



**internet solutions**  
A DIVISION OF DIMENSION DATA

23 June 2014

Ms Thandi Nkosi  
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164 Katherine Street  
Sandton

Per email: CNkosi@icasa.org.za

Dear Ms Nkosi

**RE: INTERNET SOLUTIONS SUBMISSION IN RESPECT TO THE ICT STATE OF COMPETITION IN SOUTH AFRICA**

Please find the attached Internet Solutions' Submission in respect of ICASAs Inquiry into the State of Competition in the ICT Sector.

Please do not hesitate to contact the writer hereof should you have any questions.

Yours sincerely,

Siyabonga Madyibi  
Legal and Regulatory Executive



## 1. Introduction

Internet Solutions welcomes the opportunity to make its written submission to ICASA in respect of the state of competition in the ICT sector in South Africa. The ICT sector has played a vital role in advancing economic development and reducing poverty in most parts of the world. However, a competitive ICT environment is a prerequisite to ensure that the ICT sector contributes as an enabler to drive economic and social development. Despite having developed telecommunication networks, the ICT sector in South Africa remains insufficiently competitive due to lack of access to high demand spectrum, the specific market structure of the mobile telecommunications industry in general and the lack of competition in the fixed broadband market in particular.

South Africa is lagging behind both developed and developing countries in terms of broadband penetration. The ICT sector has not been valuable in providing far-reaching development benefits to all South Africans. As such, the need for institutional changes and regulatory interventions remains a fundamental problem to address the current state of the ICT sector in South Africa.

Internet Solutions is a division of Dimension Data Middle East & Africa, a subsidiary of Dimension Data, which is a global systems integrator. Internet Solutions is the leading African Internet Protocol-based Communications Service Provider, which strives to offer a superior client service experience for clients and partner organisations.

## 2. The state of competition in the ICT sector

The statement made by ICASA in the Notice Inquiry into the State of Competition in the ICT sector that "...the simple equation that increased competition automatically leads to a reduction in the cost of communication has not taken place in reality" is based on a partially faulty premise. This is because new market entrants are necessary but not sufficient condition for increased competition. Market entry is not the only barrier to competition. As such, other elements of market failure are present in the South African Telecommunications market.

ECNS/ECS licenses were originally a barrier to new market entrants into the communications market. So while there may be 416 operational ECNS/ECS licensees 411 of these licensees are operating under the following market conditions:

- i. Vertical leveraging by incumbents with significant market power (SMP).
  - This includes refusal to deal where an incumbent with SMP controls inputs essential for other players to compete. Examples of this include both Vodacom's and MTNs refusal/delay in offering viable MVNO platforms.



- Leveraging also occurs by means of non-price related elements including: discriminatory use of information; withholding of information; delaying tactics; bundling and/or tying of services; quality discrimination and strategic design of product characteristics. Examples of this can be found specifically in Telkom where the divide between wholesale and retail services is in name only.
  - Leveraging also occurs by means of price discrimination; cross subsidization and predatory pricing. This includes where an incumbent with SMP controls input costs essential for other players to compete. Examples of this include Telkom's control of last mile and IP connect pricing as well as both MTN and Vodacom's control of APN pricing at a wholesale rate higher than what they offer retail customers.
- ii. Horizontal leveraging also occurs where:
- An operator with SMP in one market then leverages this power in another potentially competitive market. Examples of this include Telkom, Vodacom and MTNs entrance into the IT services market using low cost access circuits to secure other IT services business, even free in some cases.

Internet Solutions believes that the ongoing market consolidation will reduce rather than enhance competition because this provides the incumbents with SMP further ability to practice both vertical and horizontal leveraging as described above. While there may be many companies operating in the South African telecoms space, and giving the appearance of healthy competition, they are in reality not able to significantly reduce what is paid by South African consumers or businesses. This is premised on the fact that the primary input cost of the service, basic connectivity is determined by just three operators with SMP.

There is not a lack of competitors. However, there is a lack of actual competition due to the "service stack" nature of telecoms. To provide a premium information service requires an underlying managed communications service which requires a basic communications service and which in turn requires a physical layer networking service. These last two layers are almost completely dominated by the major incumbents, which vertically integrate the services they offer to take advantage of their control of the physical layers, while repeatedly and demonstrably making use of the price and non-price related discrimination techniques outlined above.

IS submits that a recommended regulatory intervention is that laws and regulations are updated to ensure that those with SMP in basic infrastructure services cannot use their market power to dominate other layers of the communications and information services stack.



In effect, what is required is regulating for clear division between wholesale and retail operations, between communications services and information services (as per US telecoms model), and enforcing Open Access regimes to ensure that the actual cost of providing communications services and the market selling price of these services reaches a fair, market-determined level without distortions created by cross subsidization through vertical integration by incumbents.

