
Market 4: **Wholesale fixed**	Fixed passive elements of telecom and non-telecom

infrastructure access	networks able to accommodate access seeker's cables and electronic equipment.
Market 5: Wholesale fixed call origination	Wholesale origination services in networks that provide access at a fixed location.
Market 6: Wholesale mobile access and call origination	Wholesale access and call origination services that can be provided by a mobile network and includes self-supply in the case of vertically integrated mobile operators. This includes MVNOs, National Roaming and Preselection.
Market 7: Wholesale mobile infrastructure access	Wholesale access to mobile passive network elements such as sites, towers and supporting equipment.
Market 8: Wholesale fixed termination	Wholesale termination of voice calls, each fixed network constitutes a separate market.
Market 9: Wholesale mobile termination	Wholesale termination of national and international voice call and text messages services.
Market 10: Wholesale national leased lines	Dedicated capacity over national or international leased lines sold to other licensed operators (including terminating, trunk and international segments).
Market 11: Wholesale access to international Internet capacity	A capacity service which mainly consists of terrestrial links from an international gateway in Malawi through a neighbouring country and on to submarine fibre cables through cable landing stations to provide internet access.

3.2 Susceptibility to ex-ante regulation

3.2.1 The Three Criteria Test and Structure-Conduct-Performance Model

International best practice has generally developed around the Three Criteria Test (3CT), meaning each of the identified markets should potentially be subject to *ex-ante* regulation only if the following three criteria are met:

- high and non-transitory barriers to entry,
- no tendency to competition behind those barriers, and
- inadequacy of ex post competition law to deal with problems that might arise in the market.

If the market assessment fails in any of the criteria, *ex-ante* regulation is not warranted or, if that market is already subject to *ex-ante* regulation, any existing regulation should be reviewed and if necessary, withdrawn.

The initial draft of the Guidelines published by MACRA proposed the use of a Structure-Conduct-Performance (SCP) model, rather than the 3CT. The SCP model is based on three key concepts:

- Market structure, e.g. number of sellers and ease of entry;

- Conduct, e.g. pricing policies, advertising, pricing strategies, and market transparency; and
- Performance, e.g. national network coverage and penetration, profitability, efficiency, or technical progress.

This is relevant in light of the need to regulate in an ex-ante (forward-looking) manner, having regard to the structure of the market which may determine the behaviour of participants in that market. The approach is not entirely the same as the 3CT approach, although both approaches require the assessment of market structure. The result of the second and third criteria present in the SCP model is, in our view, ultimately likely to provide a similar outcome to that flowing from the second criterion of the 3CT. This is because similar factors need to be taken into account when undertaking an assessment of whether or not the defined markets are effectively competitive, or have the prospect of becoming effectively competitive in the near future. The 3CT is, however, a simpler test and, by setting the analysis in the context of the political and economic environment, addresses the same structural issues that the SCP model takes into account.[21] For this reason we have preferred to use the 3CT (while also noting that the SCP model was removed from the final draft version of the Guidelines).

This section of the report considers in turn each of the defined retail and wholesale communications markets in Malawi.

Having considered the Guidelines and the Act, our analysis proceeds first by assessing barriers to entry which affect market structure, and, if this criterion is met, the analysis proceeds to assess whether there is evidence of a trend to greater competition behind those barriers. The Guideline puts it like this:

> "*Once markets are defined, they can be subjected to an assessment of whether or not there are conditions that can foster effective competition in a relevant market. The objective is to identify licensees who can be characterised as possessing dominant position that can be used to stifle competition… The underlying linkage among these elements is the presumption that the structure of a market would determine to a large degree the conduct of the participants in the market. In turn, the conduct of licensees would then determine the performance of the industry. The reliance on such a model is especially relevant in the context of forward-looking ex*

[21] Several observations have been made in international publications regarding the SCP test, which generally follow this trend, "However, due to the effects of the behaviours of buyers and sellers on market, it is often difficult to predict market structure. Also, the multiple definitions and extension of markets and its structure make an inquiry into this paradigm more complex. Some studies also establish that the structure of the market will always be determined by the nature of the product and the technology available. Oftentimes, people tend to ask when the SCP model becomes useful. The SCP model is very useful in analysing a **non-changing** industry, it is also useful in the prediction of the effects of external shock on an industry's profitability. It is useful in the analysis of the response of an industry's structure to price conduct and vice versa. It studies whether structure drives performance and also influence conduct. Also, any inquiry into structure, conduct and performance of an industry or a market makes the SCP model useful." Structure Conduct Performance Model - Explained - The Business Professor, LLC

ante regulation, since conduct that is detrimental to competition, must be anticipated primarily on the basis of the market's structural characteristics."[22]

Barriers to entry

There are several different types of possible barriers that can deter or impede market entry, and the main ones can be divided into two groups[23]:

- Structural barriers: according to the EU Recommendation[24] "structural barriers to entry result from original cost or demand conditions that create asymmetric conditions between incumbents and new entrants impeding or preventing market entry of the latter". For example, high structural barriers to entry can be encountered when the market is characterized by absolute cost advantages, substantial economies of scale and/or economies of scope, capacity constraints and high sunk costs.
- Legal or regulatory barriers are those that result from legislative, administrative or other government measures that directly affect the conditions of entry and/or the positioning of operators in the market. Regarding legal and regulatory barriers, the Recommendation states that, "*Legal or regulatory barriers are not based on economic conditions, but result from legislative, administrative or other state measures that have a direct effect on the conditions of entry and/or the positioning of operators on the relevant market*". The main legal barriers mentioned are the need to obtain an administrative authorization or licence in order to operate in the market, limits and conditions attached to the use of spectrum, and the effects of general regulation over the new entrants.

In order to substantiate the existence of high structural entry barriers regulatory analysis tends to focus on indicators such as[25]:

- Existence of sunk costs
- Control of infrastructure not easily duplicated
- Economies of scale, economies of scope
- Technological advantages or superiority
- Easy or privileged access to capital or financial resources
- Vertical integration
- Barriers to develop distribution and sales network
- Products or services diversification.

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[22] Section 4 of the Guideline.

[23] ERG Report on Guidance on the application of the three criteria test, June 2008

[24] This refers to the 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 and services adopted by the European Commission on 17 December 2007. The new Recommendation replaced the earlier 2003 European Commission Recommendation. In the new Recommendation, as well as in the Explanatory Note accompanying the text, particular reference is made to the application of the so-called three criteria test for determining which markets are susceptible to ex ante regulation.

[25] Many of these aspects are also used in order to assess dominance beyond just market shares. But the purpose in that stage of the market analysis process is to identify dominant players while here is to apply the criteria.

In Malawi, as in many other countries, all the electronic communications markets identified in the analysis have high, non-transitory, economic barriers to entry. Economic barriers take the form of substantial capital requirements to establish a national fixed or mobile network, adequate support systems and develop appropriate commercial distribution operations. Existing players have substantial market advantages as a result of their sunk costs, economies of scale and economies of scope.

Sunk costs are costs that once incurred cannot be reversed. Sunk costs are particularly relevant in the electronic communications sector because there are significant infrastructure investments and therefore are one of the most important entry barriers. Sunk costs give the incumbent operators a competitive advantage that also acts as a barrier to entry for new potential players.

For example, in the case of mobile networks there are high sunk costs of buying appropriate sites (although there is an option to lease), erecting towers, deploying the antennas and energy generation equipment, and the need to obtain spectrum. Costs related to acquiring mobile customers and establishing a brand can, to a certain extent, also be considered sunk costs. Building up a minimum scale for any new mobile brand requires considerable marketing and subscriber acquisition costs.

Economies of scale exist when an increase in production leads to a decrease in unit costs. This is characteristic of production assets with high fixed costs and relatively low variable costs. Economies of scale tend to strengthen the market power of established operators and can thus function as an entry barrier for new network operators. Network operators plan and are expected to dimension the networks for optimal utilization including available traffic capacity. New network operators will need to build their customer base and gradually adjust capacity as demand grows up. Therefore, during the start-up phase new operators are unable to achieve the same level of economies of scale as the established operators. As a result, economies of scale provide established providers with a cost advantage and this weakens the competitiveness of any new entrant.

Economies of scope are a reduction in the average unit cost when more than one service is produced using shared means of production, for example, shared infrastructure or shared back-offices. TNM and Airtel both offer services in the wholesale and retail markets as well as mobile money services. Both are established with an extensive product portfolio that enables them to achieve economies of scope that a new operator cannot achieve in the short term. These economies of scale and scope may therefore act as a meaningful barrier to entry.

The same conclusion can be reached in the case of fixed services and leased lines retail markets. The wholesale fixed inputs necessary to provide retail fixed services and retail leased lines exhibit high barriers to entry. The market for wholesale origination in fixed networks is characterized by strong economies of scale, scope and density in access networks. Control over local access network is an essential condition for offering wholesale voice calls origination services at a fixed location. If an operator decides to enter this market, it would be required to make substantial investments in order to be able to provide a direct access service and these investments would constitute a large sunk cost. Therefore, barriers to entry in this market are high. The same reasoning applies to wholesale dedicated capacity. Operators willing to offer retail leased lines rely on both trunk and terminal segments to connect potential customers premises.

Regulatory barriers to entry

Regulatory entry barriers exist when market access or scarce resources are limited by regulatory conditions, for example, financial and availability restrictions that apply to licensing, available spectrum and fees or prevailing price levels at the moment of entry.

Access to existing infrastructure, either mandated or market-driven (such as national roaming and infrastructure-sharing), can contribute to reducing entry barriers to some extent. But in the absence of ex-ante regulatory obligations the existing operators are unlikely to be motivated to open up their assets for third party utilization. The effectiveness of such measures also depends on available network capacity and space in the existing radio access network.

Trend towards competition

The above analysis suggests that two of the three necessary criteria are met in Malawi for all the defined electronic communication services markets. However, MACRA also needs to assess the markets against the second criterion, namely conduct.

In terms of the 3CT, at this point one would consider if there is a trend to competition despite those barriers. This criterion should examine the structural characteristics of the market and consider whether these characteristics are likely to allow the market to become or remain effectively competitive for a prospective period of 2-3 years. The 2-3 years period is generally considered adequate given the rapidly changing nature of the electronic communications sector.

The conduct analysis should consider prices and market trends, and the extent and coverage of competing networks or infrastructure. The same time horizon can be used, however.

As the analysis of trends towards competition (the covaries between markets, in the following sections we consider each defined market separately, using both the structure and conduct approach.

3.2.2 Retail mobile services

Mobile services play a critical role today in Malawians everyday lives and in Malawi's economy. If countries are to achieve their social and economic growth objectives, that will require that they are served by increasingly better services at world-class prices. For that to happen, mobile markets need to be competitive.

Unfortunately, Malawi's mobile networks, mobile services and mobile prices are still far from being considered exceptional in terms of African standards. Malawi is ranked in the bottom ten countries in the GSMA's Global Mobile Connectivity Index[26], which in the 2020 edition covers 163 countries and scores each countries' mobile connectivity across 35 different

[26] Available at: https://www.mobileconnectivityindex.com/

indicators. In this index Malawi scored 26,9 (the closest to 100 the stronger the performance), perhaps due to the very low score achieved regarding services affordability. It is ranked well below most of its neighbouring countries:

Rankings in the GSMA Global Connectivity Index (scores out of 100, 2020)

	Overall	Affordability
Kenya	49,6	38,2
Uganda	40,6	32,1
Tanzania	40,1	34,2
Zimbabwe	36,6	18,5
Ethiopia	35,9	43,0
Zambia	35,3	27,3
Mozambique	35,0	36,7
Malawi	26,9	15,7

In Malawi, mobile services are currently supplied by three Mobile Network Operators (MNOs) but is concentrated largely in the hands of the two dominant operators, Airtel and TNM.

Airtel Malawi

Airtel Malawi is part of Bharti Airtel Limited[27] which is a leading global telecommunications company with operations in 18 countries across Asia and Africa. With its head office in New Delhi, India, the company ranks amongst the top 3 mobile service providers globally in terms of subscribers. Bharti Airtel had over 403 million customers across its operations at the end of March 2019. Airtel Malawi[28] provides 2G, 3G and 4G mobile services for both consumer and business customers and claims to be the leading operator with 4G coverage in all 28 districts of Malawi[29]. Airtel Malawi[30] is the leading provider of mobile telecommunication services (GSM mobile cellular telephone services) in Malawi with 59% customer and revenue market share as at 31 December 2020. It offers voice telephony, messaging, data communications including high speed fixed broadband internet services, international and national long-distance telecommunications services and value-added services.

[27] https://airtel.africa/about_us?tab=company-overview

[28] Historically Airtel Malawi was formerly Zain (which in turn was formerly MTC). Zain Malawi started its operation in October 1999 as Celtel Malawi Limited. In April 2005, the company was acquired by Zain Group, a Kuwait based telecoms provider. By 2007 it was Malawi's biggest mobile operator with a market share of 60%. It changed its name to Zain Malawi in 2008. Population coverage stood at 90 percent and geographical coverage at 72 percent in 2009 with over 1 million subscribers. In June 2010, Zain Group's African operations were acquired by Bharti Airtel.

[29] https://www.airtel.mw/investors

[30] https://www.airtel.mw/assets/pdf/investor/Airtel-Malawi-PLC-Annual-Report-2020.pdf

AIRTEL MALAWI

Network coverage and infrastructure

Airtel Malawi has deployed 107 sites across the country with 99% of the sites in rural areas. In addition to the site rollout, we also deployed four main fibre backbone rings covering the major cities: between Blantyre <>Lilongwe via Mangochi, Lilongwe <> Mzuzu, Blantyre <>Zobue and Lilongwe<>Chipata. Our intercity fibre infrastructure is both own build (1 828 km) and leased (498 km). Airtel Malawi also has metro fibre rings in the major cities of Lilongwe (167 km) and Blantyre (114.5 km). This fibre infrastructure supports the 2G, 3G and 4G site traffic plus international bandwidth for internet. It has been built for resilience and capacity scalability and will provide best in class data experience to our mobile and broadband customers.

Subscriber base

Malawi is an emerging market. Airtel Malawi's prepaid customers tend to have lower disposable income and typically generate lower annual revenue per user (ARPU) than subscribers in other markets. While our post-paid customers, which include corporates and small-to medium-size enterprises, represent only 1% of our total subscriber base, they generate higher ARPU and typically have lower churn rates.

According to Airtel's Malawi 2020 annual report (see left hand box), Malawi is still considered to be an emerging market. Malawi's prepaid customers tend to have lower disposable income and typically generate lower annual revenue per user (ARPU) than subscribers in other countries. Coverage in Malawi has been expanding. The expansion of its network in the rural areas has been partly delivered through infrastructure-sharing. Examples include co-location of equipment on cell sites under the Government's initial Rural Broadband Initiative (RBI1), and the joint venture between the 3 MNOs participating in the Rural Broadband Initiative 2 (RBI2) programme.

Telekom Networks Malawi (TNM)

Telekom Networks Malawi[31] (TNM) is the pioneer mobile network in Malawi. The company was established in 1995 as a joint venture between Telekom Malaysia Berhad and the then government-owned Malawi Postal and Telecommunications Corporations (MPTC) and later on MTL following the splitting of the MPTC into two entities of postal (MPC) and telecommunications (MTL). In April 2007 Telekom Malaysia sold its 60% majority stake in TNM to MTL Mobile, an investment vehicle that was spearheaded by Press Corporation Limited. TNM is wholly Malawian-owned and is listed on the Malawi stock exchange, Press Corporation being the main shareholder with 41.31%, (Old Mutual Life Assurance Company (Mw) Limited the second largest holds 24.07%).

In terms of coverage TNM says its network covers over 88% of Malawi. TNM operates a 4G network enabling advanced broadband multimedia services, in addition to 2G and 3G networks. According to the company's profile[32], TNM offers a comprehensive range of prepaid and postpaid services; these include voice and data connectivity. TNM has been a pioneer of many services in Malawi and became the first mobile operator in Malawi to launch 4G broadband services. Services on offer include video calls, video and music streaming and high-speed wireless internet access services.

[31] https://www.tnm.co.mw/#/about/company-profile

[32] https://www.tnm.co.mw/#/about/company-profile

Market share analysis

As described below, competition in the supply of mobile services has not strengthened since the arrival of ACL in 2007 and has seen MTL leave the market in 2017. A natural starting point for the assessment of whether the market is tending towards sustainable competition is an analysis of market shares and their development. The mobile market, a predominantly prepaid market, has remained highly concentrated in the hands of Airtel and TNM, which collectively hold more than 99% of market share either in subscribers or revenues. The table below summarises the number of mobile subscribers (prepaid and postpaid) in Malawi as of October 2021, based on responses to the data request questionnaire:

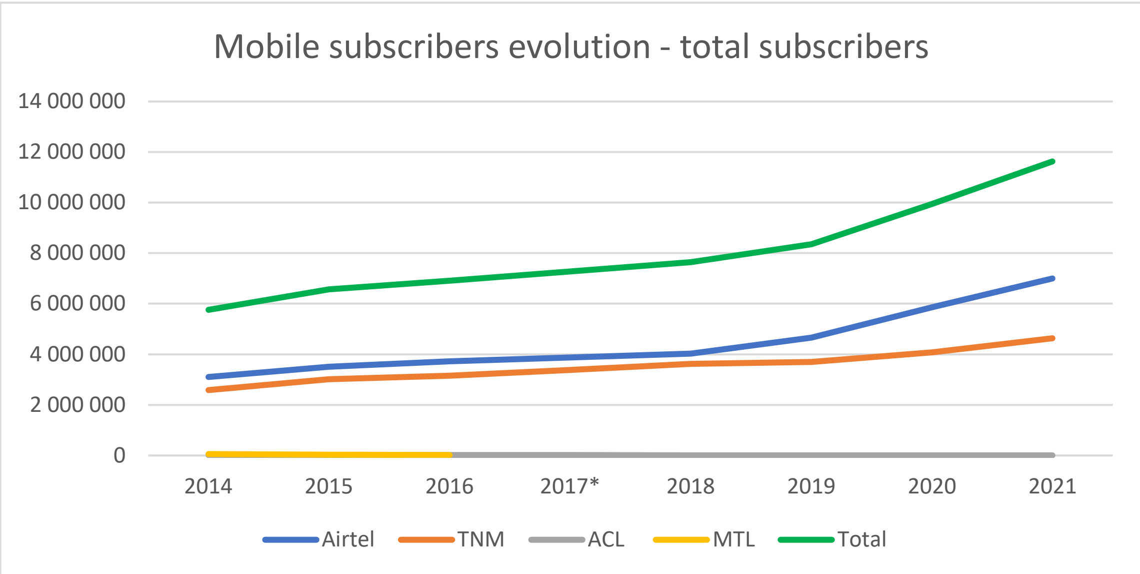
Mobile subscriber market shares (October 2021)

Provider	Subscribers	%
Airtel	6 995 285	60,14%
TNM	4 631 633	39,82%
ACL	5 220	0,04%
Total	11 632 138	100%

Source: Data request

According to the data collected, Airtel is the leading provider of mobile telecommunication services in terms of subscribers with 60.14% market share as at October 2021[33]. The graph below illustrates the licensed MNOs evolution in terms of mobile subscribers, over the period soon after ACL entered the market. Mobile subscribers reached 11.6m in October 2021.

Mobile subscriber evolution (2014-2021)



Source: Answers to the data request and BRG Report 2018. Data for 2017 is a linear interpolation of adjacent years. Airtel 2021 data corresponds to 90 days subscribers as at September. TNM data as at October 2021. ACL data as at September 2021. MTL withdraw from the market in 2017

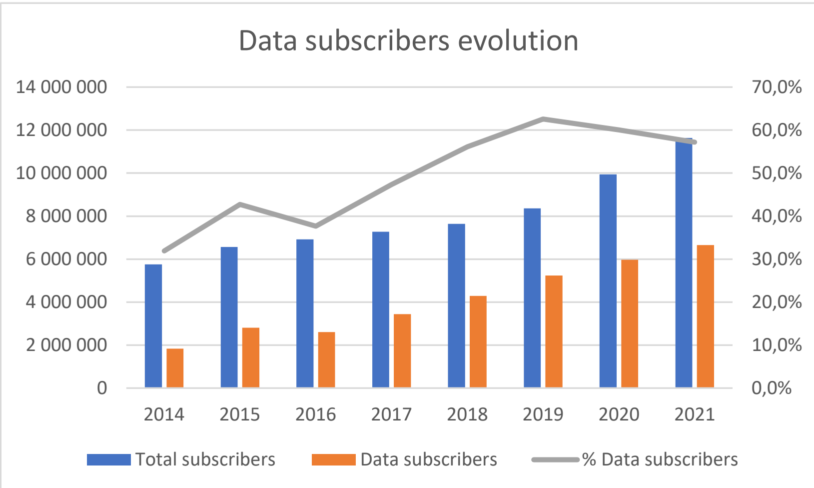
[33] This is an approximation as Airtel and ACL data is from September and TNM from October. TNM data is based on 90 days subscribers.

Total subscriber's annual average growth rate has been low in the last 7 years: 10.7%. Two things are also worth mentioning:

- Collectively, Airtel and TNM have enjoyed a combined market share of more than 99%. Although the main mobile operators' relative market shares, as measured on the number of mobile network subscribers, remained at similar levels up to 2018, over the last three years Airtel's market share has been increasing steadily from 53% in 2018 to 60% in October 2021;
- The other two mobile operators, MTL and ACL have always had a very small market share of less than 1% collectively. MTL withdraw from this market in 2017 and ACL has since seen a decrease in mobile subscribers.

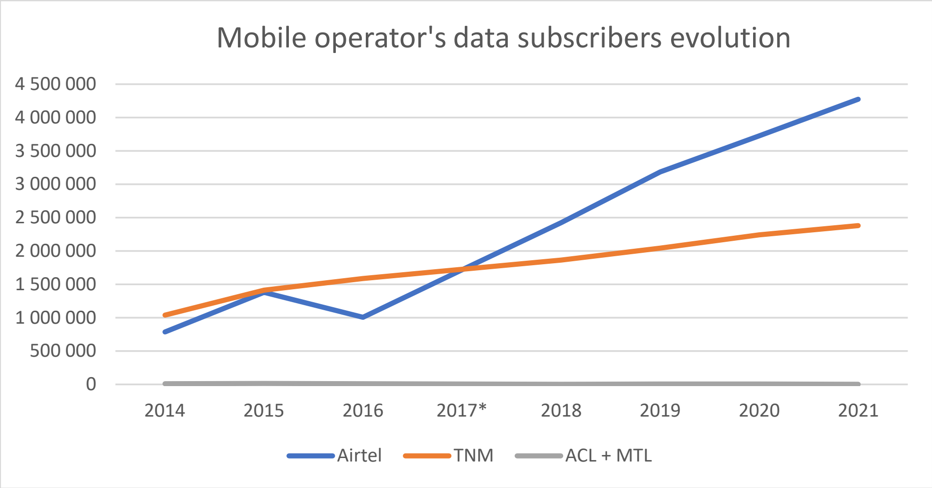
As stated earlier, the mobile services market in Malawi is based on prepaid subscriptions. Prepaid subscriptions account for 99,39% (assuming all ACL subscribers are prepaid, as the split between prepaid and post-paid is not known) of the three operator's total subscriptions. Data subscribers account for 57% of the total subscribers as of October 2021. This is a similar value as of the end of 2018. In spite of a growth in total data subscribers, a decline in % of total subscribers has been observed in the last two years.

Mobile data subscriber evolution



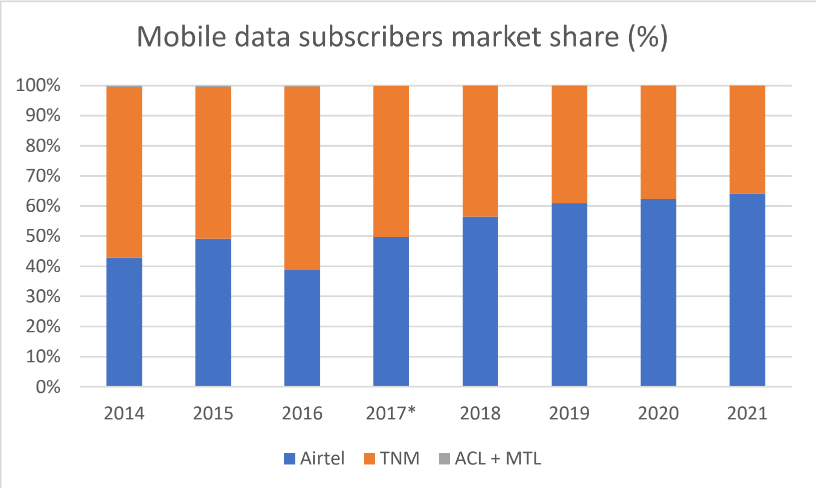
TNM was a market leader in terms of data subscribers up to 2017. Market shares of the two main operators in terms of mobile data subscribers have seen a twist after 2017. TNM was the market leader of mobile data services between 2014 and 2017 but was since outclassed by Airtel which now enjoys a significant share of the mobile internet access market: 64%.

Mobile data operator’s subscriber evolution



TNM has seen its market share decrease from 56,6% in 2014 to 35,8% as at October 2021, a significant loss.

Mobile data subscriber market shares



The analysis of the retail mobile services does not allow us to observe a tendency towards competition behind the existing barriers. There are two main service providers in this market, Airtel and TNM. The market structure is likely to remain duopolistic within 2-3 years. The mobile services market in Malawi shows signs of stagnation, with average annual growth in terms of subscribers of around 15% per year in the last three years. The mobile services market in Malawi has a low penetration when compared to similar countries.

The coverage of the two operators is similar, although Airtel mobile 4G network may have a wider reach. In nominal terms, voice prices appear to have declined, but standalone mobile data bundles remain relatively high when compared to regional benchmarks[34]. A duopolistic

[34] See assessment of dominance in the retail mobile services market, section 3.3.

market structure is unlikely to provide results commensurate with a competitive market in terms of price levels, service availability and innovation.

Conclusion

There does not appear to be a tendency towards competition either behind the high and non-transitory barriers to entry into this market or in the form of conduct within the market.

Retail mobile services were initially considered to be two markets in earlier sections, namely voice and SMS services, and internet access services. But as no meaningful differences in terms of the operator's market conduct appears to exist which could provide different outcomes in the dominance assessment (for example, significant differences in market share in each of the markets or pricing behaviour), we conclude that the retail mobile services market can be defined as including voice, SMS and internet access.

The retail mobile services market in Malawi is considered to warrant ex-ante regulation.

3.2.3 Retail fixed services

In Malawi there is competition for providing broadband fixed services to business customers. However, the fixed retail market is much smaller than the mobile market in Malawi. The fixed line penetration rate is one of the lowest in Africa. There are currently around 14,000 subscribers. Total fixed services market is worth around **[✂]** and has been fairly constant in the last 4 years. Fixed broadband services account for 97,7% of total revenues.

[✂].

There were 6 fixed network operators offering retail fixed services that provided revenues data: MTL, inqDigital, Globe, Converged Technology, Afrimax and Datacom.

Fixed services revenues market shares

Fixed voice services	2018	2019	2020	2021*
MTL	100,0%	100,0%	100,0%	100,0%
Fixed broadband	**2018**	**2019**	**2020**	**2021***
MTL	27,7%	26,0%	25,9%	23,3%
inqDigital	52,5%	52,9%	52,1%	54,3%
Globe	17,7%	18,7%	19,1%	18,1%
Converged	0,0%	0,2%	0,4%	0,9%
Afrimax	0,0%	0,5%	1,3%	1,8%
Datacom	2,0%	1,7%	1,2%	1,6%

*Revenues extrapolated to the end of the year except in the case of Globe.

MTL is the sole provider of voice services-only customers. For the supply of broadband services at a fixed location there are at least 6 providers, three of which have significant market shares. Market shares have been fairly stable over the last 4 years. MTL offers appear to be directed to the residential market whereby inqDigital targets business customers. Globe advertises internet access with specific packages to the corporate and residential segment using wifi, 4G and fibre. Price comparisons of fixed internet access are difficult to determine, as inqDigital does not provide prices in their website. MTL and Globe provided the prices for internet access, in the case of MTL, all with data caps.

In the past, the retail services market at a fixed location had high and non-transitory economic barriers. Economic barriers would take the form of substantial capital[35] requirements to establish a national fixed network and adequate support systems and to develop appropriate commercial distribution operations. Fixed networks have economies of scale at the wholesale level but not at the access level. In the absence of any ex-ante remedies (at a retail or wholesale level[36]), a local access infrastructure is an essential pre-requisite for offering retail services at a fixed location. However, using wireless technologies or a combination of both, other operators can access urban dense areas and expand to rural areas without the need for a fixed local access network. This has allowed operators to considerably lower the existing barriers provided access to spectrum is available at a fair cost.

Therefore, it appears reasonable to conclude that the fixed retail market is competitive and that there are no high barriers to enter this market. The market is believed to remain competitive for the next 2 to 3 years.

Conclusion

The retail fixed services market in Malawi does not warrant ex-ante regulation.

3.2.4 Retail leased lines

Retail leased lines services were not mentioned in the answers provided by licensed operators. Presumably this is a small market and therefore it would be premature to investigate any dominance. However, if necessary, this can be confirmed later in the public consultation.

Conclusion

This market will not be further analysed in this report.

3.2.5 Wholesale fixed infrastructure access

In Malawi there is very limited duct and pole infrastructure available for rent. There is passive infrastructure owned by fixed wholesale only operators such as SimbaNET and non-telecommunications operators, such as ESCOM which has pole infrastructure built for electricity transmission and distribution. There could be, within urban areas, passive infrastructure owned by municipal authorities that were developed for other purposes. However, these were not accounted for in this market analysis. In the last market analysis, it was mentioned that MTL also leases dark fibre, but at this time no wholesale revenues from ducts, poles or dark fibre were reported in response to the data request.

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[35] A market entrant would face significant levels of investment largely in the form of sunk costs therefore, largely irrecoverable if the entrant decided to, or is forced to, exit the market.

[36] Barriers to entry to this market would be lower if *ex-ante* remedies at the wholesale level would allow new entrants to enter the retail market without the need to build their own access infrastructure. Remedies could be the unbundling of the local loop or a bitstream offer.

Wholesale access to fixed passive infrastructure market is relatively small and shows some decline in recent years. This may be the result of licensees' further investment in their own infrastructure or because the existing suppliers are keener to lease capacity. In 2021 this market was worth around 0,5 million USD. ESCOM, an electricity utility, is the main supplier in this market.

[✂].

The market for passive fixed infrastructure (i.e. ducts, poles and dark fibre) was at the time of the last review (2018) considered to be in the early stages of development. However, instead of further revenues growth we can observe a decline. There are high barriers to entry into this market and there is limited competition so this market appears to be stagnating and could possibly become a secondary market in the future.

Conclusion

This market should not be considered to warrant ex-ante regulation.

3.2.6 Wholesale fixed call origination

The market for wholesale origination in fixed networks is characterized by strong economies of scale, scope and density in access networks.

Control over the local access network is an essential condition for offering wholesale voice calls origination services at a fixed location. If an operator decides to enter this market, it would be required to make substantial investments in order to be able to provide a direct access service and these investments would constitute a large sunk cost. Therefore, barriers to entry in this market are high. Only MTL self-supplies origination services of its own origination traffic. There are no indirect access services at present in Malawi.

Conclusion

Because this market exists only for self-supply for MTL, the wholesale fixed call origination is a notional market and does not constitute a relevant market for *ex-ante* regulation.

3.2.7 Wholesale mobile access and call origination

The mobile services market in Malawi is organized according to a model of vertical integration since the same entities - the network operators - operate in the wholesale and retail markets.

In other countries, the model is sometimes different, and it is common to find other companies providing retail services, acquiring the wholesale services needed by network operators. These are the so-called mobile virtual operators (MVNO) and/or indirect access providers. For example, in many countries in Europe (Austria, Belgium, Denmark, France, Germany, Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom) there are MVNOs and/or simple service providers (resellers) which buy wholesale access and origination services from full MNOs[37].

In this context, it is not possible to find a wholesale market with effective transactions in Malawi. It is, however, possible to build a hypothetical market based on the notion of internal provision of access and call origination. Indeed, each operator can be considered to provide itself with the necessary inputs for the provision of retail services. In other words, each operator could be considered to have within itself two divisions, the one providing wholesale services and the one providing retail services, in which the first is the supplier of the second. Therefore, the three competing mobile network operators (MNOs) are self-supplying wholesale mobile access and call origination to their own downstream retail operations.

A hypothetical monopolist offering wholesale access and call origination services to indirect access operators or MVNOs, would face a competitive constraint from the integrated network operators that follow the existing model in Malawi. As a result, indirect access operators or MVNOs could lose customers to integrated network operators. Thus, the hypothetical monopolist of wholesale access and origination services would lose revenues while the integrated operator's internal wholesale access and origination division would increase its revenues. The competitive restriction to the hypothetical monopolist would thus come from the substitution of demand at the retail level. As demand-side substitutability tends to be strong, the self-supply of wholesale access and origination services should be included in the relevant wholesale market.

Thus, in the Malawi case, where there are no wholesale relationships outside the self-supply of each operator, the structure of this hypothetical wholesale market is similar to the structure of the retail market. In this context, one can use the degree of competition in the retail market as an approximation to the degree of competition in the wholesale market for access and call origination.

The analysis must also take into account the foreseeable developments in the market in the assessment of competition level. One must assess whether the market tends sufficiently towards competition and, if circumstances warrant it, how competition may be stimulated. Based on the mobile retail services assessment, the level of concentration of the market in Malawi is unlikely to change substantially unless market conditions change.

In this case our preliminary view is that with only two players established in the market, there is limited competition in the retail market and no likely improvement to competition in the next 2-3 years. The lack of effective competition could in theory be addressed by mandating remedies such as further market entry as wholesale remedies are intended to support the possibility of enhancing competition at the retail level.

[37] There is a wide variety of business models used by operators/providers across Europe, which depend on the availability of wholesale access and call origination services provided by mobile network operators. Virtual mobile operators use access to the radio network of network operators, and produce their own SIM cards, service providers use access to airtime (minutes or capacities), and may also develop their own value-added service platforms. In turn, indirect access providers use call origination services.

MVNO agreements are generally concluded on a commercial basis and without the requirement for regulatory remedies. Should there be a commercially agreed MVNO hosted by one of the MNOs, interconnection regulations should be sufficient to ensure the market entry of a new player. With only two well established players in the market, which we consider to be insufficiently competitive at the retail level, we must consider wholesale access and call origination to mobile networks for ex-ante regulation.

Conclusion

This market has high barriers to entry and no discernible trend towards competition, therefore should be considered a relevant market for ex-ante regulation.

3.2.8 Wholesale mobile infrastructure access

In Malawi, there are two main providers of access to mobile passive infrastructure – TNM and Airtel, which leases these services directly or through their own tower company, Malawi Towers. Malawi Towers is incorporated in Malawi and is a subsidiary of Bharti Airtel Malawi Holdings, a wholly-owned subsidiary of Bharti Airtel Africa. It owns mobile passive infrastructure assets which are mainly used by Airtel Malawi plc to provide mobile telecommunication services to Airtel Malawi plc end-customers in Malawi.

However, the current market structure is likely to change. In March 2021 Helios Towers, an independent telecommunications infrastructure company, announced that it had entered into agreements with Airtel Africa Group companies for the acquisition and rollout of over 2,500 sites. Helios Towers plc signed agreements with two Airtel Africa Group passive infrastructure operating companies in Madagascar and Malawi, subject to required regulatory approvals. As part of the reported deal, Helios Towers is supposed to start managing 713 sites in Malawi with an estimated 1:4 tenancy ratio. Under the tower sale deal, Airtel Africa's subsidiaries will continue to develop, maintain and operate their equipment on the towers in separate lease agreements, largely in local currencies, with Helios Towers.

Today, there are three mobile operators and a tower company. As a result of the arrangement described above the market structure and market shares will likely change over the time. However, Helios Towers will likely look to expand the market and not subject itself to TNM or Airtel strategies.

Mobile operators always have the alternative to build their own infrastructure, if needed. It also becomes possible to share infrastructure among them outside the scope of Helios Towers' agreement.

Therefore, the arrival of Helios Towers, regardless of its large market share, changes the market power of the main operators and may even enhance the competitive level of this market. The market is currently estimated to be worth 25 million USD, doubling the amount that was reached 4 years ago:

[✂].

Conclusion

The existing data and foreseen developments show a well-functioning market with a considerable growth potential. Therefore, this market should not be considered a relevant market for ex-ante regulation.

3.2.9 Wholesale fixed termination

Wholesale voice termination services in fixed networks has barriers which cannot be overcome. Due to interconnection rules all fixed operators are responsible for terminating calls to their network irrespective of their origin and it is technically infeasible to terminate voice calls on a network other than that of the operator to which the called party is a subscriber. It's generally accepted that all operators have a monopoly on voice call termination on their networks[38].

Each fixed network operator has a monopoly within the market of voice call termination on its network. It has 100% market share, and there will never be a tendency towards competition in this market[39].