An issue raised repeatedly by the South African mobile operators is that only by having exclusivity on larger and larger amounts of spectrum can there be technical innovation and network build out as it requires massive revenues to underpin the investment. However, reviewing Capital Expenditure as a percentage of revenues (CapEx is a rough analogue of network build investment: Vodacom annual report 2013: “The majority of the capital expenditure was concentrated on transmission, the radio access network (‘RAN’) renewal project and adding new 3G base stations to the network.” Vodacom South Africa: Revenues R58.607b, CapEx R6.967b – 11.9%. This was 12%, 10%, 9%, 19% in 2012-2009 respectively.

- Vodacom International (Tanzania, Lesotho, etc): R11.583b, R2.864b – 24.7%
- MTN South Africa: R39.707b, R5.835b – 14.7%
- MTN Nigeria R48.159b, R14.298b – 29.7%
- MTN Ghana R8.269b, R1.690b – 20.4%

Comparing with Vodafone international: a split between very developed (UK, Germany, etc) and semi-developed (Spain, India, etc) gives GBP43.65b, GBP7.1b which amounts to 16%. The conclusion is that by any measure, Vodacom and MTN’s network investment in South Africa is low compared to international norms in both developed and developing markets: 10-12% as opposed to 16-18%. While the incumbent mobile operators receive constant favourable regulatory treatment and preference in allocation of spectrum, their investments into South Africa’s infrastructure is poor.

### **3. Is the SA mobile broadband market competitive?**

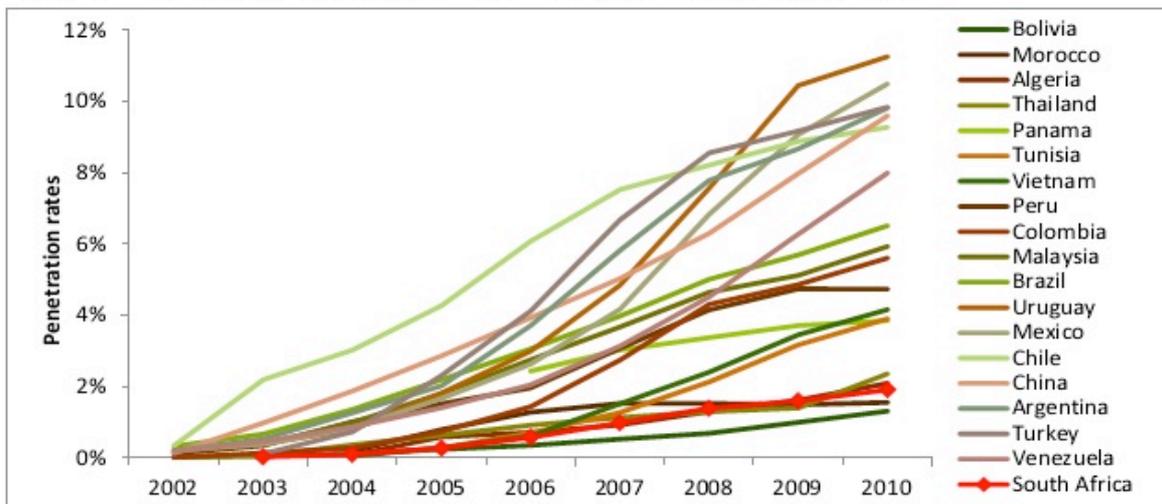
#### **3.1 The development of mobile broadband in South Africa**

When mobile telecommunications services were first introduced in South Africa in the early 1990s, it was seen as a premium service that offered mobility of voice calls. Subsequently, its rapid growth has challenged the monopoly traditionally held by Telkom, to the extent that South Africa now has far higher mobile penetration than fixed penetration in both voice and data. Figure 2 illustrated the rapid growth in broadband subscriptions, especially for mobile broadband. In 2010 mobile broadband subscriptions accounted for more than 60% of all broadband subscriptions.



The growth in mobile broadband has been driven by factors such as significant increases in broadband network coverage and some decreases in prices. In 2010, MTN had 3G services available to roughly 35% of South Africa's population. Vodacom's 3G network covered around 27% of the population, largely in urban areas, while Vodacom's EDGE network covered 26% of the population, both in urban and rural areas. Both MTN and Vodacom are continuously investing in their rollout of wireless broadband infrastructure and the current extent of coverage for mobile broadband services is expected to be even higher.

Figure 3: Fixed broadband penetration rates in selected developing countries



Source: Africa Analysis

Yet, as Figure 3 illustrates, South Africa is lagging behind other developing countries in aspects such as fixed broadband penetration. The failure of historical strategies to roll out broadband services are reflected in the prices of broadband, the lowest of which are higher than the highest rates in the OECD countries. Despite the drastic price reductions of the last few years, prices are still high by international standards. In addition, the lowest uncapped bandwidth being offered in most countries exceeds the highest in South Africa.<sup>1</sup> This disappointing market performance and these poor outcomes might be due to the specific market structure of the mobile telecommunications industry in general and the lack of competition in the fixed broadband market in particular.