Conclusion

Wholesale fixed termination is a relevant market for ex-ante regulation.

3.2.10 Wholesale mobile termination

Termination in mobile networks requires an access network. The same reasoning applies as for origination regarding the need to build an extensive access network.

In wholesale markets for traffic termination on mobile networks, by definition it is not possible to enter these markets (each mobile network constitutes a separate market). By definition, the network operator, whose network defines each separate market, has a 100% market share. There can be no competitive entry. By definition, there cannot be competition in these markets.

Conclusion

Wholesale mobile termination services on each of the mobile networks in Malawi, are susceptible to ex-ante regulation.

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[38] The price of termination services is often regulated. A maximum price is usually set by the regulatory authority but it's also possible that operators to reach a commercial agreement. A problem exists if the price is set too high in relation to costs.

[39] Some operators have argued in the past that countervailing buyer power of customers could play a role. However, international best practice in the context of market analysis, has usually concluded that the extent to which a purchaser of termination services could, with a significant degree of countervailing buyer power, constrain the pricing behaviour of the monopolist, is highly unlikely.

3.2.11 Wholesale leased lines

As in the other wholesale markets there are high and non-transitory economic barriers in the provision of wholesale leased lines for the same set of reasons. Network investment would be significant for anyone wishing to become a supplier of wholesale leased lines (and transit services) covering all of Malawi, as this would require a nationally ubiquitous network and interconnection agreements with all domestic mobile and fixed operators. The investments, particularly in the physical network, are sunk costs that are hardly recoverable if forced to exit from the market. Therefore, entry barriers are high.

It might be that entry could be focused on some key routes at national or international level if, for example, there was significant traffic between two interconnection points of different operators such that entry into such a route might be attractive. If traffic volumes are significant, the large upfront investment can be spread over larger traffic volumes. However, entry barriers would remain high on routes where traffic volumes would be much smaller.

There are 4 players in the leased lines market. Revenues reported by operators as wholesale broadband access were included in this market. ESCOM has the highest market share at 37,5%. However, market shares have not been stable, which is an indication of competition in the market.

[✂].

A further feature of the wholesale leased lines market is the existence of three wholesale-only players in the market (MTL also provides retail services). The creation of Open Connect as a wholesale-only player, resulting from the separation of MTL into two distinct companies, has brought a further element of competitiveness in the wholesale market because it eliminates the risk of MTL discrimination in favour of its own downstream retail business. SimbaNET is also currently a wholesale-only business with 28,7% market share which adds to competition intensity at both wholesale and retail levels.

Ex-ante regulatory intervention in this market is usually justified when a vertically integrated operator has a significant control of assets which would be costly to duplicate, and that would have a motivation to deny access or margin squeeze potential access seekers. But this is not the case in Malawi. Escom, Open Connect and Simbanet, the main suppliers in this market, are wholesale-only operators and therefore their main objective is to sell as much as possible to access seekers. There could be a case for excessive prices but this is still an emerging market in Malawi and if wholesale prices are incorrectly set by regulation, it could distort the market.

Conclusion

There are signs of effective competition in the provision of leased line services. Therefore, this market should not be considered a relevant market for ex-ante regulation.

3.2.12 Wholesale access to international capacity

The market for international bandwidth is liberalized. Most operators self-supply their own traffic access to international capacity but it can be also supplied by multiple operators. There are alternative routes to connect to cable landing stations and submarine cable infrastructure in the African coast. There are routes through Mozambique to the landing station in Maputo and through Tanzania to the landing station at Dar es Salaam. There is also a route out via Zambia and Zimbabwe to connect through to South Africa. These alternative routes are owned and controlled by separate entities which compete with each other. There is therefore a competitive market to connect from the Malawi border to the global submarine cable network.

On the submarine cables themselves, there are multiple players which own and control capacity on a very wide variety of routes. There is therefore an open and highly competitive market in the supply of such capacity and the provision of IP international transit.

Conclusion

This market should not be considered a relevant market for ex-ante regulation.

3.2.13 List of relevant markets for ex-ante regulation

In the analysis presented above, only the following four markets have been found to be susceptible to ex-ante regulation:

- Retail mobile services
- Wholesale access and call origination
- Wholesale voice termination in fixed networks, and
- Wholesale mobile termination.

3.3 Assessment of dominance

In this section of the report, the conditions of competition (actions of participants) in each of these markets are assessed in order to determine if any operator or operators are dominant. This requires an understanding of the level of competition in each relevant market. Both the Guidelines and international practice suggest that this analysis should follow two sequential steps:

- An assessment of dominance based on market share
- Analysis of other relevant factors that contribute to the conduct and performance of competitors in the market.

3.3.1 Market share

In assessing existing competition in a market, the analysis needs to consider the number of firms competing in that market and their market shares. Measures of concentration can also be calculated (they are a function of market shares and number of competing firms).

The number of firms in a market gives a first indication of the level of competition. For example, if there is only one firm in the market, by definition there is no competition. Still, this shouldn’t lead to the immediate conclusion of dominance as potential competition can materialize in a short period of time if there are not barriers to entry or expansion in that particular market.

There is also a need to look into the relative size of firms within a market. Electronic communications markets are oligopolistic and there are usually not many firms in each market, often only two or three. These firms may be of roughly equal size, but also, they may be of different size and have different market shares. Therefore, it is recommended to look at measures of concentration such as the Herfindahl-Hirschman Index of market concentration[40] (HHI)[41].

International practice

The existing guidelines and decisions of the European Commission in relation to market definition and the determination of dominance have proved to be extremely useful for national regulatory and competition authorities to carry out their competition level assessments, and we note the definition of dominance expressed in both the Act and the Guidelines.

The European Commission guidelines on market analysis and the assessment of significant market power[42] explain the role of market shares as a proxy for dominance:

> "*As explained in the paragraphs below, a dominant position is found by reference to a number of criteria and its assessment is based, as stated above, on a forward-looking market analysis based on existing market conditions. Market shares are often used as a proxy for market power. Although a high market share alone is not sufficient to establish the possession of significant market power (dominance), it is unlikely that a firm without a significant share of the relevant market would be in a dominant position. Thus, undertakings with market shares of no more than 25 % are not likely to enjoy a (single) dominant position on the market concerned. In the Commission's decision-making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40 %, although the Commission may in some cases have concerns about dominance even with lower market shares, as dominance may occur without the existence of a large market share. According to established case-law, very large market shares — in excess of 50 % — are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position. An undertaking with a large market share may be presumed to have SMP, that is, to be in a dominant position, if its market share has remained stable over time. The fact that an undertaking with a significant position on the market is gradually losing market share may well indicate that the market is*

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[40] The Herfindahl-Hirschman Index is calculated by computing the sum of the squares of the individual market shares of each firm within a market. This allows to give more weight to firms with a higher market share. If, for example, there is only one firm in a particular market, that firm would have, by definition, 100% market share, and the Herfindahl-Hirschman Index (HHI) would simply be equal to 10,000, the maximum value of the index. If there are three firms each with a fair market share of 33% (one will have 34%) the HHI would be 3334. The closer a market is to a monopoly situation, the higher the HHI is and the lower its competition.

[41] Section 4.1.5 of the Guideline.

[42] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, (OJ C165, 11.7.2002), page 10, available at: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF

becoming more competitive, but it does not preclude a finding of significant market power. On the other hand, fluctuating market shares over time may be indicative of a lack of market power in the relevant market."

Besides the importance of market shares, these few paragraphs clarify and give context about other important aspects:

- They point out the fact that a low market share doesn't eliminate the possibility of dominance
- They define a threshold above which there would likely be concerns regarding a potential existence of dominance: equal or above 40% market share
- They consider that large market shares, above 50%, are usually a sign of dominance
- They highlight the importance of past market shares fluctuation (say over the last 3 to 5 years): stable market shares may confirm a situation of dominance but for example a continuous decrease of the market leader share may indicate that such a market is quickly becoming competitive.

The European Commission guidelines on market analysis and the assessment of significant market power[43] explain how to go about measuring market shares in different types of markets, highlighting the importance of revenues as a preferred measure (a measure also preferred by the Malawian Guidelines):

"*As regards the methods used for measuring market size and market shares, both volume sales and value sales provide useful information for market measurement. In the case of bulk products preference is given to volume whereas in the case of differentiated products (i.e. branded products) sales in value and their associated market share will often be considered to reflect better the relative position and strength of each provider. In bidding markets, the number of bids won and lost may also be used as approximation of market shares*.

"Market shares are mostly used at national level — by both competition authorities and courts — as a relevant proxy, but the assessment very often includes other factors, such as competitor's shares and evolution, control over essential facilities, barriers to entry, and limitations imposed by regulation.

The criteria to be used to measure the market share of the undertaking(s) concerned will depend on the characteristics of the relevant market. It is for NRAs to decide which are the criteria most appropriate for measuring market presence. For instance, leased lines revenues, leased capacity or numbers of leased line termination points are possible criteria for measuring an undertaking's relative strength on leased lines markets. As the Commission has indicated, the mere number of leased line termination points does not take into account the different types of leased lines that

[43] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, (OJ C165, 11.7.2002), page 10, available at: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF

are available on the market — ranging from analogue voice quality to high-speed digital leased lines, short distance to long distance international leased lines. Of the two criteria, leased lines revenues may be more transparent and less complicated to measure. Likewise, retail revenues, call minutes or numbers of fixed telephone lines or subscribers of public telephone network operators are possible criteria for measuring the market shares of undertakings operating in these markets.

Where the market defined is that of interconnection, a more realistic measurement parameter would be the revenues accrued for terminating calls to customers on fixed or mobile networks. This is so because the use of revenues, rather than for example call minutes, takes account of the fact that call minutes can have different values (i.e. local, long distance and international) and provides a measure of market presence that reflects both the number of customers and network coverage. For the same reasons, the use of revenues for terminating calls to customers of mobile networks may be the most appropriate means to measure the market presence of mobile network operators."

Approach in Malawi

In Malawi, the Act defines a dominant market player as *"an entity that holds, either on its own or in conjunction with other entities, a significant market power*". Sections 57(3) to (5) are relevant in considering the significance of this determination, and read as follows,

"(3) A licensee shall be deemed as holding a dominant position in a relevant market if the licensee - _

(a) holds a large market share;
(b) has control of essential facilities;
(c) is involved in a vertical relationship that could harm competition in the market applicable to the particular category of licence as determined by the Authority; or
(d) any other factors as determined by the Authority.

(4) The Authority shall deem a licensee as holding a dominant position in a given relevant communications service market for a given calendar year where, in its opinion, the licensee may, acting alone, be able to profitably and materially restrain or reduce competition within the relevant communications service market and during the calendar year concerned.

(5) The Authority shall deem licensees as holding a joint dominant position in a given relevant communications service market for a given calendar year where, in its opinion, the licensees may, acting jointly, and in particular because of factors giving rise to a connection between the licensees, be able to adopt a common policy on the market and act, to a considerable extent, independently of their competitors and customers, within the relevant communications service market and during the calendar year concerned."

The Guidelines require that MACRA will define a licensee as having a large market share which is equivalent to dominance, in accordance with the following criteria:

1. the licensee has market share of at least 30% of that market;

2. the licensee has a market share of less than 30% but can operate in the market without effective constraints from its competitors, potential competitors, suppliers or customers; and
3. licensees will be considered to be jointly dominant in a particular calendar year if three or fewer licensees hold at least 60% share of the relevant market; or five or fewer licensees hold at least 70% share of the relevant market.

Although it is not specified, we have interpreted this guidance in a sequential manner. Thus, if a company has more than 30% market share it is presumed to be dominant unless an analysis of the other factors leads to an alternative conclusion. If no company has 30% market share, then the other relevant factors have to be analysed to see whether the second criteria is met.

If the result of either of the first two criteria is that there is a single dominant supplier that is the end of the matter. But if the answer is negative, an assessment of joint dominance should be considered in the relevant market, based on the last criterion. A joint dominant position occurs when two or more firms have a collective position of strength in a market, so that they can follow a common policy without particularly considering the responses of other companies or customers and consumers.

In its response to the public consultation Airtel Malawi expressed surprise that it has been "singled out to be dominant" because both it and TNM have market shares in excess of 30% in the retail mobile market. Airtel believes that the Guidelines are clear that in such a situation both companies should be declared dominant. However, this reading of the Guidelines requires equal weight to be given to each of the three factors mentioned above, and no prioritisation.

We also note that the market share thresholds indicated in the Guidelines are unusual: international best practice determines joint dominance on the basis of a range of factors (including but not limited to market share) and also on evidence of actual or potential collusive behaviour. Such factors are also specified in the Act, and must therefore be taken into account when determining dominance.

3.3.2 Other relevant factors

A second step in the process of finding dominance requires the consideration of other factors in conjunction with market share. In this respect the European Commission guidelines list a number of factors that can be used:

> "*It is important to stress that the existence of a dominant position cannot be established on the sole basis of large market shares. As mentioned above, the existence of high market shares simply means that the operator concerned might be in a dominant position. Therefore, NRAs should undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power. In that regard, the following criteria can also be used to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers. These criteria include amongst others:*

- *overall size of the undertaking,*
- *control of infrastructure not easily duplicated,*
- *technological advantages or superiority,*
- *absence of or low countervailing buying power,*
- *easy or privileged access to capital markets/financial resources,*
- *product/services diversification (e.g. bundled products or services),*
- *economies of scale,*
- *economies of scope,*
- *vertical integration,*
- *a highly developed distribution and sales network,*
- *absence of potential competition,*
- *barriers to expansion*.

A finding of dominance depends on an assessment of ease of market entry. In fact, the absence of barriers to entry deters, in principle, independent anti-competitive behaviour by an undertaking with a significant market share. In the electronic communications sector, barriers to entry are often high because of existing legislative and other regulatory requirements which may limit the number of available licences or the provision of certain services (i.e. GSM/DCS or 3G mobile services). Furthermore, barriers to entry exist where entry into the relevant market requires large investments and the programming of capacities over a long time in order to be profitable. However, high barriers to entry may become less relevant with regard to markets characterised by on-going technological progress. In electronic communications markets, competitive constraints may come from innovative threats from potential competitors that are not currently in the market. In such markets, the competitive assessment should be based on a prospective, forward-looking approach."

In Malawi, under the Guidelines and section 57 of the Act, MACRA will consider the structure of the market and whether or not a licensee is dominant having regard to:

a) a licensee's control of essential facilities;
b) the degree of vertical integration within a licensee;
c) the existence of competitors (including barriers to entry);
d) level of and trends of concentration and history of collusion;
e) the size of participants (market share);
f) if there is countervailing buying power;
g) ease of access to capital markets; and
h) the dynamic character of the market.

3.3.3 Retail mobile services

Malawi remains one of the world's least developed countries, with few resources to build widespread wired telecom infrastructure. As is common in Africa, the country's two main mobile networks provide the vast majority of accesses to voice and data services. Although both Airtel Malawi and Telekom Networks Malawi have invested in 4G LTE to improve data services, this market duopoly is far from being competitive. Mobile penetration is considered to be low in comparison to neighbouring countries and therefore offers considerable room for further growth, particularly in the mobile data services. Airtel[44] is of the view that limited availability and high cost of international bandwidth restrains growth and causes high broadband access prices, which, according with Airtel, are among the highest in the region.

Total retail mobile services revenues reached **[✂]** in 2021[45] with an average annual growth rate between 2018 and 2021 of 11%. Voice services are still the most valuable segment accounting for 59% of total revenues. Data services revenues, which now account for 36,5% of total mobile revenues, have seen a significant increase in this period.

Retail mobile service revenues

[✂].

In terms of revenues, Airtel's market share has increased from 52,3% to 63,7%. As expected TNM's market share has dropped from 47,4% to 36,2%. The other mobile operator, ACL has had a very small market share of less than 1% during this period. According to the segmented data, Airtel's market leadership is slightly more pronounced in the data services segment where is seen to obtain 64,6% of data services revenues as at 2021:

Mobile services revenue-based market shares

Mobile voice services	2018	2019	2020	2021*
Airtel	51,5%	56,3%	63,2%	62,5%
TNM	48,2%	43,3%	36,6%	37,4%
ACL	0,4%	0,4%	0,3%	0,2%
Mobile data services	**2018**	**2019**	**2020**	**2021***
Airtel	57,6%	60,6%	65,8%	64,6%
TNM	42,1%	39,1%	34,0%	35,4%
ACL	0,8%	0,9%	0,5%	0,1%

If we apply market shares, concentration ratios and Herfindahl–Hirschman Index (HHI) then Airtel's market shares of 64.6% on the basis of revenue and 60% on the basis of subscriber base is considered to be above the threshold that would lead to a rebuttable presumption of dominance. Based on existing data, it is evident that Airtel's market shares have steadily risen over time. On the basis of market share alone, Airtel holds a position of dominance in the retail mobile voice market.

[44] Airtel 2020 annual report
[45] Operator's revenues data extrapolated to the end of the year.

Average revenue per user (ARPU), a measure of a country mobile sector and/or an operator's performance, is usually obtained by dividing total mobile service revenues[46] divided by the number of subscribers. ARPU's evolution by definition are driven by several factors namely changes in price, in the number of the subscribers and the mix and quantity of services, for example as when data services increase their share of user's consumption. The ARPUs calculated are derived from aggregate mobile revenues and mobile subscribers for the three MNOs as provided in the data requests responses for the period 2018 to 2021.

In Malawi, ARPU has historically shown a long-term downward trend. Observed ARPUs for Airtel and TNM are currently in the range of **[✂]**, whereby ARPUs for ACL are significantly higher, reflecting perhaps a different customer segment. Nevertheless, with a market share of under 1%, ACL performance does not affect the national average ARPU.

[✂].

Mobile voice services ARPUs, which in fact are quite similar for both main operators, have seen a 17% decrease in the case of Airtel and 28% in the case of TNM. For data services there was an ARPU increase of 29% for Airtel and 33% for TNM. We note that an increase in ARPU does not necessarily mean that prices have increased because for example, if consumers are migrating to higher value retail plans offering a greater volume of data, which is a natural consequence of technological evolution and innovation, this may result in an increase in ARPU but a lower unit price. We are unable to determine how, and to what extent, competitive conditions for mobile services vary by customer segment (such as residential vs. business) in Malawi. Mobile voice and data services have had different trends in terms of ARPU.

The table below summarises the ARPU evolution for both voice and data services of each main operator:

[✂].

The pricing behaviour of the two main operators' voice services appears very similar. Based on the ARPU evolution the pricing behaviour for data services follows the same pattern over the last four years. So, there is some concern that competition is not working at its best in order to drive prices further down.