### 3.2 The wholesale (access) market in SA mobile broadband

A service provider <sup>2</sup>(servicing the end consumer) will often require access to one or more (upstream and downstream) facilities. In the case of mobile data, the access market

<sup>1</sup> Esselaar, S., Gillwald, A., Moyo, M. and Naidoo, K. (2010) South African ICT Sector Performance Review 2009/2010. *Research ICT Africa: Towards Evidence-based ICT Policy and Regulation Volume Two*, Policy Paper 6, 2010.

<sup>2</sup> Typically companies such as Internet Solutions, MWeb, etc.



represents service providers' need for access to the network infrastructure required to provide value added network services (VANS) and, more specifically, mobile data services to their customers. In other words, the relevant wholesale market is the market for connectivity to mobile network infrastructure in order to provide data services.

Internationally, the scarcity of radio spectrum is arguably the greatest challenge for competition in the mobile telecommunications industry. According to Valletti (2004),<sup>3</sup> while there has been notable international progress in relaxing the spectrum constraint, it remains a formidable barrier to entry, resulting in the oligopolistic structures that characterise mobile telecommunications markets. This is also true for South Africa, where only four licensed network operators (MTN, Vodacom, Cell C and the recent entrant 8ta) service the mobile market.<sup>4</sup> Potential entry into the South African mobile market is difficult in the short- to medium-term, because entry is regulated and limited by spectrum constraints. Initial costs in establishing a network are also very high.

Cell C entered the market in 2001 and has gained some market share since then. However, in its 2005 report on Mobile Pricing, ICASA stated that the entrance of Cell C had not led to significant tariff reductions. Cell C also had a "late-mover" disadvantage, having entered the market place later than its competitors (Vodacom and MTN), which had time to establish subscriber bases and to reduce unit costs. The new entrant, 8ta, which was launched in 2010, will probably face many of the same difficulties. Figure 4 illustrates the market shares of these players, in terms of mobile broadband subscriptions. Clearly, Vodacom was the dominant firm in the market with a share of over 70%, while MTN was the only other firm with a significant market share of around 25%.

The structure of the mobile broadband market can therefore be described as highly concentrated and dominated by two players with high market shares. The South African Competition Act (section 8) defines dominance as follows:

"A firm is dominant in a market if:

- a) it has at least 45% of that market;
- b) it has at least 35%, but less than 45%, of that market, unless it can show that it does not have market power; or
- c) it has less than 35% of that market, but has market power."

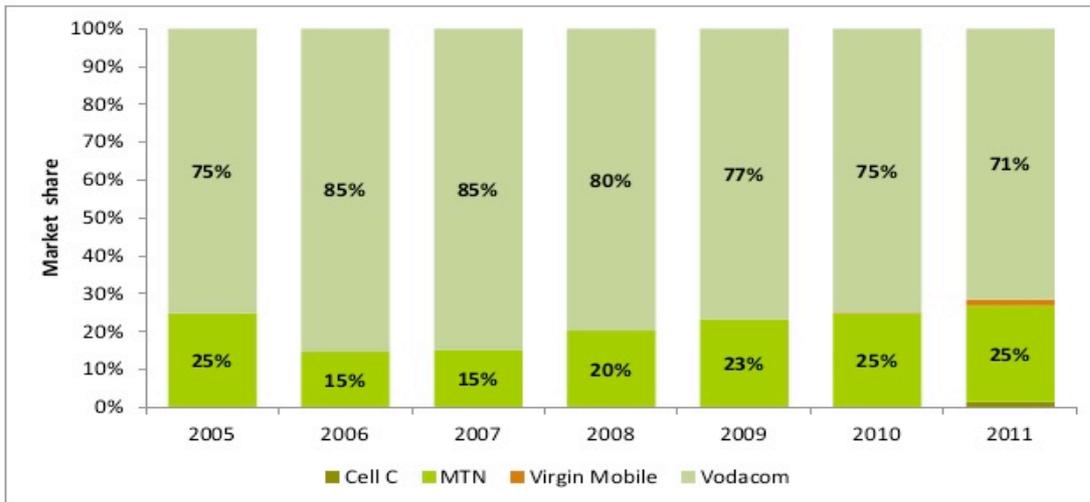
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<sup>3</sup> Valletti, T. (2004) Obligations that can be imposed on operators with significant market power under the new regulatory framework for electronic communications. *Journal of Network Industries* 5(1): 51-81.

<sup>4</sup> Data is only up until the first quarter of 2011, therefore 8ta's current subscriptions in the mobile broadband market are not reflected. However, 8ta's market share is expected to be minimal compared to the entrenched operators.



Figure 4: Market share of the MNOs in mobile broadband subscriptions



Source: Africa Analysis

With a market share of 70% Vodacom can be classified as dominant in terms of the Competition Act. The market shares of both Vodacom and MTN have remained relatively stable over this period, which may also indicate low levels of competition. It is also important to note that the combined market share of the two large players is approximately 95%, which is an indication of their collective market power, and can also be indicative of joint dominance. The level of competition may not be optimal when two large firms control a market (duopoly) and have similar cost and pricing strategies.

Firms in the mobile sector are interdependent as they have structural links with each other in the form of cooperation agreements, including termination of voice and data traffic and roaming relationships. This type of interdependence is a well-known characteristic of oligopoly (and duopoly) markets. An oligopolistic market is more likely to have a structure which is conducive to coordinated effects (collusive behaviour), since firms are likely to become aware of their common interests and to anticipate each other's behaviour. While the duopoly structure in the mobile data market is more competitive than in the fixed-line market, there appears to be significant problems at the wholesale level which could be a major contributor to the high retail prices witnessed.

### 3.3 Retail (service) market in mobile broadband

Competition in wholesale access markets is also linked to the structure of associated retail markets. Essentially, mobile service providers create the link between the consumer and the primary or wholesale market. There are a number of service providers in the typical mobile broadband retail market. They provide a comprehensive range of cellular products and services that broadly fall within the definition of value added network services (VANS). These services will vary according to the nature of the business conducted by each participant but will generally include one or more of the following: access to the Internet,



e-mail services, managed data network services, security services and the establishment of virtual private networks (VPN). Service providers also have the responsibility of marketing different services, billing customers, setting credit limits, collecting debts and offering after-sales service and technical support. Each has an individual brand and competes in terms of these VANS.

The provision of these services occurs on top of the network infrastructure. A service provider that does not own the network offers the service by either leasing part of the network from the network operator and enhancing this with service components, or interconnecting their own network to others. The service component is added either because the network operator does not offer the service, or because the network operator is inefficient and the service provider is able to offer it at lower cost or better quality. Some of the additional components that SPs bring to the network are service-specific infrastructure, customer management systems and content.

### 3.4 Development and competition in SA retail mobile broadband

In the late 1980s, the United Kingdom required their mobile operators to use independent service providers to facilitate vertical differentiation between networks and consumers, thus enhancing competition. When the South African authorities issued cellular licenses to MTN and Vodacom, they also recognised the competition problems created by this duopoly. Consequently, the UK concept was adapted for the South African market and it was believed that it would provide another layer of competition in the mobile telecommunications supply chain. This layer would not require any form of regulation, avoiding the barriers to entry created at the operator (MNO) level. As such, it was intended to be a competitive market.

However, in contrast to the UK, the network operators in SA were allowed to establish their own service providers or to allocate this function to a party of their choice.<sup>5</sup> Initially, many service providers entered the downstream mobile service provision market. However, subsequently there has been large-scale consolidation, with the number of firms declining significantly in recent years through a combination of mergers and business failures. The market has shrunk to only a few independent service providers, which collaborate with all the networks and do not have an exclusive arrangement with only one operator. The remaining service providers are individually connected to the three network providers (at least in part). Vodacom owns Vodacom SP (the dominant market player), MTN owns MTN SP (previously M-Tel), which is exclusively bound to MTN and Cell C also has its own service provider.<sup>6</sup>

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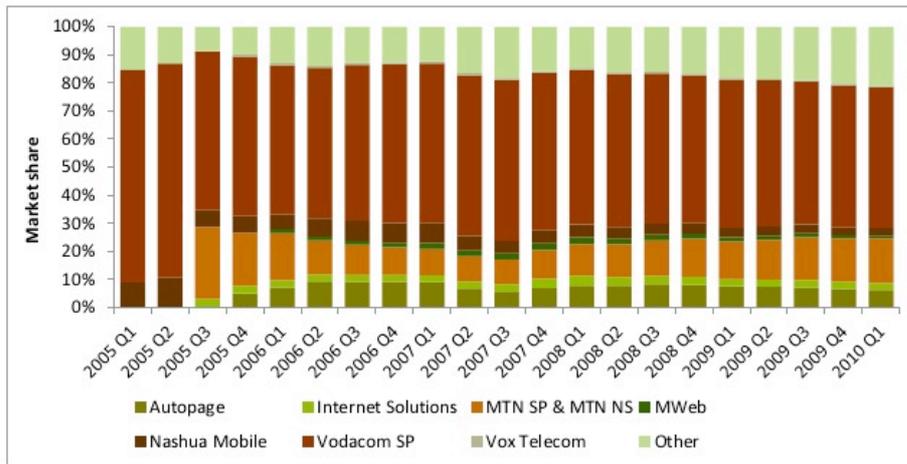
<sup>5</sup> Theron, N.M. and Boshoff, W.H. 2006. Vertical integration in South African telecommunications: a competition analysis. *South African Journal of Economics* 74(3): 575-592.