Market shares of the two main operators in terms of mobile data subscribers have seen a twist after 2017. TNM was the market leader of mobile broadband services between 2014 and 2017 but was since outclassed by Airtel which now enjoys a significant share of the mobile broadband market: 64%. TNM has seen its market share decrease from 56,6% in 2014 to 35,8% as at October 2021, a significant loss. However, it would appear that its behaviour is constrained by that of Airtel so despite its high market share, our initial view is that it is not dominant or jointly dominant.

Based on market shares and the market structure as elaborated above, there are clear concerns about Airtel's market power in the retail mobile voice and data market. Such

[46] The sum of voice, SMS and data services and usually excludes other revenues such as the ones generated by handset sales.

market power could, in the absence of effective regulation or threat of regulation, be manifested in the operator's pricing strategies. In particular, one might expect some evidence of either excessive pricing or exclusionary pricing. Given that market power is the ability to persistently price above the competitive level, the market review evaluated whether Airtel is in a position to, or indeed does, command a price premium above its competitors. TNM does not appear to constrain its behaviour.

Airtel's[47] ARPU evolution in recent years is shown below:

[✂].

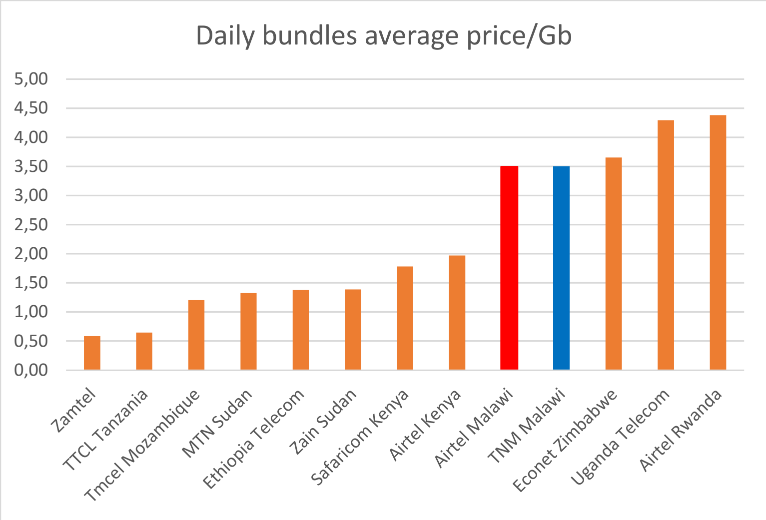
Compared to the previous table, ARPU values are substantially higher which may be due to a different measure of the number of subscribers (using 30 days or 90 days). Nevertheless, ARPU values are fairly constant over the years and for sure in the case of voice services they show some evidence of lack of effective competition. According to the same annual report, this price premium does not appear to be matched by either a higher network coverage or better quality of service standards (although we don't know for sure because quality measures are not available) relative to the other main operators:

> "*There have been two major telecommunications service providers since Airtel launched its operations in October 1999 as Celtel. For almost 20 years MACRA has tried to introduce additional competition in the sector, but there has been no launch of an additional commercial mobile telecommunications service. Airtel and TNM's networks cover approximately 85% and 80%, respectively, of the country geographically. Data indicates that 29% of the population are unique users,…. Annual growth in mobile subscribers is estimated at 4% to reach 9.9 million subscribers in 2023. This growth will achieve a mobile subscriber penetration rate of approximately 45.1% of the population, which implies significant use of multiple sim cards. Malawi's smartphone penetration rate, measured as a percentage of subscribers in 2019 was still under 30% against an average 8.3% penetration for the region, which lags that of other SADC countries. South Africa for example is at 85% and Africa as a whole is at 42%. This implies that there is scope for future growth in the mobile data segment, where Airtel is currently market leader at 50 terabytes/day in 2019, an increase of over 50% year-on-year*."

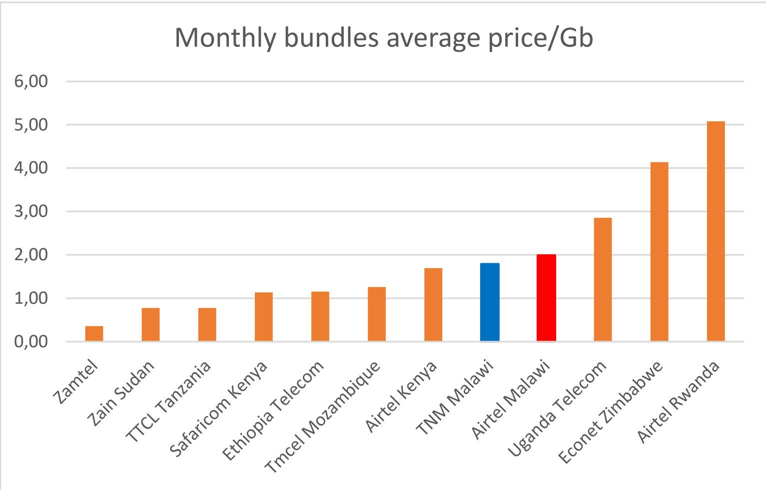
On the other hand, when benchmarked against other places, mobile daily and monthly data-only bundles appear to be expensive compared to other countries in the region:

[47] Airtel annual report 2019

Daily data bundles average price (USD/Gb)



Monthly data bundles average price (USD/Gb)



Significant differences in the levels of profitability can also be an indication of high prices and much higher than costs. It is usual to measure and compare levels of profitability among players using the EBITDA[48] margin, by definition the operating result before taxes, financial charges and amortization. The EBITDA margin corresponds to the value of the latter divided by revenues.

The following table compares profitability levels achieved by TNM and Airtel, for the periods for which these data are available:

EBITDA (margin %)	2016	2017	2018	2019	2020
TNM	34	35	37	38	34
Airtel				41,5	46,2

48 EBITDA: Earnings Before Interest, Taxes, Depreciation and Amortization.

According to Airtel Malawi, the achieved EBITDA of K50,926 million in 2020 was up by 32.1% based on strong revenue growth and broadly stable operating expenditure. EBITDA margin has significantly increased from 41.5% (end of 2019) to 46.2% (end of 2020). One can also see a quite substantial difference between TNM and Airtel performance. Although there is no commonly agreed definition of excessive profitability, the levels of profitability enjoyed by TNM and Airtel are clearly above average and may also correspond to lack of competition in this market.

Conclusion

Based on the above evidence, Airtel's market share greatly exceeds the thresholds where firms are typically presumed to be dominant. It also enjoys advantages with respect to many of the other indicative factors mentioned in the Guidelines, specifically: control of essential facilities, vertical integration, high levels of market concentration, privileged access to financial resources and a lack of dynamic characteristics in the market. As a result of these factors, Airtel has growing and enduring market power in retail mobile voice, SMS services and internet access which enables it to behave, to an appreciable extent, independently of its competitors, customers and ultimately consumers.

Based purely on the market share thresholds mentioned in the Guidelines, there could be a case for finding TNM also to be dominant, or to find Airtel and TNM to be jointly dominant. However, TNM has a far lower market share than Airtel, does not enjoy the same other advantages with respect to the other relevant indicators of market power, and that year-by-year there has been an increasing divergence between the two operators' relative market power. We therefore conclude that only Airtel is dominant in the retail mobile services market[49].

3.3.4 Wholesale mobile access and call origination

Considering that all wholesale mobile call origination and access services are provided through self-supply to the same operator's retail division, the operators' market shares in the mobile retail services are a good approximation to the market shares in the wholesale input market. Airtel has more than 60% market share and the preliminary view explained above is that Airtel is dominant in the mobile retail services market. Therefore, it could also be assumed that Airtel has SMP in the market for whole access and call origination.

MACRA needs to address in which market (retail, wholesale or both) to impose obligations by looking at these wholesale and retail markets together.

[49] It is also the case in economic theory that only one supplier can be dominant in a market except for the specific circumstances where collusion takes place and joint dominance may be indicated.

3.3.5 Wholesale termination markets

The market shares of termination services have no significance in terms of dominance assessment since each operator has a 100% share of termination in its network, which in practice constitutes itself as a separate market.

3.3.6 Summary of dominance determinations

The table below shows the provisional findings with regard to dominance in each of the four relevant markets for ex-ante regulation.

Market	Finding of dominance
Retail mobile services	Airtel has >60% market share of retail voice, SMS and mobile data services, and is therefore considered dominant in this market.
Wholesale mobile access and call origination	Airtel has a high market share of wholesale mobile access and call origination on its network and is considered dominant in this market.
Wholesale termination in fixed networks	MTL has a 100% share of terminating traffic on its network, which constitutes a separate market. Therefore, MTL is dominant in the voice termination services on its network.
Wholesale termination in mobile networks	Each operator has a 100% share of terminating traffic on its network, which constitutes a separate market. Therefore, TNM, Airtel and ACL are dominant in the termination services on their networks.

3.4 Proposed remedies

The final step of the market analysis process is the choice of obligations/remedies to be imposed on operators identified as having dominance. In an approach based on market analysis, remedies should be specifically addressed to competition problems that would likely exist in the absence of ex-ante regulation. In the event that a market is considered not to be effectively competitive, MACRA must choose, from a range of regulatory remedies defined by law, which are best suited to solve one or more of the specific problems in each market.

This section of the document is structured in several steps. First, it describes the possible competition problems that arise when dominance exists. It describes the nature of the problems, their underlying causes and respective economic justification. It also briefly describes the harm these problems create, in terms of their direct effects on consumers or their effects on competition in the relevant markets. Second, it describes what kind of obligations are available to address the competition problems identified.

The final part integrates the work of the previous ones and tries to combine the competition problems identified and the remedies available to offer a detailed view of the likely direction of decision that MACRA can adopt in specific circumstances and for each of the electronic communications markets considered relevant. The final section provides an overview of the remedies proposed in each market.

3.4.1 Competition problems

Competition problems or "anti-competitive behaviour" refer to any practice of a company which enjoys a dominant position that aims to expel competitors from the market (or prevent them from entering the market) or "exploit" consumers. The markets considered relevant for ex ante regulation have characteristics that can give rise to anti-competitive behaviour or other forms of abuse by dominant actors. This does not mean that this abuse currently occurs or has necessarily been observed.

The structure of the various identified markets can give rise to this abuse and dominant market participants have the incentive to engage in such behaviour to promote their own interests at the expense of, ultimately, the consumers. As the imposition of obligations in the set of ex ante regulatory measures does not imply the occurrence of an abuse of market power, the problems identified must be considered as possible competition problems that may arise in certain circumstances that are specific to each market.

The lack of effective competition and the existence of dominance in the electronic communications markets are, in most cases, caused by structural and legal / regulatory barriers to entry. The European Regulators Group (ERG)[50] common position[51] ranks the potential competition problems relevant to four situations that are the most common in the electronic communications markets. The four situations are described as follows:

- **Vertical leveraging** – This is where an upstream operator attempts to transfer its market power to a downstream market. An undertaking operating in both a wholesale and a vertically related retail market (i.e. that operator is vertically integrated) and that is designated a dominant provider in the wholesale market, has an incentive to behave in this way. Examples of anti-competitive behaviour range from refusal to deal, to withholding of information, to quality discrimination, to price discrimination, and even predatory pricing.
- **Horizontal leveraging** – An undertaking operating on two (not vertically related) markets, that has been designated dominant in one of them may try to transfer its market power from the market where it has SMP to an adjacent market. Examples include bundling or tying and cross-subsidization.
- **Single market dominance** (retail or wholesale) – Competition problems may also exist within the boundaries of one market even if the undertaking is present in more than one wholesale or retail market. Here the problems range from various kinds of entry deterrence, to exploitative pricing, and to productive inefficiencies such as inadequate investment and low quality.

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[50] ERG was an advisory body, which complements the set of Directives of the new European regulatory framework pursuant to recitals 36 and 37 Framework Directive, set with the objective to strengthen cooperation between the regulatory authorities of member states and, in particular, to organise the consultation process, according to Article 7 Framework Directive, which provided for specific draft decisions of the national regulatory authorities. ERG was later renamed BEREC.

[51] ERG (2004), "ERG Common position on the approach to appropriate remedies in the new regulatory framework".

- **Termination** – This corresponds to a two-way access situation in which two or several networks negotiate wholesale interconnection agreements and set their own prices on the retail market where they may or may not be in competition with one another. Here, typical problems may take the form of excessive or discriminatory access pricing or a refusal to deal. Tacit collusion, although rare, may occur when similarly sized interconnected networks compete in the same retail market (we discussed this in the context of joint dominance in our previous report).

Based on the experiences of European national regulatory authorities, the ERG's common position identified the standard competition problems for each market situation listed in the table below. The competition problems identified were based on the study of working groups, on the contributions received during an ERG consultation in June/July 2003[52] and on the literature dealing with competition and regulation problems in the electronic communications markets. Subsequently, the ERG (BEREC) working groups used the structure represented above to address the appropriate remedies for each of the relevant markets where they identified the existence of operators that individually or jointly enjoyed a position of dominance. Similar findings are noted in the BRG report.

Market situation	Competition problems
Vertical leverage	1. refusal to deal / denial of access 2. discriminatory use or withholding of information 3. delaying tactics 4. bundling/tying 5. undue requirements 6. quality discrimination 7. strategic design of product 8. undue use of information about competitors 9. price discrimination 10. cross-subsidization 11. predatory pricing
Horizontal leverage	1. bundling/tying 2. cross-subsidisation
Individual dominance	1. strategic design of product to raise consumers' switching costs 2. contract terms to raise consumers' switching costs 3. exclusive dealing 4. over-investment in capacity 5. predatory pricing 6. excessive pricing 7. price discrimination 8. lack of investment 9. excessive costs/inefficiency 10. low quality
Termination	1. Tacit collusion 2. Excessive prices 3. Price discrimination 4. refusal to deal/denial to interconnect

[52] "Consultation Document on a Draft joint ERG/EC approach on appropriate remedies in the new regulatory framework, as of 21/11/2003", available at: http://www.anacom.pt/streaming/erg0330.pdf?categoryId=85233&contentId=144356&field=ATTACHED_FILE

Therefore, most of the competition problems identified are based on the experience of national regulatory authorities and reflect a detailed knowledge of the competition[53] problems common to electronic communications markets. In the following section the available obligations that can be imposed to address each of the competition problems identified above are described.

3.4.2 Available remedies

Ex-ante obligations should address market failures and the sources of potential damage identified in each relevant market. They must follow these principles, as indicated earlier in the report:

- The principle of suitability and proportionality essentially establishes that the means used to achieve a particular purpose must not exceed what is strictly necessary to achieve that purpose. In order to determine whether a proposed measure is compatible with the principle of proportionality, the action to be taken must have a legitimate objective and the means employed to achieve it must be both those which are strictly necessary and least costly, i.e. they must be the minimum necessary to achieve the goal.
- The principle of effectiveness states that obligations must be designed to solve the identified problem efficiently and target specific issues, to avoid unnecessary regulatory burdens for operators.

In accordance with these principles, regulatory decisions are analysed and justified from the point of view of adequacy, proportionality and effectiveness, taking into account their impact:

- In the market structure, namely in terms of the number of companies installed, their relative size and costs, and the consequent change in the nature of competition and market power;
- In the behaviour of companies, namely in terms of restrictions imposed on the freedom to choose production, distribution and marketing policies (including tariff policy), and the impact of these changes on the market structure, the nature of competition and market power;
- In efficiency, meeting the long-term needs of consumers, innovation and other market outcomes;
- In terms of the regulatory cost on companies. Taking into account the size of the company, the imposed regulation may generate costs that will force the company to leave the market.

If one or more operators enjoy a high market shares and consequently have been designated as dominant, generally the regulatory authority must impose one or more of a number of available remedies to control the possible abuse of that dominance as well as ensuring that entry by smaller or new entrants is possible. Remedies may be applied

[53] The list of competition problems was only considered as a guide and did not prevent a national regulatory authority from identifying other (potential) competition problems.

separately or in combination, as the circumstances of the relevant market and of the nature and source of dominance requires. This section seeks to describe a set of predefined remedies that are available for use by all regulatory authorities and how remedies interact and may be mutually dependant.

As a starting point for this purpose, the EU regulatory framework[54] also ranks the most common obligations/remedies[55] for ex ante regulation, that might apply in either or both of the wholesale and retail markets.

The different types of wholesale obligations are, in ascending order of rigour:

- A transparency obligation requiring publication of specified information (accounting information, technical specification, network characteristics, prices etc.); it normally is a measure related to the right of access and/or interconnection which is imposed by means of the publication of reference interconnection offers (RIOs) and reference unbundling offers (RUOs) which require the official publication of prices and other important terms of supply;
- A non-discrimination obligation, that is to apply equivalent conditions in equivalent circumstances, and not to discriminate in favour of the regulated firm's own subsidiaries or partners;
- An accounting separation obligation to make transparent the internal transfer prices to the regulated firm's own downstream operation in order to ensure compliance with a non-discrimination obligation or to prevent unfair cross-subsidies;
- An access obligation that consists of obligations to meet reasonable requests for access or interconnection or use specific network elements. These may include a range of obligations, including an obligation to negotiate in good faith over terms and conditions of providing access; and/or
- A price control and cost accounting obligation which can require operators to set cost-oriented access charges, or the imposition of a price control on the regulated firm.

Within each of these options there are numerous combinations on how remedies can be imposed. In addition, regulatory authorities may impose remedies outside this list.

How remedies interact and may be mutually dependent and the practical issues regarding implementation are market-specific and may vary substantially. There is no static recipe for any given situation and certainly no unique linking of competition problems and obligations in order to solve market failures. The appropriate obligation/remedy will at all times be dictated by the specific problems identified in any given market.

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[54] Consultation Document on a Draft joint ERG/EC approach on appropriate remedies in the new regulatory framework, as of 21/11/2003, available at
http://www.anacom.pt/streaming/erg0330.pdf?categoryId=85233&contentId=144356&field=ATTACHED_FILE

[55] Each of the general obligations set out in the Access and Universal Service Directives (transparency, non-discrimination, accounting separation, etc…) can be associated with a number of specific remedies and can be used, and usually is, in conjunction with others, in order to mitigate a particular competition problem.

In Malawi, section 6 of the Guidelines provides for a range of remedies or pro-competitive conditions which include tariff reframing and price controls. However, the list is in essence, the same as that referred to above, with the option to add other appropriate pro-competitive conditions.

3.4.3 Remedies in wholesale markets

It is normal practice firstly to establish remedies in wholesale markets and then to consider whether any further remedies are required in retail markets (on the basis that the wholesale remedies are already imposed). The remedies available for wholesale markets (in ascending order of severity) are described in more detail in the tables below. One should bear in mind that a specific competition problem is usually tackled by more than one remedy. The combination of suitable remedies, as said before, depends on the market conditions under analysis.

Wholesale markets, available remedies for vertical leveraging

Competitive problems	Obligations	Remedies
a) Discriminatory use or withholding of information b) Delaying tactics c) Bundling/tying d) Undue requirements e) Quality discrimination f) Strategic design of product	Transparency	a) Publication of information: A requirement that the dominant licensee publish certain information to ensure that customers and competitors have improved understanding of some aspect of the operation of the dominant licensee. This remedy would typically be applied where the harm from dominance would likely be based on asymmetry of information in the market place, and where the dominant licensee, by virtue of its position in the market or its longer time in the market has access to better and greater information than other licensees and customers. b) Reference Offer: To achieve transparency NRAs may require that operators publish a reference offer for services giving precise terms and conditions available at a level of detail dictated by the NRA. In addition, the Directive states specific provisions for information regarding unbundled local loops.
a) Refusal to deal/denial of access (excessive prices) b) Discriminatory use or withholding of information c) Delaying tactics d) Quality discrimination e) Strategic design of product	Non-discrimination	A requirement that the dominant licensee shall apply equivalent conditions in equivalent circumstances. A vertically integrated firm should provide services and information to others under the same conditions and quality as it provides for its own services or subsidiaries. This obligation is primarily relevant in case of an SMP operator that is vertically integrated into a competitive market to prevent exclusionary behavior through foreclosure of competition in the upstream or the downstream market.
a) Refusal to deal/denial of access (excessive prices) b) Price discrimination	Accounting separation	In order to allow the NRA to set and check the correct wholesale access price, the operator should produce separated accounts with the

c) Cross subsidization d) Quality discrimination e) Strategic design of product		specified level of detail and using the accounting methods defined by the NRA.
a) Refusal to deal/denial of access (excessive prices) b) Discriminatory use or withholding of information c) Delaying tactics d) Bundling/tying	Mandatory access	The SMP operator has to grant access for any wholesale essential input at a reasonable price decided by the NRA. The NRA may impose additional obligations in terms of a SLA, time and technical conditions for the services to be supplied, etc.
a) Refusal to deal/denial of access (excessive prices) b) Price discrimination c) Cross subsidization	Price control and cost accounting obligation	The NRA may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost-based price.

Wholesale markets, available remedies for horizontal leveraging

Competitive problem	Obligations	Remedies
Bundling/tying	Transparency	Reference Offer: A bundling decision of a dominant undertaking which is considered to be detrimental to the development of competition by the NRA can be targeted by two remedies of the regulatory framework: to publish a sufficiently unbundled reference offer, or not to unreasonably bundle services which is a retail obligation and thus can be applied to cases of anti-competitive bundling between two retail products where wholesale obligations are insufficient.
Cross subsidization	Accounting separation	The NRA in accordance to the specific market circumstances may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost-based price.
Cross subsidization	Price control and cost accounting obligation	The NRA in accordance to the specific market circumstances may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost-based price.

Wholesale markets, available remedies for single dominance

Competitive problem	Obligations	Remedies
Strategic design of product to raise consumer's switching costs Contract terms to raise consumer's switching costs Exclusive dealing	Transparency	Reference Offer: At the wholesale level, product characteristics or contract terms can be set ex ante by an obligation to publish a sufficiently unbundled reference offer subject to the NRA approval which can also impose other requirements on the product characteristics or contract terms; where a dominant operator at the upstream market obliges a retail undertaking to buy only his products, the NRA can mandate a reference offer to change exclusivity as it is an access situation.
Excessive prices	Non-	A requirement that the dominant licensee shall

	discrimination	apply equivalent conditions in equivalent circumstances.
Price discrimination Excessive prices	Accounting separation	The NRA in accordance to the specific market circumstances may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost-based price.
Price discrimination Excessive prices	Price control and cost accounting obligation	The NRA in accordance to the specific market circumstances may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost-based price.

Wholesale markets, available remedies for termination

Competitive problem	Obligations	Remedies
Tacit collusion Excessive pricing Price discrimination Refusal to deal / denial to interconnect	Transparency	Reference Offer: At the wholesale level, product characteristics or contract terms can be set ex ante by an obligation to publish a sufficiently unbundled reference offer subject to the NRA approval which can also impose other requirements on the product characteristics or contract terms; where a dominant operator at the upstream market obliges a retail undertaking to buy only his products, the NRA can mandate a reference offer to change exclusivity as it is an access situation.
Tacit collusion Excessive pricing Price discrimination Refusal to deal / denial to interconnect	Non-discrimination	A requirement that the dominant licensee shall apply equivalent conditions in equivalent circumstances.
Tacit collusion Excessive pricing Price discrimination Refusal to deal / denial to interconnect	Accounting separation	The NRA in accordance to the specific market circumstances may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost oriented price.
Refusal to deal /denial to interconnect	Mandatory access	The SMP operator has to grant access for any wholesale essential input at a reasonable price decided by the NRA. The NRA may impose additional obligations in terms of a SLA, time and technical conditions for the services to be supplied, etc.
Tacit collusion Excessive pricing Price discrimination Refusal to deal / denial to interconnect	Price control and cost accounting obligation	The NRA in accordance to the specific market circumstances may set the price of the wholesale service using different cost accounting methods and models in order to determine a cost-based price.

3.4.4 Remedies in retail markets

If as a result of a market analysis, a regulatory authority determines that a given retail market is not effectively competitive, and the authority concludes that obligations imposed at wholesale level would not sort out the potential competition problems identified, it may impose appropriate regulatory obligations on undertakings identified as enjoying a position of dominance on a given retail market, based on the nature of the problem identified. The Guidelines do not deal with these remedies, but we include them for reference, particularly given our findings in the retail market.

The obligations imposed may include requirements that the identified undertakings do not charge excessive prices, inhibit market entry or restrict competition by setting predatory prices, show undue preference to specific end-users or unreasonably bundle services. Regulatory authorities may apply to such undertakings appropriate retail price cap measures, measures to control individual tariffs, measures to orient tariffs towards costs or prices on comparable markets and carrier selection and pre-selection, in order to protect end-user interests whilst promoting effective competition. Availability of a minimum set of leased lines as an obligation was designed specifically to leased lines retail markets.

The most common remedies available for retail markets are described in more detail below.

Retail markets, available remedies

Competitive problem	Obligations	Remedies
Predatory prices Excessive pricing Price discrimination Switching costs Unreasonably bundle services Show undue preference	Transparency	a) Tariff Notification: A requirement that the dominant operator should notify its tariffs to the market within a nominated time before or after publication. This remedy would typically be applied where the harm from dominance arises in whole or in part from prices not being made known to the market so that other competitors and customers may not be aware of the price options that they have from the dominant licensee. b) Tariff filing and approval: A requirement that the dominant operator should file with the NRA tariffs related to services including bundles in the market in which it is dominant prior to implementation and/or require the NRA's approval before implementation.
Predatory prices Excessive pricing Price discrimination	Price caps, orientation to costs	(a) Price Cap regulation: A requirement that the dominant licensee should only charge prices for individual services or for bundles of services in a manner that complies with the provision of the price cap. This remedy would typically be applied where the dominant licensee has the capacity to charge prices that are not cost related and are, in consequence, likely to be predatory, excessive or cross-subsidising, but where some leeway is appropriate to enable the dominant licensee to be innovative and flexible in its approach to pricing in the market.
Predatory prices Excessive pricing Price discrimination	Cost accounting and accounting separation	The NRA may need to require the appropriate cost accounting systems to be in place in order to be able to implement price controls at the retail level

3.4.5 Determination of remedies in Malawi

In establishing remedies an important decision is deciding upon whether an intervention is required at the wholesale level or at the retail level (or both). Available remedies may sometimes need not apply to vertically integrated dominant operators in all of the identified markets. The European Commission's Explanatory Note of 2007, states[56]:

> "*In principle, lack of effective competition may occur at the retail level or the wholesale level or both. That means that NRAs may need to examine the overall degree of market power of undertakings and the impact on effective competition. 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.*".

Market size and economic development

In establishing remedies, the size of a country and available resources to regulate and intervene in communications markets also come into play. In Africa one can easily come across relatively small jurisdictions when compared to most European countries where the ex-ante regulatory framework that is being described as an international best practice in this report is being applied. However, some European countries which apply the EU regulatory framework, such as Malta, Luxemburg and Cyprus are smaller than most of African countries either in terms of area or population. The literature[57] on the application of regulation in small countries recognizes the need for some care. A particular concern is the need to balance productive efficiency against the level of competition. In many industries including the telecommunications sector, the need for productive efficiency may tolerate a monopoly or duopoly in supply, whilst in larger economies it may allowing a larger number of players and still be effectively competitive and healthy.

The mobile wholesale and retail markets for electronic communications in Malawi are highly concentrated. The fixed markets less so. There are only two significant players that offer mobile services. Addressing and resolving the problems arising from high levels of concentration in the Malawi mobile sector and lack of effective competition appears to be the main concern in terms of market failure. The existing level of subscribers and smartphones penetration predicts considerable potential for market expansion.

Where companies, due to the size of the market, have to operate on an economic scale that is less than the minimum, the regulator may need to accept a lower level of competition in order to ensure adequate productive efficiency. While this remains the reality in the

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[56] European Commission, Explanatory Note: Accompanying document to 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, 2007.

[57] "Competition policy and small economies", OECD Global Forum on Competition, available at: http://www.oecd.org/daf/competition/prosecutionandlawenforcement/2486724.pdf

Malawian mobile market, MACRA needs to closely monitor the market evolution and intervene ex-ante in a proportionate way. In parallel, assuming that the overall policy objective of the regulator (and the Government) is to maximize economic and social welfare, keeping in mind the low level of income of the Malawi population, the challenge appears to be how to achieve increased competition (as a means of achieving increased social welfare and not an objective in itself), rather than imposing substantial obligations that may be appropriate in other countries but may be disproportionate if applied in Malawi.

It is with these aspects in mind that we outline the approach to establishing obligations in the next section of this report.

Increasing consumer welfare

Increased consumer welfare can be achieved in a number of ways: driving down prices closer to cost can be achieved for example, either through increased competition or retail price controls. More competition can drive an operator to reduce its costs by using more efficient new technologies or increased operational efficiency. However, more competition in a small market can also reduce the incumbent's potential for larger economies of scale and therefore lower unit costs. A price shift downwards also shifts the demand curve to higher quantities bought at a lower price, which increases welfare.

In summary, NRAs must make a number of carefully-balanced decisions before regulating at either the wholesale or retail level or both, if it is to increase economic and social welfare. This is because:

- Measures to protect consumers may require NRAs to impose price controls on the sector
- The trade-off between competition and productive efficiency has to be assessed
- A choice between measures to promote infrastructure-based competition must be balanced against measures that promote service-based competition (such as MVNOs or fixed services resellers)
- The impact on incentives for investment in infrastructure by both incumbents and entrants has to be taken into account as well.

All of these factors can influence at what level an NRA should (or not) intervene in the value chain (wholesale or retail). Another concern should be the cost of regulating the ICT sector in countries with limited resources. The costs of developing and enforcing regulation do not reduce much despite the smaller size of the market being regulated, while the benefits are in general proportionate to the size of the market (i.e. the bigger the market the more significant the benefits).

Given the relationship between costs and benefits to market size it is possible that regulatory approaches and remedies which are appropriate in more resourced countries and better equipped to intervene in the markets, may lead to economic losses in much smaller jurisdictions or weaker economies.

International best practice

International best practice recommends that wholesale and retail markets should be treated collectively based on identified links between them. The BRG report has noted the same thing. Remedies in upstream (wholesale) markets may not always be cost-effective, so that preference may need to be given to action at the downstream (retail) level. On the other hand, if effective action is taken upstream then may be no need for regulation of downstream markets, for example if barriers to entry are sufficiently lowered to make markets prospectively competitive.

At this stage a number of principles to be applied in setting remedies, according to international best practices, can be defined. The NRA may apply the following principles to remedies as far as the circumstances of dominance and the relevant market will permit:

- The NRA will first consider appropriate remedies for dominance in wholesale markets. Only if those remedies are considered to be ineffective or disproportionate to the scale of the identified market problem, will it consider applying remedies to dominance in related retail markets.
- The NRA will impose the least intrusive remedy that will in its judgement be sufficient to address the market failure from dominance in the relevant market and to protect competition and consumer interests associated with that market.
- The NRA will shape remedies and determine the intensity of application to ensure that the remedy is appropriate, reasonable and proportionate to the risk of harm from the dominance found to exist in the relevant market.
- As a general principle the remedies applied to dominant licensees that are found to be jointly dominant in a market should be the same.
- As a general principle the remedies applied to dominant licensees in similar markets (such as the market for call termination in which each network constitutes a separate market) should be similar, taking account of the burden that the obligation represents for each dominant licensee.

Where it has determined that a licensee is dominant in a relevant market the NRA should assess the nature of the potential harm that the position of dominance might entail for competition and for consumer interests. In making this assessment the NRA will consider:

- The types of harm that could reasonably be associated with dominance in the circumstances of the relevant market;
- The specific orders or remedies that would directly address the harm that might result; and
- How the orders and remedies might best be shaped to be the least intrusive as possible while still being effective in reducing the risk of harm to an acceptable level.

Where a remedy is capable of being shaped or varied in intensity the NRA will consider how best to shape and specify the remedy having regard to:

- The potential harm from the dominance revealed on analysis;
- The likelihood of the dominance being reduced or neutralised by impending market development; and
- The risk of the remedy inadvertently reducing genuine competition in the relevant market.

Eleven potential markets in Malawi were analysed in order to define which ones should be relevant for ex-ante regulation. Four markets were selected as relevant for ex-ante regulation. In all four there is evidence of operators with high market share and dominance. The recommended obligations for each of the operators in each of the relevant markets are defined below according to the risks of anti-competitive behaviour.

3.4.6 Proposed remedies in the mobile retail services market

(a) The risk of anti-competitive behaviour and harm to the consumer

Considering that Airtel Malawi has a dominant position in the retail mobile services market of Malawi, the specific risks of harm arising from a dominant position in this market are described below.

One of such risks originates from price discrimination between on-net and off-net mobile calls. Airtel's substantial degree of power in the retail mobile services market gives it the incentive and the ability to price discriminate between on-net and off-net mobile calls in a manner that increases the barriers to entry and/or expansion, fosters customer lock-in and, in turn, risks leading to the foreclosure of the market to competition.

It is generally accepted that large networks have strong incentives to charge much higher prices for off-net calls as a competition barrier. If a dominant player engages in such a practice retail price regulation would be required to address the problems arising from pricing mobile off-net calls at a level that is very significantly above the equivalent on-net call price.

On-net/off-net differentials when based on advertised prices usually are not significant or even non-existent. But often the effective price (e.g. derived by dividing total voice service revenues by minutes of traffic) are much lower, because operators conduct intensive promotional activities all year round. As a consequence, a high percentage of traffic remains on each operator's network and frequently "obliges" the consumers to buy a second SIM card. This appears to be the case in Malawi.

The mobile traffic data provided by MACRA for each calendar year, although incomplete, allows us to analyse the traffic structure between national mobile originating traffic to other mobile networks and terminating traffic from other mobile. The table below shows the result of such calculations:

National mobile-to-mobile traffic (Minutes)

	2018	2019	2020	2021*
Originating traffic	3 631 339 757	4 320 566 210	6 663 477 736	4 270 442 929
Terminating traffic	533 035 257	449 696 414	387 806 260	197 946 602
Off-net traffic %	14,7%	10,4%	5,8%	4,6%

*Traffic volume up to Q2
Source: MACRA

In the retail mobile services market, a high percentage of mobile voice minutes remains on-net. Moreover, the data evolution shows a decline of the off-net traffic compared to the originating traffic.

This is true for both main operators (there is no data for ACL) but the impact is much greater for Airtel as the dominant operator.

A second risk of harm is related to price promotions. In most jurisdictions, mobile operators widely engage in promotional activity that are both price and non-price based, mainly in their domestic retail markets. Such promotional activities, which are geared towards attracting customers and increasing traffic, are sometimes a positive indication that service providers are attempting to offer their "best deal" to customers and therefore competing in the market place.

The offer of promotions can be considered as one indication of strong competition, particularly in mobile markets. The eventual benefit of such practices should be directed to the consumer in the form of lower prices and improved quality of service, at a minimum. However, there is some potential harm to competition and to the consumer as a result of such activities. Unregulated promotional pricing may sustain the potential for unauthorized cross-subsidizing and unfair treatment of the consumers.

In the absence of regulatory restrictions on the duration of a promotion, the concern is that the dominant operator is able to sustain price reductions over the long term and may encourage a practice of cross-subsidization and/or the provision of predatory pricing in the market.

(b) Options for remedies and appropriateness assessment

The table below indicates the potential retail remedies capable of addressing the risks of harm to consumers and competition problems described above, and determines the preliminary recommendation regarding the obligations to be imposed on Airtel Malawi:

Risk of harm and potential remedies for the mobile retail services market

Risk of anti-competitive behaviour	Potential remedy	Remedies recommendation
Price discrimination: On-net/Off-net price differentials	Cost orientation; Differential cap	Price cap regarding on-net/off-net differentials. Non-discrimination of type of call when structuring bundles.
Promotional activities	Promotions guidelines; Promotions notification and approval and transparency obligations	Obligations of non-discrimination and transparency regarding tariffs and promotional activities.
Excessive prices	Price caps; Cost orientation; Tariff notification and approval; Accounting separation between wholesale and retail businesses	Tariff notification and approval; Possibly a price cap on entry-level services.

The competitive constraints on a wholesale market are generally linked to the constraints at the retail level and vice versa. Risks of anti-competitive behaviour may originate from market power through excessive prices being charged to the detriment of end consumers. A licensed operator enjoying a high market share in the market for retail mobile services may resort to exploitative behaviour through excessive pricing. Excessive prices may already exist in Malawi but with the current information this is hard to confirm. As a result of a comparison with neighbouring countries there is some indication that data bundles prices are high.

MACRA should impose an obligation of notification and approval of new tariffs or any changes to existing ones. A price cap on entry data services could provide support to consumers with lower disposable income. Accounting separation between wholesale and retail businesses would probably inadequate due to high costs and extensive preparation needed on both sides.

There is a low volume of off-net traffic in Malawi. This is usually an indication of consumers lock-in by using extremely high on-net/off-net price differentials. This is still a practice used by Airtel as the analysis of its tariffs clearly show – but not TNM. This also obliges consumers to buy two SIM cards and create a further burden on them. Some obligations directed to Airtel could address this problem:

- The imposition of a maximum cost-based differential between on-net and off-net retail prices, in which Airtel is also prevented from offering lower on-net retail prices than termination prices. This could be based on Airtel's finding of dominance in the retail market, so the regulatory authority would have a legal basis to impose retail price controls.
- The imposition of similar treatment between on-net and off-net calls when structuring mobile voice services bundles, e.g., no differentiation of the type of calls for the minutes included in the bundle.