<sup>6</sup> Theron, N.M. and Boshoff, W.H. 2006. Vertical integration in South African telecommunications: a competition analysis. *South African Journal of Economics* 74(3): 575-592.



Figure 5 shows the market shares in the market for mobile broadband service provision in terms of subscriptions. It is clear that the service provider owned by Vodacom is dominant in the downstream market. In 2010, Vodacom SP actually had a market share of 50%, although this market share has been declining in recent years from around 57% in 2007. MTN SP held the next highest market share of around 16% in 2010.

Figure 5: SP market share in mobile broadband subscriptions



Source: Africa Analysis

Vodacom SP is therefore also dominant in the downstream broadband market (based on the definitions discussed above), which could give rise to competition concerns, especially given relatively high broadband prices in South Africa.

### Should the SA mobile broadband market be regulated at the wholesale level and what are the policy options?

The previous sections highlighted the dominant position held by especially Vodacom, but also MTN, in the wholesale mobile broadband market and some of the potential competition concerns that may flow from this. It was also suggested that the current market structure of the South African wholesale mobile data market could be a major contributor to the high prices witnessed on the retail side of the mobile data market. However, there are different ways to address such identified competition concerns. Principally, policymakers must decide between ex ante regulation and ex post regulation (via competition policy).<sup>7</sup>

Ex ante regulation refers to situations where competition concerns are addressed preemptively in a forward looking and industry wide manner, while ex post regulation (competition policy) addresses competition concerns typically after they have occurred in a

<sup>7</sup> Another option available to regulators is dispute resolution. Dispute resolution is most suited to smaller, once off concerns between specific parties and less so in a market where there appears to be endemic competition concerns that involve all parties to the market.



backward looking fashion and only pertaining to specific firms. Given the wide ranging and sustained competition concerns in the South African mobile data market, we believe there is a strong case to be made for ex ante regulation as opposed to ex post competition policy. This is explored further in the sections that follow.

The three criteria test

In 2007 the European Commission adopted the Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation. They recommend that the three criteria below should be applied in order to determine whether a market is a candidate market for ex ante regulation. We consider each of these in turn for the case of SA wholesale mobile broadband:

- a) **The presence of high and non-transitory barriers to entry;**
- b) **A market structure which does not tend towards effective competition within the relevant time horizon;**
- c) **The insufficiency of competition law alone to adequately address the market failures concerned.**

#### 3.4.1 High and non-transitory barriers to entry

The Commission Guidelines<sup>8</sup> list a number of indicators that may be useful to assess the magnitude of barriers to entry in a particular market.<sup>9</sup> We will consider these criteria in the context of the South African wholesale mobile broadband market.

Internationally, the scarcity of radio spectrum is arguably the greatest challenge for competition in the mobile telecommunications industry. While there has been notable progress in relaxing the spectrum constraint, it remains a formidable barrier to entry. Another primary barrier to entry for network provision is regulation and the need for a licence. This is also true for South Africa, if only to a lesser extent, where only four licensed MNOs are present. Thus, potential entry into the South African mobile market is difficult in the short- to medium-term.

Network industries, like the mobile market, are also characterised by significant initial costs involved in establishing a network. If the network provider is required to roll out a complete nationwide network, as is the case in South Africa, then the sunk costs will clearly be high and could serve as a significant barrier to entry. However, in mobile markets the level of infrastructure required depends on the level of traffic.<sup>10</sup>

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<sup>8</sup> European Regulatory Group (2008) Guidance on the application of the three criteria test. ERG (08) 21 ERG Report on 3 criteria test final 080604.

<sup>9</sup> 1) Existence of sunk costs; 2) Control of infrastructure not easily duplicated; 3) Technological advantages or superiority; 4) Easy or privileged access to capital or financial resources; 5) Economies of scale and scope; 6) Vertical integration; 7) Barriers to develop distribution and sales network; 8) Products or services diversification

<sup>10</sup> Hodge, J. and Theopold, N. 2001. Competition and Regulation in the Telecommunications Industry in South Africa. *Competition Commission*.



The presence of economies of scale in network industries also means that a limited number of competitors will exist, especially if they have to provide a national service. Initial capital costs are often very high and are retrieved over time. High initial costs in the mobile industry have implied that firms only become profitable after 6-8 years. Vodacom and MTN enjoy substantial first-mover advantages, having entered the market much earlier with much more time to establish subscriber bases and to reduce unit costs. Cell C entered the market in 2001, but has gained almost no market share in the mobile data market.

The main players in the market (Vodacom and MTN) are also vertically integrated into the downstream retail market. In fact, Vodacom is dominant in upstream and downstream markets. The market structure in the mobile data market (oligopoly, market power and vertical integration) gives rise to the typical concerns in vertically integrated telecommunications markets. These abuses of dominance could include the refusal to deal, vertical leveraging, tying and bundling and pricing issues such as discrimination, margin squeeze and cross-subsidisation. Clearly there are high barriers to entry in this upstream market. However, it is not clear what is preventing the other MNOs (Cell C and 8ta) from providing wholesale access to mobile data services to a greater degree than they do at present. In principle, these MNOs should be able to compete with Vodacom and MTN in this market but are not currently doing so to a significant extent.

#### 3.4.2 Tendency towards effective competition in the market

The second criterion considers whether a market would tend towards effective competition without regulation and within the relevant time horizon. Thus, the period under investigation is important for this analysis. As a forward-looking approach involves assumptions that are not easy to forecast, a shorter period reduces the risk of errors.<sup>11</sup> A number of criteria<sup>12</sup> are seen as possible indicators to assess whether a market tends towards effective competition. We consider some of these in turn: Market shares can serve as a first indicator on whether a market tends towards effective competition.

While the persistence of a high market share over time can point towards the existence of dominance, declining market shares may provide evidence of entry and increasing competition. In the current case we have seen a slight decrease in Vodacom's market share in the upstream market, although it still enjoys around 70% market share. Most of this loss in market share has been gained by MTN, which could then just lead to joint dominance. The same situation is evident in the downstream market, where Vodacom still enjoys a market share of about 50%. The ability to price at a level that keeps profits

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<sup>11</sup> Therefore, it is reasonable to assume that the relevant time horizon should in principle be the same period that is taken into account in the relevant market analysis.

<sup>12</sup> 1) Market shares; 2) Price trends and pricing behaviour; 3) Control of infrastructure not easily duplicated; 4) Product/services diversification (e.g. bundled products or services); 5) Barriers to expansion; 6) Potential competition.



persistently and significantly above the competitive level is also an important indicator for market power. However, the relevant data for such an analysis is not available at present.

The threat of potential entry may prevent undertakings in the relevant market from raising prices above competitive levels. However, it seems that the potential for entry is rather limited in this case and recent entrants have made little headway in this market. Again, it is not clear whether the other operators could provide real competition in the market for wholesale access to mobile data in the future.

### 3.4.3 Sufficiency of competition law to address market failures

The third criterion assesses whether competition law is sufficient to address market failures. This assessment<sup>13</sup> may consider a number of factors<sup>14</sup> of which we will consider a few in relation to the SA wholesale mobile broadband market. If a market failure needs frequent or timely interventions, or if it is necessary to set remedies that involve terms like access conditions and pricing, competition law may not be considered sufficient to address these market failures. Competition cases are complex, have high opportunity costs in terms of time allocated by specialists who analyse these case, and often last for years. The Competition authorities are also not best placed to design and monitor conditions which are sector specific. ICASA may be better placed to fulfil this function than the Competition Commission, since the regulator will receive information from the operators on a regular basis. In this scenario, ex ante regulatory measures may be more effective to prevent market failures and ensure the development of a competitive landscape.

For competition problems arising from the abuse of a vertical relationship, ex ante regulation may be required to prevent anti-competitive practices. The current mobile broadband market structure allows Vodacom to abuse its market power through practices such as a refusal to deal, denial of access through excessive prices, and discrimination. In such a case, mandated access under competition policy imposes a higher burden of proof and increases the length of proceedings compared to the imposition of regulation that mandates access. In electronic communications, timely and efficient intervention is critical, due to its impact for customers. In these cases ex ante regulation may be more effective in guaranteeing a timely and effective response.

There may also be situations where timely intervention may be indispensable to prevent serious and irreparable damage to competitors. Firms with significant market power, like

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<sup>13</sup> European Regulatory Group (2008) Guidance on the application of the three criteria test. ERG (08) 21 ERG Report on 3 criteria test final 080604.

<sup>14</sup> 1) Degree of generalisation of non-competitive behaviour; 2) Degree of difficulty to address non-competitive behaviour; 3) Non-competitive behaviour brings about irreparable damage in related or connected markets; 4) Need of regulatory intervention to ensure the development of effective competition in the long run.



Vodacom, may have incentives to engage in conduct that increases barriers to entry and limits the ability of competitors to operate in the market successfully. The conduct of the dominant firm will need to be examined carefully, as once a particular conduct is successful it will be very difficult to bring the market dynamics back to the point of departure. This may justify, for example, regulatory scrutiny over bundled offers prior to their launch. Moreover, regulatory surveillance may be required to address any potential attempts to abuse a vertical relationship such as the one that currently exists between mobile operators and service providers in the mobile data market.

Lastly, in some instances where the duplication of infrastructure is possible, the application of ex ante regulation which takes the promotion of efficient investment into consideration may be more efficient in the long term than competition remedies alone.<sup>15</sup>

#### **4. Spectrum management and its relevance for competition in the ICT sector**

Access to spectrum is a key determinant of broadband availability for mass-market adoption. The scarcity of spectrum is arguably the greatest challenge for competition in the ICT sector and the demand for high demand spectrum keeps growing. Spectrum is a limited and valuable public resource which must be properly managed in order to drive competition.