Extended promotions destined to lock-in consumers also could be subject to stricter rules. Promotions could be limited in time and frequency and renew themselves only upon the customer consent. MACRA could impose guidelines that define which promotions are likely to be approved upon notification. This would also provide certainty to the operators. Therefore, before implementing this type of remedy, MACRA needs to prepare guidelines for acceptable price promotion activity.

In its response to the public consultation Airtel requested MACRA to avoid remedies that have the effect of stifling innovation and growth in the industry. We agree. It would be unwise and counter-productive for MACRA heavily to regulate retail mobile prices. However, the proposed provisions on transparency, non-discrimination and price approval are not draconian, and should help protect competition in the retail mobile market without having a markedly or even significant effect on Airtel's ability to conduct its business sustainably and profitably.

3.4.7 Proposed remedies in the wholesale mobile access and origination

a) The risk of anti-competitive behaviour and harm to the consumer

In Malawi, no wholesale market for mobile access and call origination currently exists except for self-supply services and hence, the definition of this market has been derived from the definition of the retail market. There is no known evidence regarding any interested parties having required wholesale access and/or call origination to the current licensed operators.

Nevertheless, we proceed to analyse what sort of risks of anti-competitive behaviour could arise if wholesale access would be requested.

A licensed operator enjoying a high market share in the market for mobile access and call origination may resort to exploitative behaviour through excessive pricing or price discrimination. The current market structure gives Airtel, as a dominant operator, an incentive to overprice especially if ordered to provide access upon request. Apart from securing higher profits, excessive pricing increases the costs of a market entrant, thus making it harder to compete at the retail level.

In the context of potential market behaviour, vertical leveraging refers to when a vertically integrated operator that enjoys significant market power (individually or jointly with others) in an upstream market, denies access to an essential input factor with the intent of extending its monopoly power to a related downstream market.

Airtel owns substantial infrastructure in the relevant market, whilst simultaneously providing services at the retail level. Thus, it has the opportunity and incentive to foreclose competitors from the downstream (retail) market, either by outright refusal to provide access, or by leveraging by means of price or non-price variables. Obtaining an access agreement can hinge on both price and non-price aspects and as such, price and non-price issues are equally relevant. We have no evidence to suggest that Airtel behaves in this manner.

However, denial of access is an important risk. Without ex-ante regulation, it would be unlikely that Airtel would offer wholesale access to third parties on fair and reasonable terms in response to a request from other licensed service providers. It may also be the case that TNM would act in a similar way.

Vertical integration pricing issues are in general related with price discrimination. Operators enjoying significant market power in the wholesale market may potentially differentiate prices in favour of own retail operations or apply a margin squeeze strategy in order to prevent or exclude an efficient competitor from competing in the retail market. This allows the dominant operator to raise the costs of competitors at the retail level over those of its own service provider operation.

Discrimination may also take the form of non-price discrimination, for example, of different quality of service, undue requirements that are not justified by cost or other objective factors and preference in all matters to its own retail operations as compared to the retail operations of a competitor. Non-price factors can take many forms such as the withholding of information, discrimination in terms of quality, delaying tactics, unjustifiable requirements and discriminatory use of information. Although without current practical effectiveness, remedies recommendations for the risks of anti-competitive behaviour that could occur in this market if it materializes are listed below:

Risk of harm and potential remedies for the wholesale mobile access and call origination market

Risk of anti-competitive behaviour	Potential remedy	Remedies recommendation

<table>
<tr><td>Refusal to supply</td><td>Obligation to supply and to publish a Reference Offer</td><td rowspan="4">This is currently a self-supply only market for the existing vertically integrated mobile operators.

Until this market materializes, it would not be good practice to impose obligations on operators.

If demand emerges, consider an obligation to supply transparent and non-discriminatory access.</td></tr>
<tr><td>Price discrimination</td><td>Tariff notification and approval and transparency obligations Non-discrimination and transparency obligations</td></tr>
<tr><td>Excessive pricing</td><td>Price control</td></tr>
<tr><td>Margin squeeze</td><td>Accounting separation and cost orientation</td></tr>
</table>

Existing operators use wholesale inputs in their own retail businesses. Until this market materializes, it would not be good practice to impose obligations on the dominant operator or on both. If, for example, a third party wants to have access to passive infrastructures or assume the business model of virtual operator (MVNO) or require national roaming, then the question of access and in what terms arises. MACRA may prefer that one or more potential operators enter into commercial agreements without having to intervene. Only if the operators do not reach an agreement in time and on reasonable terms will MACRA need to intervene.

In terms of sectoral policy and sometimes even in accordance with the terms defined in the licenses, MACRA may prefer continuous investment and technological updating by each of the operators, establishing only particular conditions in rural areas with very low population density where they may not profitable conditions exist for the duplication of infrastructure. However, in Malawi the lack of effective competition can only fade away with further entry into the market either as a full MNO or in the form of MVNO. Obviously, a potential entrant would have two options to warrant access.

If there were no remedies imposed on at least one operator, both operators could tacitly refuse access. Thereby, imposing obligations on only one of the operators also creates an incentive for the other to offer competitive commercial wholesale mobile access offers. However, to repeat, we do not see a need for any such regulation unless or until there is evidence of unmet demand for wholesale mobile access and origination services.

3.4.8 Proposed remedies in the wholesale fixed voice termination market

Each service provider that operates a fixed network has 100% share of the market for call termination on its own network, irrespective of its share in other markets, including retail markets. The only way to access a customer via a service directly connected to the operator’s network is via that operator’s network. Logically there can be no competition in this market.

A range of additional factors (specifically the control of infrastructure not easily duplicated and the absence of countervailing buyer power) give rise to a determination of dominance in this market. Having regard to all the factors that cause its dominance and to the potential for abuse of dominance in the circumstances of the market, MTL could gain advantage from its dominant position in the following ways:

- Refusal to supply: Without *ex ante* regulation MTL would be unlikely to offer wholesale fixed voice call termination to eligible service providers on a timely basis in response to a request or on fair and reasonable terms and conditions.
- Undue discrimination: MTL might unduly discriminate between wholesale customers by providing better quality of service and terms and conditions to some rather than others. In particular, MTL might favour its own downstream retail operations. Indeed, it would have a strong commercial incentive to do so. The discrimination could take the form of non-price discrimination, for example, of different qualities of service, undue requirements or delaying tactics that are not warranted by cost or other objective factors, and preference in all matters to their own respective retail operations compared to competitive retail operations.
- Excessive pricing: MTL could set excessive prices in order to maximize its profit and raise rival's cost by increasing the costs of wholesale voice call termination services with detrimental effects for downstream competition and consequently to consumer's interests. In practice this risk might be different from the risk of discrimination because MTL might be prepared to apply the same excessive prices to its own retail operations and take its profits in the wholesale market rather than in the related retail markets.
- Cross subsidization: between wholesale and retail services, to gain advantage or limit downstream retail competition.

Remedies recommendations for the risks of anti-competitive behaviour that could occur in this market are listed below:

Risk of harm and potential remedies for the fixed services termination market

Risk of anti-competitive behaviour	Potential remedy	Remedies recommendation
Refusal to supply	Obligation to supply and to publish a Reference Interconnection Offer	Implementation of a price control remedy through termination charges based on (for example) a LRIC+ cost standard and approved by MACRA
Undue discrimination	Non-discrimination and transparency obligations	
Price discrimination	Tariff notification and approval and transparency obligations	
Excessive pricing	Price control	
Cross subsidization	Accounting separation	

3.4.9 Proposed remedies in the wholesale mobile termination market

a) The risk of anti-competitive behaviour and harm to the consumer welfare

Each service provider that operates a mobile network has 100% share of the market for call termination on its own network, irrespective of its share in other markets, including retail markets. The only way to access a customer on a service directly connected to the operator's network is via the operator's network. TNM, Airtel and ACL are dominant in the market for voice call termination on their respective individual mobile networks. The market power held by mobile network operators in terminating calls results from the fact that any operator who wants to end calls with an end user of another mobile network must use the services of that mobile network operator. In addition, consumers have a low sensitivity to the price of calls addressed to them. This situation results from the application of the caller-pays principle - which implies a decoupling between the person who pays for the calls (the caller) and the person who makes the choice of the termination network - contributing to reinforce the absence of incentives for the reduction of termination prices.

The market power that mobile network operators have in setting voice call termination prices on their networks could only be mitigated if there were sufficiently widespread alternative means to terminate voice calls and if there was an important countervailing bargaining power for buyers. Generally, this is not the case.

It is also generally accepted that the imposition of obligations to respond to reasonable requests for access, transparency and non-discrimination, while fundamental, is not enough to drive efficient prices in wholesale markets for voice call termination in individual mobile networks.

In view of the potential competition problems in the termination market, only the fixing of cost-oriented termination[58] prices, through a gradual approximation of prices at an efficient level, can contribute to the promotion and safeguarding of competition and an adequate protection of mobile customers.

The types of competition problem which could arise are as follows:

- **Refusal to supply:** This is where a vertically integrated operator that has dominance at one level in the production or distribution chain (e.g. the mobile termination market) can potentially transfer this market power into downstream (and potentially competitive) market(s) where it is also active or into closely related markets, and engage in exclusionary or other conduct which aims to reduce or distort competition in markets. This would mean that a vertically integrated mobile service provider that is dominant in the mobile termination market may have the incentive to use this market power to affect the competitive conditions in related retail markets where competitors rely on this key input, such as the retail mobile market or fixed market where fixed service providers are offering their customers the ability to call subscribers of particular mobile operators. This could result in a distortion of or reduction in competition in these retail markets resulting in harm to consumers, potentially in the form of higher prices, lower output/sale, reduced quality or consumer choice. An example of such exclusionary conduct can include refusal to supply access to mobile voice call termination. A refusal to deal/denial of access to mobile voice call termination may manifest itself as a disguised denial and not necessarily an outright refusal to supply. This could include delaying tactics such as protracted negotiations in respect of the provision of access to mobile voice call termination or associated facilities, seeking unreasonable terms and conditions associated with such access.
- **Undue discrimination:** In the absence of regulation, other possible competition problems may arise with respect to the discriminatory use of or withholding of

[58] If there is a need to impose cost-oriented termination prices, and as long as there is no costing model implemented by the regulator, it is common to establish maximum termination prices based on an international benchmark.

information and discrimination on quality and pricing parameters. In this regard, in order to facilitate interconnection with the dominant mobile service provider and access to termination services purchasers must also provide information on matters such as their own network configuration and/or call traffic patterns. In these situations, the dominant service provider of termination services may have the power to use such information about downstream competitors' networks and/or traffic patterns in the design of their own retail services. Dominant mobile service providers may also discriminate in the quality treatment of a competitor's traffic terminating in their network relative to the treatment of its own on-net traffic. Dominant providers could also discriminate on price grounds whereby, absent objective justifications, different undertakings operating in equivalent circumstances are charged different mobile termination rates (MTRs). This could particularly be the case in respect of MTRs levied on smaller or new entrant competitors either fixed or mobile service providers.

- **Excessive pricing:** Economic theory suggests that where a firm possesses market power it is in a position to increase prices above and/or reduce output below competitive levels, thereby allowing higher than normal profits to be earned. These higher profits effectively create a wealth transfer from the consumer to the firm with market power. Mobile voice call termination markets are characterized by 100% market share, an absence of existing competition, high and non-transitory barriers to entry associated with control over infrastructure not easily replicated, and little or no scope for potential competition. Thus, there is insufficient pressure to constrain a mobile operator from behaving, to an appreciable extent, independent of its customers, competitors or consumers, including in relation to its termination pricing. The three operators active in Malawi would have the ability and incentives to engage in exploitative practices, such as excessive pricing. In the absence of regulation, each of the operators would have the ability to charge excessive prices for termination services and therefore would raise input costs to other fixed and mobile service providers (and to each other) and this could result in raised prices to consumers for making calls to mobiles and potentially restricting fixed service providers sales of fixed to mobile calls to subscribers of the terminating mobile network. Such excessive pricing would thus, not only exploit consumers making calls to mobiles, but might also harm or distort competition where the excessively priced termination input distorts competition in related downstream markets, e.g. in retail markets where mobile service providers or fixed service providers rely on the upstream input. Excessive pricing may also reduce the incentive for productive efficiencies or to hinder innovation. Absent competitive pressures in the mobile voice call termination market incentives to minimize costs are decreased, particularly given such costs can be recovered through mobile termination rates (MTRs). Incentives for innovation could also be reduced, as these could potentially erode the excessive profits earned though less efficient forms of access.
- **Margin squeeze:** Exclusionary conduct may also be apparent in the use of other pricing behaviour. A vertically integrated operator which has significant market power at the wholesale level and provides a wholesale input on which other operators rely to compete in a downstream market could price its upstream and

downstream services in such a way as to impede effective downstream competition due to an insufficient margin between wholesale and retail prices, i.e. a margin squeeze may exist. In the absence of regulation, the level of the MTR charged by a mobile service provider to another undertaking may be such that the margin between the mobile termination rate charged to that undertaking and the same mobile services provider retail price for an on-net call may, having regard to objective cost differences, be insufficient to cover the mobile service provider retail costs. However, such a competition problem may be mitigated in the presence of an appropriate price control obligation such as cost-orientation.

In addition to the market failure that results from the practice of excessive termination prices, there is another potential market failure that must be taken into account in the context of mobile communications markets.

It is a common situation in many countries for larger mobile operators to charge high termination prices (above costs) to other operators, while implicitly practising very low internal transfer (termination) prices. This situation results in high off-net retail prices and low on-net prices that put operators with a smaller customer base at a disadvantage due to "network externalities". The disadvantage is greater the higher the termination price, and therefore the greater the difference between the price of an off-net call and that of an on-net call. In many jurisdictions the regulatory authority has intervened to mitigate this market failure, in which operators often discriminate between on-net and off-net retail prices. In many situations there is a perception that the retail prices of on-net calls are, on average, much lower than the termination price. Often, the reason is that a substantial amount of on-net calls are included in price bundles that offer generous amounts of free voice minutes, thus motivating a higher consumption inside the network of the subscriber.

The "network externalities" existing in mobile services must be considered in this context. The greater the number of customers subscribing to a given mobile network, the greater the value of belonging to that same network, given that a greater number of people can be contacted. If the tariffs are uniform - without differentiating between on-net and off-net calls - the network externality applies to all existing mobile networks, that is, the greater the number of customers on all mobile networks, the greater the value owning a mobile phone, regardless of which operator it adheres to.

This network externality is beneficial for an operator, through the practice of on-net prices different from off-net prices. By differentiating retail prices in this way, an operator increases the relative economic value that a consumer derives from belonging to that operator's specific network. This practice, associated with high termination prices, thus becomes an instrument that can be used by larger operators to keep smaller operators away.

It should also be noted that this issue becomes even more important in markets with high levels of penetration, or close to saturation. In a situation where there is still a large potential market (ie, where the penetration rate is still low), smaller operators also benefit. The differentiated pricing strategy will serve to win groups of new customers for the mobile service, who join together to benefit from lower prices in communications between them.

On the other hand, in a situation of market saturation, with a high penetration rate if there is a significant imbalance in market shares (in terms of subscribers) between operators, network externalities extraordinarily benefit the larger operator, given that there are few customers who will be able to join the mobile service for the first time. So, in order to compete with the largest operator, the smallest operator is driven to practice off-net retail prices that approximate their competitor's on-net prices. In a market with two operators, the smaller one would probably follow this strategy, as a way to avoid the exit of its customers to the larger operator, however, the termination price works as a minimum limit in relation to its off-net retail price. The high mobile-to-mobile termination price may therefore constitute a barrier to reductions in retail prices for off-net calls.

However, the strategy of lowering off-net retail prices on the part of the smaller operator has another effect, which is to worsen the traffic imbalance in favour of the larger operator. If the smaller operator has off-net retail prices to larger operators lower than the latter's off-net prices to him, this creates an incentive for the smaller operator's customers to make more calls than they receive, further increasing the traffic imbalance in favour of larger operators.

In cases of high size asymmetry between operators, the introduction of asymmetric[59] wholesale termination prices have been common in the past, to support a new entrant to achieve a minimum scale. However, the introduction of an asymmetry in termination rates may not contribute to solving the problem in question and may even aggravate it. In Malawi, this situation is relevant because the third operator is much smaller, or for example, in the case of the entry of a fourth operator where a strong traffic imbalance would very likely emerge.

(b) Options for remedies and appropriateness assessment

The table below identifies and assesses the potential remedies capable of addressing the risk of harm set out above:

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[59] The ERG Common Position on symmetry in fixed and mobile termination rates, published on February 28, 2008 ("ERG Common Position"), established the framework that national regulatory authorities should follow when establishing termination prices. While defending symmetry as the recommended solution, the ERG Common Position recognized that asymmetric termination prices, by encouraging entry, potentially contribute to dynamic efficiency and favor competition, depending on the competitive conditions in the market. In this document, the ERG states that there are 3 possible exceptions that can be considered justifications for imposing asymmetric prices during a transitional period. In addition to the two justifications traditionally accepted by the European Commission - the existence of exogenous and objective cost differences, and the significantly late entry of a new operator - the ERG Common Position adds a third exception related to the existence of competitive distortions while prices are not in line with costs. The ERG mentions that, in such a situation, "large operators benefit not only from greater economies of scale and network effects, but also receive a net payment from their competitors through interconnection", harming small operators. The ERG Common Position states that "a transitional asymmetry in favour of the smaller operator may be applied, when the following cumulative circumstances occur:

- There are high traffic imbalances, and therefore, important differences in payments, as a result of the operators' strategies (high differentiation between on-net and off-net prices);
- Mobile termination rates are significantly higher than costs;
- Regulatory authorities consider that there are benefits in the transitional setting of asymmetric rates (such as potential benefits at the level of retail competition) and that these benefits outweigh any disadvantages."

Risk of harm and potential remedies for the mobile services termination market

Risk of anti-competitive behaviour	Potential remedy	Remedies Recommendation
Refusal to supply	Obligation to supply and to publish a Reference Interconnection Offer	Mobile network operators have no choice of terminating network; each operator has dominance regardless of its scale in the termination market. Mandatory access coupled with a maximum price of termination based on LRIC+ cost standard and approved by MACRA is recommended. Termination rates should be symmetrical.
Undue discrimination	Non-discrimination and transparency obligations	
Price discrimination	Tariff notification and approval and transparency obligations	
Excessive pricing	Price cap	
Margin squeeze	Price control (cost orientation)	

MACRA has conducted in the past cost modelling exercises and has set up mobile termination rates based on the LRIC cost standard and a glide path to bring down charges to cost based levels.