Internet Solutions is of the view that the perceived spectrum scarcity is as a result of a suboptimal spectrum model that has led to excess demand for spectrum while there is an inelastic supply thereof. The strategic management of the digital dividend and the currently underutilised but high demand spectrum at 2.6GHz and 3.5GHz are likely to advance broadband to a critical point where network effects and economies of scale accelerate broadband adoption. In order for South Africa to take advantage of the network effects of broadband, clear policy guidelines and thinking needs to be displayed and implemented to ensure it does not create undue inefficiencies in the system.

The assignment of high demand spectrum needs to be thoroughly re-examined considering that the current model has resulted in a highly effective local mobile industry. It has also resulted in two very powerful incumbents that provide a reasonable (but by no means) service at costs that are well above international benchmarks, and with coverage and service quality claims that are at best optimistic. Other competing wireless service technologies barely move the needle in terms of Internet penetration – while almost all mobile subscribers can access 3G services (around 30m users), and there are 3-4m users

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<sup>15</sup> European Regulatory Group (2008) Guidance on the application of the three criteria test. ERG (08) 21 ERG Report on 3 criteria test final 080604.



of 3G dongles for home Internet access, other options (iBurst, Neotel, etc) account for less than 300,000 subscribers (source: BMI-T).

It is almost a doctrine that the national mobile operators' interests are squarely aligned with the national interest. In reality, the improvements in South Africans' productivity, social mobility and economic activity are a consequence of the mobile business, not the intent of it. The national operators have also successfully conflated their investment in network infrastructure as a social goal (that must be protected) with their need to invest in network capacity (that generates the substantial financial returns to their shareholders). The vested interest of mobile operators in the status quo has driven South Africa's exclusivity-based spectrum policy, with the result that this spectrum policy has been subverted to protecting the business models of private companies. This is an almost textbook example of "regulatory capture" (<http://knowledgeproblem.com/2013/01/04/what-is-regulatory-capture/>).

This is directly contra ICASA's specific mandate, that it should regulate "in the public interest and ensure affordable services of a high quality for all South Africans". We are now in a *de facto* situation where the Department of Communications (now Department of Telecommunications and Postal Services) and ICASA have been developing policy and regulations to ensure the business success of private companies, rather than regulating to drive competition and choice, and only intervene when the public good is threatened.

Regulators have a statutory mandate to regulate the markets effectively in the interests of competition and consumers. This means that regulators must implement pro-competitive regulatory solutions that are sustainable. These solutions must harness the strengths and capabilities of all players in the market if they are to be effective. They must still embrace the role of the incumbents and not unduly exclude them from participation. Internet Solutions submits that ICASA needs to re-examine its role in allocating and assigning spectrum, based on three principles:

### **Principle 1: Spectrum Sharing and Open Access Regime**

Internet Solutions is of the view that spectrum can be shared better and efficiently. Spectrum utilization is determined by three parameters: time (when it's used), location (where it's used), and frequency (which specific band is in use). Currently, licensing is mostly done according to frequency band. As such, location and time are assumed to be "everywhere" and "all the time" respectively. There are exceptions (notably in certain point-to-point links), but this is broadly true. Modern software technology such as Dynamic Spectrum Access (DSA) makes this model entirely redundant in that the DSA software provides a real opportunity for modern DSA-enabled devices to harvest licensed, underutilized spectrum without any interference with non-DSA-enabled systems. In this



manner, DSA improves spectrum efficiency, communications reliability, and deployment time.

The government should create an enabling environment for the delivery of ICT services, and that is highly dependent on proper spectrum allocation and effective spectrum management. Over the years regulators have relied mainly on various methods to allocate spectrum such as an administrative process, the lottery process, the first come first serve and the spectrum auctioning process.

The administrative process requires the government to follow predetermined criteria to decide which entities will best serve public interest. However, this process can prove to be cumbersome and litigious where there is an extreme demand for limited spectrum. The lottery process mandates quicker license assignment. However, this process may attract a large number of applicants with no technical competence to build or operate a public radio communication service network.

The first come first serve process also allows quicker spectrum allocation but is not equitable. As such, this results in over concentration of spectrum on dominant firms which entered the market first and have significant market power. The spectrum auctioning process is a good example of market-based regulation because it employs a pricing mechanism to allocate spectrum efficiently whilst increasing revenue maximisation for treasury. However, its biggest weakness is that auction participants are trying to maximize their profits rather than serve the public good. As such, there is general consensus that regulators worldwide need to implement spectrum licensing models that are efficient and flexible to address the prevailing market conditions.