In addition, MACRA may wish to consider a remedy to address excessive differentiation between on-net and off-net retail prices. In general, there are alternative and complementary possible remedies that work at both the wholesale and retail level (see the earlier discussion regarding remedies in the mobile retail services market):

- The imposition of cost-oriented termination rates which generally allow alternative operators to lower their off-net tariffs to compete against an operator with very low on-net prices. This remedy has been implemented before by MACRA in the market for mobile call termination and the current termination rate has been calculated using a bottom-up hybrid cost model and foresaw a glide path of decreasing termination rates over a period of 5 years.
- The imposition of a maximum cost-based differential between on-net and off-net retail prices, in which the dominant operator is also prevented from offering lower on-net retail prices than termination prices. This could be based on Airtel's finding of dominance in the retail market, so the regulatory authority would have a legal basis to impose retail price controls. It is unclear if this remedy would be necessary for TNM given its greater commercial incentive to compete if Airtel's prices are regulated.
- The imposition of similar treatment between on-net and off-net calls when structuring mobile voice services bundles, e.g., no differentiation of the type of calls for the minutes included in the bundle.

4 BROADCASTING SERVICES MARKET REVIEW

Although Incyte's technical proposal focused on electronic communications markets, it was agreed at the kick-off meeting that the project should also cover television broadcasting. In particular, this means that TV service markets should be included as they were in the 2018 market review. We do not consider radio broadcasting both because of the findings in the 2018 report by BRG and our observations that there have been few material changes in market structure or conduct.

4.1 Legislative background

We note that the Guidelines do not specifically refer to broadcasting, but they do refer to "communications services" which definition includes broadcasting. We have applied the Guidelines generally to the assessment of competition in broadcasting.

The Act defines a "content service licensee" as "*a holder of a content service licence*" but it does not define "content service". Other relevant definitions in the Act include:

- "broadcasting" which means "*any form of transmission of content intended for reception by the public whether conveyed by means of radio or electronic communications*"
- "broadcasting service" which means "*any service that consists of broadcasting, but does not include (a) a service that provides only data or text, whether with or without associated still images; (b) a service in which the provision of audio-visual material or audio material is incidental to the provision of that service; or (c) a service or a class of service that the Authority may, by regulation, prescribe*".
- "broadcasting signal distribution" which means "*the process whereby the output signal of a broadcasting service is taken from the point of origin, being the point where such signal is made available in its final content format, and is conveyed to any broadcast target area by means of electronic communications, and includes multi-channel distribution*".

The MACRA website refers to two types of secondary legislation in relation to broadcasting:

- Commercial Television Rules (draft dated February 2021); and
- Broadcasting Regulations (draft dated 6 November 2020).

We note that definitions included in the Commercial Television Rules are not all aligned to those commonly associated with broadcasting. The Commercial Television Rules provide that,

- a "<u>Content Service Provider</u>" means "*a person licensed to provide a television content service under section 99 of the Act*;
- "<u>conditional access</u>" means "*the ability to restrict television content access to certain groups of users for purposes of collecting revenue for access to such services*"; and
- "<u>Signal Distributor</u>" means a "*Network Service Licensee authorised to provided broadcasting signal distribution services to a Content Service Provider*".

Sections 97 to 107 of the Act refer to "content service" but "broadcasting" is used only in relation to Malawi Broadcasting Corporation (MBC) (Part XIV of the Act). Signal distribution is applicable to both types of services. The First Schedule to the Act does, however, provide clarity in that it states at paragraphs 5, 6, and 7:

> "5*. An entity shall not provide broadcasting services except in accordance with the terms and conditions of a* ***content licence*** *issued by Authority.*
>
> *"6. The Authority shall define each broadcasting service licence in relation to one of the following categories: (a) public broadcasting services; (b) commercial broadcasting services; (c) community broadcasting services; and (d) any other licence as may be determined by the Authority.*
>
> *"7. A content licensee shall enter into an agreement with the holder of a network services licence for purposes of distribution of signals. The agreement shall include a service level agreement in order to evaluate the quality of the services provided by the network services licensee."*

The Commercial Television Regulations, although in draft form, impose similar obligations although the key obligation on a content service provider is to conclude an agreement with a signal distributor (as above), with numerous other obligations then being imposed on the signal distributor, for example, in regulation 7 which provides as follows (emphases added):

> *"(1) A signal distributor shall have the following obligations—*
>
> > *(a)* ***provide conditional access services to Content Service Providers****;*
> >
> > *(b) provide television content aggregation and programme bouquet handling system;*
> >
> > *(c) provide services to current and new Content Service Providers in a fair, transparent, impartial and non-discriminatory manner;*
> >
> > *(d)* ***collect subscription fees on behalf of Content Service Providers and disburse such to Content Service Providers****;*
> >
> > *(e) ensure that there is uninterrupted broadcast of television content from Content Service Providers;*
> >
> > *(f) where there is an interruption in the broadcast of television content, inform without delay Content Service Providers the reasons for the interruption and the likely duration of the interruption.*
> >
> > *(g) determine the numbering sequencing of content channels it shall carry.*
>
> *(2)* ***The Signal Distributor shall, in consultation with Content Service Providers, set the subscriptions fees for conditional access by subscribers of television content****."*

This report examines the legal framework in relation to the carrying out of a market review, but this background to the regulatory environment is important. We note that the BRG report did not consider the Act in relation to broadcasting, content services or signal distribution services at all.

Finally, we note that section 104 of the Act provides that, "*A person who is not a citizen of Malawi shall not, directly or indirectly - (a)* ***exercise control over content service****; or (b) have a financial interest or an interest in voting shares or paid up capital in content service licence, exceeding 20%*."

4.2 Additional context

Discussions have been held between MACRA and Multichoice Malawi ("MCM") and correspondence has been entered into between the parties over the preceding months. As a result, in the interests of transparency it has been decided to include a short summary of this to set our findings in context. At the outset it should be noted that the discussions and correspondence do not directly impact the outcome of the broadcasting market analysis, but concerned two main issues:

- First, the reasons for the reluctance by MCM to furnish MACRA with the information needed for the market analysis and set out by the consultants in the data request which included among other things, that they were not the owners of subscriber information and did not receive all of the subscription revenues generated in Malawi by subscribers to MultiChoice Africa's service and could therefore not provide this information to the consultants; and
- Second, that MultiChoice Africa ("MCA") is not a licensee in Malawi and therefore is not required to furnish any information to MACRA and nor can any remedies that might result from this market analysis be imposed on them.

It is well-known that MCA distributes its signal by satellite. It does not have any ground stations in Malawi, however, and therefore it considers that it does not fall to be regulated in Malawi.

MCM claims not to be an affiliate or representative of MCA. However, it confirms that MCM is authorised in terms of a contract with Multichoice Africa to "*provide a convenient and cost-effective outlet for subscribers and/or potential subscribers to purchase the equipment necessary to access the DStv service as well as the installation and technical support for the installation…;…also [to] operate one of the various alternative payment points for DStv subscribers…*" MCM also uses the MCA name, branding, logos, colours and trading practices. These all seem to us to be the exercise of the rights and the actions of a representative.

MCA benefits from economies of scale because its satellite footprint covers multiple countries and it can acquire and distribute programming across this area to millions of subscribers. It is unclear why being licensed in each country would affect the inherent economies of scale. This benefit must surely inure regardless of the licensing position? This must also be true because MCA can only be using economies of scale if it can broadcast the same content throughout the continent.

It is also clear that, but for the existence of MCM, no one would be able to acquire MCA decoders and smartcards enabling access to MCA's signals. Therefore, on the facts, there is no doubt that MCA is carrying out broadcasting and signal distribution via satellite in Malawi.

In consequence of these discussions, following the issue of the public consultation paper, MCM presented subscriber figures (but not revenues) to the consultants who have been able to assess them against existing information[60].

We also received an extensive response from MCM (but much of it addressing the market it considers to be served by MCA) which included a report from international economists, Genesis Analytics Pty Ltd, based in South Africa ("Genesis"). The Genesis report criticises the approach taken by the consultants in the report presented for consultation (see below) but, because it addresses the subscription television broadcasting market analysis, we have assumed that MCA (as well as MCM) considers itself bound by the market review process.

All entities providing broadcasting services in Malawi must be included within the review. This market analysis inquiry is not intended to nor does it allege any wrongdoing by any entity, but is a process intended to identify and address any challenges to fair and effective competition (those that may prevent, distort or restrict effective competition including any evidence of market failure or other competition concerns) on an ex ante basis. In particular, it considers factors that may have contributed to or continue to contribute to new television broadcasting service licensees not being able to successfully launch their services and /or attract subscribers and viewers. This will provide a factual basis upon which evidence-based recommendations can be made, to promote competition.

4.3 Market definition

As set out in detail in the previous section regarding electronic communications services, and in section 2 of this Report which describes the general approach to market analysis of any market, the Guidelines require markets to be defined before further investigation can take place into the level and existence of competition.

The candidate markets for television broadcasting services are relatively standard, and in this case, it was both sensible and practical to use the markets from the 2018 market review[61] which clearly continue to reflect the nature of the television market in Malawi. These are:

- Retail free-to-air TV services
- Retail subscription TV services
- Wholesale TV distribution by terrestrial network
- Wholesale TV distribution by satellite.

On the wholesale side, some TV content is produced within Malawi while other content is produced in other countries and transmitted into the country. Although the BRG report considered "content services" (not in the sense it is used in the Act) to be a separate market, we do not include this market in the review given its small size and growth potential locally and, more importantly, the fact that most content is obtained internationally.

[60] Similarly, StarTimes provided subscriber and revenue data following the issue of the public consultation report.

[61] MultiChoice proposed using the converged licensing framework of 2016 as a better starting point than the BRG study of 2018. However, Incyte notes that a) this is an older reference point, and b) it concerns licensing and is not intended to provide guidance in terms of regulatory market analysis.

Factually, there is terrestrial signal distribution for both subscription and FTA services within Malawi (GoTV, owned by MultiChoice Africa and licensed in Malawi), but subscription-based services also distribute into Malawi using satellites (DStv, owned by MultiChoice Africa but currently transmitting services into Malawi without a licence).

4.3.1 Retail free-to-air TV services

FTA services are provided by the Malawi Broadcasting Corporation (MBC) which is the only public broadcaster in Malawi. In 2018 it was estimated that 12% of households had a television. MBC derives its mandate from a 1964 Act that licenses the Corporation to provide a wide range of programming in English and in Chichewa, in response to public needs and interest. MBC operates one TV station (Television Malawi) and two radio channels. It is funded and controlled by the Government.

Other free-to-air televisions stations include local community services and religious channels of various kinds. These entities have an insubstantial subscriber base.

4.3.2 Retail subscription TV services

Some households supplement the FTA television service with subscription TV services. Subscription services are also commonplace in public settings, such as bars and restaurants, where people gather to watch sports events and other content that is only available on subscription. There are a variety of subscription packages available from premium packages to cheaper packages which are relatively low cost. For example, DStv has packages ranging from 14,900 MWK to 61,000 MWK per month, the latter having many more channels and offering access to live sports programmes.

The key question for market definition is the extent to which there is an overlap between subscription TV and FTA TV. Apart from the fundamental point that distinguishing between these two markets is consistent with past practice from MACRA's 2018 market analysis, the public consultation report provided the following evidence to justify the determination of separate markets:

- Some TV stations are distributed free-to-air (FTA) while others charge and have a subscription service (pay tv) model. "Subscription broadcasting services" can be described as a broadcasting (content) service provided to a subscriber upon the payment of a fee. Subscription television broadcasting services are therefore distinguishable from other commercial television broadcasting services, such as free-to-air television broadcasting services, and from public television broadcasting services and community television broadcasting. Given the very different pricing approaches it is probable that there are two discrete retail services markets.
- There is a far greater scale and variety of content available on subscription TV. Although there is some overlap with FTA services, e.g. in news programming, the majority of subscription TV content is entertainment and sport, much of it being international rather than being Malawi-specific content.
- The cost of subscription TV also creates a financial barrier to customer switching. The typical price of an entry level subscription TV package is around 35% of the

Gross National Income per person. This makes subscription TV unaffordable for most Malawians.

- Furthermore, the need to set up pre-payment arrangements for subscription TV makes the service inaccessible to many Malawians, some of whom are not able to obtain a credit rating and some of whom do not have bank accounts.
- Consumers also have to purchase additional decoder equipment to receive subscription TV (e.g. MCM installs, activates and supports decoders and smart cards enabling reception of DStv). The price of decoders varies substantially but is typically the equivalent of 1-2 month's TV subscription.

The Genesis report argues that these arguments constitute insufficient evidence to justify the establishment of distinct retail markets for free-to-air and subscription TV services. In particular, Genesis commented on the points listed above.

Regarding the application of the Hypothetical Monopolist Test, Genesis commented that:

> *The relevant question is thus whether FTA TV constrains pay TV, taking into account that if a hypothetical monopolist of pay TV were to raise prices, marginal consumers might consider, among other things, the alternative of relying on FTA TV, alone or in combination with other alternatives such as out of home viewing and over-the-top ("OTT") services, in order to satisfy their viewing requirements. This question has not been assessed in the Report.*[62]

Regarding the costs of subscription services, Genesis said:,

> "*The observation that the typical entry level subscription TV package is around 35% of the Gross National Income per person is largely uninformative for market definition purposes. This is because, the group of consumers relevant to the question of demand-side substitutability between pay TV and FTA is not "the majority of Malawians" but the minority of relatively wealthier households that own TVs. A figure drawn from the population as a whole is uninformative as to characteristics of TV consumers as a group.'*[63]

Regarding pre-payment arrangements Genesis said:

> *The relevance of this observation for assessing substitution is unclear since the requirement of payment in advance is not an uncommon feature of many markets including mobile data markets. Further, since customers are not locked into contracts and can pay on a month-to-month basis (as is common for subscription services), it is unclear that this observation is any different from the argument that the price of pay TV services is high.*[64]

In relation to switching costs occasioned by the need to acquire or change set top boxes or decoders, Genesis said:

[62] Paragraph 13.2.1 of the Genesis report.

[63] Paragraph 13.3.1 of the Genesis report.

[64] Paragraph 13.3.3 of the Genesis report

> *In any case, such switching costs do not apply if a consumer chooses to switch from FTA to MDBNL's pay TV offering (or vice versa). We also note that the Report does not consider switching from pay TV to FTA services in the event of a SSNIP, which is the key question when considering the constraints faced by pay TV providers.*[65]

Incyte agrees with Genesis that the key question is whether pay TV users would switch to FTA in the event of SSNIP. However, we also believe that this question was addressed in the consultation document where it was stated that:

> *In terms of demand-side substitution, subscription TV customers have access to FTA TV if they choose to do so, and there are no technological demand-side barriers to switching. However, the vastly reduced content available on FTA would likely deter customers from making this switch in response to a SSNIP by a hypothetical monopolist using the HMT. The barriers described above mean that FTA subscribers would require much more than a small change in price to persuade them to switch to subscription TV services.*

Nothing in the Genesis report contradicts this finding. There is a fundamental structural difference between FTA and subscription TV: while one form of television services is free, the other is not, and they are inherently distinguishable. The price of subscription TV relative to GNI is relevant because it creates an insurmountable barrier to most customers switching from FTA to subscription TV. Ditto the need to pay for decoders. Pre-payment is relevant because it puts subscription TV further out of reach for most FTA customers.

As for the marginal subscription TV customer, who clearly is one of the few Malawians who can afford the service, the barrier to switching back entirely to FTA comes in two forms:

- The need to obtain a set top box to view subscription television broadcasting means that customers, while not actually locked in, will be wary of switching because they may have to invest in a new decoder if later they choose to return to subscription TV. In the event of a SSNIP in pay TV prices, the investment already made in the decoder by those who are able to afford one in the first place, could influence a subscriber's decision to stay connected.
- The dramatic difference in content available on FTA television. The reason why consumers choose subscription TV is to access content that is simply not available FTA, including premium content such as sports events. Subscribers to a hypothetical monopolist would be very unlikely to switch to FTA (and lose the premium content) on the basis of a SSNIP. While out-of-home viewing is potentially an option for some content, we received no information from any stakeholder about the extent to which this replaces the acquisition of decoders and uptake of subscription broadcasting services.

We can conclude that there is very little demand-side substitution between subscription TV and FTA TV. Subscription TV customers have access to FTA TV if they choose to do so, and there are no technological demand-side barriers to switching, however, the vastly reduced content available on FTA would likely deter customers from making this switch. Equally, the

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[65] Paragraph 13.3.4 of the Genesis report.

barriers described above mean that FTA subscribers would require much more than a small change in price to persuade them to switch to subscription TV services.

Similarly, it is highly unlikely that suppliers of FTA services would move into the subscription TV in response to a SSNIP. They would face at least two major barriers:

- Obtaining a licence for "subscriber management" – this being a legal requirement in Malawi before offer subscription TV services
- Obtaining access to sufficient premium content to offer an effective TV subscription service - subscription TV stations have no broadcasting or content production activities within the country, so they have to buy content from the international market.
- MBC, as the FTA provider, does not have the production capacity to create sufficient content itself, nor the financial capacity to purchase equivalent content internationally.

A further argument raised by Genesis was in relation to the increase in the availability of over-the-top services (OTTs):

> *Despite this obvious and powerful trend, no assessment has been made as to whether these services currently or on a forward-looking basis are likely to constrain traditional pay TV and FTA TV. This is particularly relevant if (i) households with broadband overlap significantly with those who have a TV and/or are pay TV subscribers, and (ii) ex ante regulation in telecommunications reduce[s] data prices and increase access.*[66]

MultiChoice Africa has made this argument in other countries to which it provides services, including South Africa. However, the "particularly relevant" characteristics of the markets simply do not exist in Malawi at the present time. We have considered the prevalence of OTTs in the previous sections on electronic communications. In those sections we concluded that the take-up of OTT services specifically in relation to mobile, is insignificant, and that the quality of these services cannot be guaranteed since, unless the OTT provider is licensed, the provider is dependent on the quality of the underlying network. This is even more true for the provision and reception of OTTs that constitute content services, since televisual content requires significantly higher quality of service.

So, while it is also true that the take-up of broadband services has increased in Malawi and there is likely to be an "overlap" between households with broadband services and those with pay TV subscriptions, we do not consider OTT services to be full substitutes for subscription broadcasting services in Malawi at the moment. However, we agree that this is an issue that needs to be kept under review as the market develops and of course, a licensee can approach MACRA if they believe that any remedies imposed on them are no longer warranted.

Overall, therefore, neither OTTs nor FTA TV provides a constraint on the providers of subscription TV, on the supply side or on the demand side. Although there may be some

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[66] Paragraph 14.1.3 of the Genesis report

overlap at the margin, subscription TV forms a separate market from FTA TV (and OTT) services.

4.3.3 Wholesale TV signal distribution

The distribution of TV signals can be achieved using various technologies, including:

- Analogue terrestrial networks
- Digital terrestrial networks
- Satellite
- Cable (fibre or coaxial cable)
- Internet (IPTV).

Analogue distribution is only possible for FTA services and in most countries distribution of FTA has moved onto digital terrestrial networks (digital migration). Malawi is in the middle of this transition, with the state-owned digital signal distribution network operated by MDBNL. Genesis noted that this has not been considered, but it has, as indicated. The other TV service providers all use satellite technology with the exception of GoTV which is licensed for self-provision of digital terrestrial signal distribution.

The key question for market definition is the extent to which there is substitution between digital terrestrial signal distribution and satellite distribution. There are two relevant questions:

- Would retailers respond to a SSNIP by a hypothetical monopolist by switching their wholesale contracts to the other technology? It is unlikely that MBC would move on to satellite distribution given Government ownership of both it and MDBNL and recent investments in other technologies and the argument by Genesis that MDBNL now provides a streaming service does not change this conclusion and nor has MCM or Genesis provided information to support this contention. In our experience, this conclusion is reasonable in the circumstances and based on the information received. Similarly, GoTV is unlikely to switch as it has invested in and self-provides its own terrestrial infrastructure and has shown no indication at all that it would change anything about its business. In the reverse direction, TV service providers that currently rely on satellite could in theory move to terrestrial distribution in response to a SSNIP, but in practice they would either have to self-provide (requiring too high an investment) or use MDBNL's network (which currently only distributes set-top-boxes that support FTA TV).
- Would suppliers in either market move into the other in response to a SSNIP by a hypothetical monopolist? It is highly unlikely that satellite operators would move into terrestrial signal distribution because of the extensive infrastructure investment that would be required, and in MCM's view, there is no need for MultiChoice Africa to be licensed in Malawi because it has no infrastructure in Malawi. A move in the other direction is more achievable in theory, but there is no commercial reason for either MDBNL or GoTV to move away from their existing terrestrial distribution systems.

Therefore, given the structure of the TV signal distribution business in Malawi, we can, justifiably, define two separate wholesale markets:

- Wholesale terrestrial TV signal distribution; and
- Wholesale satellite TV signal distribution.

4.4 Susceptibility to ex-ante regulation

Markets are susceptible to ex-ante regulation in terms of the 3CT if:

- There are high and non-transient barriers to market entry;
- There is no clear trend towards effective competition behind those barriers; and
- Competition law, on its own, is insufficient to resolve market problems.

All three of these criteria evidently apply to each of the four identified TV markets in Malawi. Although the BRG report found, 4 years ago, that the barriers to entry are fairly low, this observation was also qualified by reference to the lack of available information. While we have more information at the present time, including that other providers have been licensed, and that more channels including OTTs, are now available, this information was gathered by desktop research and through MACRA, rather than from licensees and other providers, including MCM.

To the extent that the Guidelines can be applied to assess the structure of the broadcasting and content service markets, we note that there continue to be both legal barriers to entry (the need for a licence) and structural barriers (the high level of investment in content and infrastructure). MCM and Genesis have not provided information to contradict this. The reference to the EC Explanatory Note in relation to markets susceptible to regulation is to a document dated 2014, which has been replaced by a 2020 Directive which specifically states in the Preamble, "*The definition of relevant markets may change over time as the characteristics of products and services available on such markets evolve and the possibilities for demand and supply substitution change due to technological, market and regulatory developments. For this reason, this Recommendation should therefore replace the 2014 Recommendation.*"[67]

In conducting this review, we have taken into account that this Recommendation also provides,

> "*Technological developments, or the convergence of products and markets, may give rise to competitive constraints being exercised between operators active in distinct product markets. In this respect, over-the-top (OTT) services, which today are generally not considered as direct substitutes to traditional services provided by electronic communication service providers, and which in any case do not provide physical and data connectivity, might nevertheless play a more important role in certain retail markets in the coming years due to further technological developments*

[67] COMMISSION RECOMMENDATION (EU) 2020/2245 of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council establishing the European Electronic Communications Code, at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020H2245&from=EN, accessed 27 May 2022.

and their continuous expansion and subsequently exercise indirect constraint on wholesale markets."[68]

Of course, this Recommendation is referring to electronic communications, not broadcasting, but given that it refers specifically to OTTs, we believe it is useful, and it is entirely likely that the market in Malawi may develop in precisely this way.

Having assessed each of the legs of the 3CT above, and insofar as we can assess performance within the identified markets, there is little or no competition in any of the markets (i.e. no effective competition) except for retail subscription TV (which is examined in more detail below) and this presents significant opportunities for anti-competitive behaviour that could not be resolved quickly or using competition law alone[69]. The Guidelines have provided an indication of the direction that MACRA, working with the Competition and Fair Trading Commission, may wish to take in undertaking market reviews and identifying market failure. In all the circumstances, it can therefore be concluded that all of the markets are susceptible to ex-ante regulation.

4.5 Assessment of dominance

4.5.1 Retail free-to-air TV services

The market for FTA TV in Malawi is small and highly concentrated. State broadcaster MBC accounts for the vast majority of viewing (estimated at 84% in 2018) and it has growing subscriber numbers. MDBNL reports that free-to air subscribers are 65,000 in 2021 up from 45,000 in 2018, with average annual revenues of MKW 63m. MBC also has a growing presence as a channel on subscription TV platforms: for example, Azam reports 16,000 subscribers in 2021 up from 8,400 in 2018.

Although a number of specialist private and public stations have emerged following the transition to digital terrestrial broadcasting, they remain small. This situation is unlikely to change significantly because of the funding challenges: free-to-air providers have to rely either on donations, sponsorships or advertising revenues.

Conclusion

MBC is has by far the highest market share and is dominant in the retail FTA TV content services market.

4.5.2 Retail subscription TV services

The subscription TV market in Malawi has been evolving over recent years with new entrants such as Zuku, Azam, and Star Times entering the market since 2016. Previously the market was dominated by MultiChoice Africa selling its service either through satellite on

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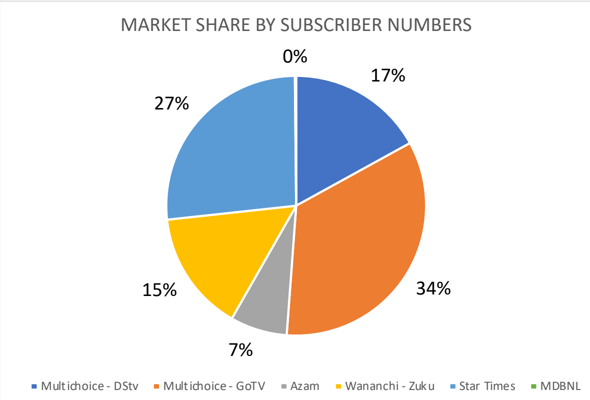
68 Paragraph [16] of the Recommendation.

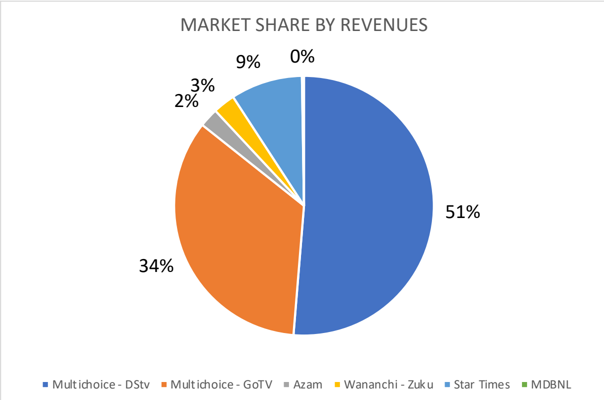
69 Despite having the necessary framework in place and having adjudicated 2 cases of restrictive practises, Competition Law is not yet well-developed in Malawi.

DStv (since 1996) or via GoTV's digital terrestrial service (since 2013). It may be noted that all of the market players are also active in other African countries.

MACRA requested data from all the service providers in 2021. They did not all provide information in advance of the public consultation report being issued, but all of them have now provided subscriber information and all except DStv has now provided revenue information. Based on this data MACRA estimates that MultiChoice (DStv and GoTV combined) has a market share of 51% of all pay TV subscribers. MultiChoice almost certainly has a higher proportion of revenues given that DStv in particular is offered at a premium price point: for 2021 the revenue market share of DStv is estimated at 51% and the combined MultiChoice market share is estimated at 85%.

The tables below shows market shares of the subscription TV market, based on the data provided by the suppliers (shaded yellow) and using estimates for DStv revenues based on analysis of its subscriber numbers and tariffs for retail packages.





Despite MultiChoice's high market share, in 2018 MACRA's market analysis concluded that, on a forward-looking basis, the market was competitive. It could be argued that nothing much has happened in the market over the intervening period to change that conclusion: Multichoice remains the largest player but is now one of several providers, all of the other service providers are growing and the MultiChoice market share by revenue has fallen since 2014 when it was around 95%, to the present day when it appears to be around 51% by subscribers and 85% by revenue. The newer entrants are generally backed by significant regional and international companies, so theoretically, they have the necessary financial and operational resources to compete with MultiChoice.

There are, however, two major concerns on a forward-looking basis:

- Despite the growth of rivals, MultiChoice clearly exceeds the 30% market share threshold that the Guidelines set as the determinant of dominance. This is true for GoTV individually (in terms of both subscribers and revenues), for DStv individually (in terms of revenues) and, most obviously, for MultiChoice as a group when market shares are taken collectively.
- This is a structural problem which is likely to lead to problems related to conduct and performance e.g. exclusionary behaviour in the form of long-term content contracts with international studios which preclude any other content provider from gaining access to that content; or exclusive rights to international sporting events which are then only available to subscribers and not to the ordinary

person without a decoder nor to FTA TV content providers or even MBC; and the launch of various categories of bouquet including a basic version at a lower price that competes directly with the offerings of the new entrants. In a recent court case in Botswana, it was noted by MultiChoice Botswana that MultiChoice Africa benefits from economies of scale since it can offer the same content across multiple bouquets across multiple countries.[70] This too, is indicative of market power.

We have noted that section 106 of the Act provides that, "*A subscription content services licensee shall not acquire exclusive rights that prevent or hinder the free-to-air broadcasting of Malawian sporting events of national importance, as may from time to time be determined by the Authority*." We have no information on these matters in Malawi, although market reviews in other countries which found just these issues in other countries.

Exclusivity in broadcasting is generally accepted to be vital for success in the pay TV market; and a survey carried out by Ofcom in the pay TV market revealed that for the fifty-seven per cent of adults that subscribed to pay TV services, content drove purchasing decisions. Eighty-seven percent of consumers surveyed cited content as a "must have" element of their TV choices, in particular the sports rights and premium films that are not available via free to air transmission. To a great extent, this results in bidding for premium content (the most popular usually being sport) with the highest bid winning, and frequently, also to long-term exclusive contracts which may result in foreclosure.[71]

DStv did not provide revenue data to MACRA as part of this market analysis exercise. This leaves the results open to some doubt. Nevertheless, it appears evident from an analysis of package prices and subscriber numbers that DStv's revenues are well in excess of the 30% market share. It is even more certain that MultiChoice (DStv + GoTV) has considerably more than 30% market share. The variety of packages on offer along with the number of channels and type of content suggests that MCA is indeed leveraging its economies of scale in relation to the acquisition of content. It would therefore be appropriate for MACRA to presume dominance, even absent accurate retail revenue data.

Conclusion

MACRA should determine that MultiChoice is dominant in the market for retail subscription TV services.

4.5.3 Wholesale terrestrial TV signal distribution

The market for wholesale terrestrial TV distribution comprises two companies: GoTV which self-provides capacity for its retail division, and MDBNL's which is available for other broadcasters to access customers via signal distribution over terrestrial networks.

In revenue terms GoTV is much the larger operator. On average during the period 2018-21 MDBNL had revenues of **[✂]** per annum from wholesale terrestrial TV distribution. This

[70] MultiChoice Botswana Pty Ltd v BOCRA, APPEAL NO: CACGB-117-18 HIGH COURT CASE NO: UAHGB-000208-17.

[71] Competition Issues in Television and Broadcasting (oecd.org). While published in 2013, the issues are pertinent to the stage of development of broadcasting policy and competition in Malawi over the past few years.

compares with an estimated revenue of **[✂]** for GoTV's self-supply. So GoTV's overall market share is around 83% and has been increasing year-on-year.

However, because GoTV engages purely in self-supply, there is no risk of anti-competitive practice from GoTV affecting other retailers. So, there is no value in classifying GoTV as a dominant supplier unless MACRA is minded to require GoTV to provide a reference access offer in order to supply terrestrial digital signal distribution to new entrants or competitors without their own signal distribution, so as to give effect to paragraph 7 of the First Schedule to the Act.

At the same time MDBNL is too small to be considered a dominant supplier. There is also the potential for other broadcasters to seek a self-provision licence, in the same manner as GoTV, which would further enhance competition in this market.

The Genesis report submitted by MultiChoice criticised the inclusion of self-supply in the wholesale market for terrestrial TV signal distribution, arguing instead that MDBNL should be classified as dominant (as it was in the 2018 market review). However, this argument ignores the potential supply-side substitution effects of a SSNIP by MDBNL – either GoTV could respond by offering a rival service, and/or other service providers could move to self-supply.

Conclusion

No operator should be determined as dominant in the market for wholesale terrestrial TV distribution.

4.5.4 Wholesale satellite TV signal distribution

There are multiple satellite providers that provide internationally available wholesale satellite TV signal distribution services including to the retail service providers in Malawi. Each subscription TV provider in Malawi therefore has a choice of suppliers with which to negotiate terms of access. It should be noted that the satellite providers are outside of MACRA's jurisdiction unless they have an earth station or terrestrial connections within Malawi.

Conclusion

No operator should be determined as dominant in the market for wholesale satellite TV signal distribution. This conclusion can be revisited if additional facts can be provided by MACRA or potential new entrants that would tend to support the sharing of satellite signal distribution capabilities by commercial or regulated agreement.

4.6 Proposed remedies

The previous sections have determined that:

- MBC is dominant in the retail free-to-air TV market
- MultiChoice is dominant in the retail subscription TV market.

In this final section we consider appropriate remedies for these positions of dominance.

4.6.1 Retail free-to-air TV services

Although MBC is dominant in this market and theoretically could use its position to raise prices, the fact that it is obliged to provide its services for free fundamentally mitigates this risk. There is also a theoretical risk of anti-competitive agreements between MBC and MDBNL because the Government is their common owner. However, MBC's programme are available on subscription platforms, so there appears to be no current concern of exclusionary dealing. We do not therefore recommend that any regulatory remedy be imposed on MBC at this time.

4.6.2 Retail subscription TV services

As the dominant player in the retail subscription TV services market MultiChoice's market advantage over its competitors lies in two areas:

- Access to premium content such as films, major TV series and the rights for live sports programmes. Sports rights in particular have become increasingly expensive and are usually granted by way of multi-year contracts. This means that the largest and best-funded broadcasters are in pole position to acquire content, which in turn attracts subscribers and premium subscription revenues, thus cementing any position of dominance. Smaller service providers have little chance to compete.
- Access to non-premium content. Apart from MultiChoice, all the other service providers in Malawi rely on a wide range of non-premium content, much of it acquired on a non-exclusive basis, in order to attract subscribers. As a result, they offer services at a much lower price point. There is a risk that the dominant supplier could use its bargaining power to obtain access to content at a lower cost than its rivals and/or to establish exclusive contracts with that restrict the availability of non-premium content to its rivals. There is also the potential to set predatory retail prices so as to drive its rivals out of the market.

It is difficult for MACRA to have any impact on the upstream market for the acquisition of content, and especially premium content, because this is an international market of which Malawi is a very small component. MACRA is also aware that pro-competitive measures could have the unintended consequence of reducing the range of TV content available to Malawians and/or increasing the price of that content, which would not be in the consumer interest.

We therefore recommend that at the present time MACRA imposes a transparency remedy on MultiChoice. This means that it discloses the periods of time for which contracts for premium content (to be defined by MACRA) have been concluded and whether or not those contracts are exclusively available to MultiChoice. It also means that MultiChoice should submit data regarding its subscriber numbers and subscription TV revenues to MACRA on an annual basis.

Ideally this remedy should be imposed on MultiChoice Africa (MCA) the company which supplies subscription TV (and is therefore the dominant player in the market). However, while MultiChoice Malawi (MCM) is a licensed player in Malawi (for the provision of subscriber management services), MCA is not. Therefore, as indicated above, MACRA may either have to licence MCA or it will have to impose remedies on MCM as its licensed proxy. This decision will be taken within the ambit of the law.

We also recommend that MultiChoice is required to provide subscriber and revenue data to MACRA on a quarterly basis. This will enable MACRA to retain an up-to-date view of the market as it develops.

There are two further potential remedies that might help promote competition in the retail subscription TV market without a deleterious effect on the available retail offers. These are:

- **A "wholesale-must-offer" obligation.** Such an obligation was, for example, imposed by Ofcom on BSkyB's Sky Sports channel in the UK, requiring (some of) its content to be made available to other distributors at regulated prices. This could create the conditions where retail competition in premium content is possible. It could also bolster the existing competition in non-premium services. This is a remedy that works alongside the transparency remedy.
- **A set-top box interoperability requirement.** To access subscription television services, subscribers have to purchase customer premises equipment in the form of set-top boxes. To switch between service providers a new set-top box is required, which creates a significant barrier to switching and hence to competition. Interoperability of set-top boxes could lower switching costs and stimulate competition.

The choice of remedy depends on the precise cause of "stickiness" in the retail subscription TV market. As all of the subscription TV providers currently appear to operate with their own bespoke set-top boxes they might not actually value interoperability. In its public consultation, MACRA invited comments from the industry as to what the issues in pay tv are, and how they may effectively be addressed through regulation. However, no comments were received.

Incyte believes that each of the remedies indicated above is justifiable on account of MultiChoice's very high market share; but there is little to be gained by imposing remedies unless or until the other suppliers are motivated to use them to grow their own businesses and thereby enhance competition. The lack of responses to the public consultation indicates that such motivation is currently lacking, with the possible consequence that imposing remedies on MultiChoice may simply impose costs on the industry and lead to higher prices for end users.

However, MACRA should keep developments under review and may impose remedies at a later date if appropriate. In the meantime, MACRA should also continue to engage with MCA in relation to licensing.