Current spectrum allocation models, even with Universal Service and Access Obligations (USAOs) have not achieved significant infrastructure deployments in rural areas. Spectrum auctioning, while an ideal pathway for the state to maximise revenue generation, have led to market failures as auctions not only lead to highly concentrated market structures favouring incumbents with large financial resources but also widens the digital divide between rural and urban areas as operators only deploy infrastructure in economically viable urban areas. Spectrum owners look to recover the cost of the spectrum by deploying networks in higher income centres as opposed to rolling out services to rural communities.

It is increasingly evident that regulatory reform leading to increased flexibility is a necessary condition for greater efficiency in spectrum markets. It is on these bases that Internet Solutions advocates for the wholesale infrastructure sharing open access model to optimise investment in the South African telecom sector and encourage quicker deployment of affordable services. In terms of the wholesale infrastructure sharing open



access model, the regulator issues high demand spectrum to a single wholesaler or consortium of independent players. The wholesaler assumes its own identity, its own brand name and operates independently of its consortium members. The primary mandate of the consortium is to implement, manage and sell network services on behalf of its consortium members. The wholesaler provides basic transport capacity to unaffiliated retail providers on a non-discriminatory basis. The disassociation of transport from retail will promote competition and benefit consumers.

The wholesale infrastructure sharing model is underpinned by functional separation based on the principle of no locking and no blocking. It however allows successful bidders to offer retail services to end users based on the following principles:

- functional transparency between infrastructure and services based competition;
- transparent pricing between wholesale and retail units;
- code of conduct that clearly delineates between wholesale and retail arms; and
- the establishment of an Equality and Access Board, an independent body to monitor and enforce the functional separation between wholesale and retail arms.

The wholesale business has to have a separate business unit that is independent of the retail divisions of the successful bidders. Common or shared infrastructure is inevitable at all levels of the network to address the growing needs of customers.

## **Principle 2: Exclusive National Licenses**

Exclusive national licenses have proved to be fundamentally inefficient. While granting an essentially perpetual license to a single company for its exclusive use nationally provides the certainty needed to develop a business model acceptable to investors, it is incredibly inefficient. In urban areas during peak times, base station capacity is very high, but even so, in a survey in Indonesia which is fairly similar to SA demographically, the “in use” GSM bands had 100+ channels which were not in use (source: Range Networks, 2014). This case is true for South Africa where at times some licensed bands are rarely used at all.

In quieter residential and rural areas, spectrum utilization can be negligible. In many peri-urban and rural areas, there are swathes of territory that are not covered with a service at all. Outside of urban areas, there are quite large areas that get little or no coverage at all, or only coverage in one of the currently used GSM bands. As mentioned above, Internet Solutions submits that the licensing regime be changed to one which prioritises efficiency of use, and not provide for the business planning convenience of private companies, or their ability to lock out competition through exclusivity.



Other recommended models to the wholesale infrastructure sharing open access model are “use it or lose it”, and “use it or lease it”. The “use it or lose it” model is an unlikely option, as it would require massive complexity to regulate, with potential frequent requirements for re-licensing, and legal challenges. The “use it or lease it” model is vastly more palatable, envisioning a regime where an operator that fails to use the assigned spectrum in a particular area will be compelled to make it available for lease to others at a fair market value. The advantage of this model is that the primary spectrum holder will earn revenue from an effectively unmonetised resource, and the regulator will earn revenue in managing the re-licensing of the spectrum.

As such, we should adopt new spectrum allocation and management models without any further waste of time. Appropriate radio frequency spectrum should also be allocated to new entrants who have proved to be financially capable to deploy. If ICASA continues to allocate spectrum in a piecemeal manner, there will neither be sufficient incentive for incumbent operators to deploy infrastructure in rural areas nor an enabling environment for new entrants to scale the high barriers to entry. However, the infrastructure sharing model is the most effective and efficient manner for ICASA to manage spectrum.

### **Principle 3: Open Access Regime for Wireless Infrastructure**

As a shared access medium, the opportunity cost to a prospective wireless network operator of not having access to spectrum that is owned, but unutilized, is severe because of the fundamental limit on available channels and spectral efficiencies of radios. The most obvious way to maximize spectrum utilization is through an Open Access regime, where many service providers can identify and develop new markets and provide services to those markets. This would allow a free market to grow based on level playing field competition.

The investment of network operators in infrastructure should be protected by the effective regulator by ensuring fair pricing where all information services providers (including potentially the operator of the physical network) pay for use of a network at a price that provides an acceptable return on investment with respect to the network build and operational costs.

This will require government and the regulator to push ahead with generalized form of local loop unbundling, on both the fixed line and wireless networks. As mentioned above, mandating a separation of network and services will allow the price of access to the network to reach a fair, cost-related level, undistorted by service bundling and cross-subsidisation.



## 5. Convergence and the Internet

Internet Solutions agrees that there has not been enough debate about the impact of convergence in the manner in which the ICT market is functioning and restructuring. Existing telecommunications companies with SMP are leveraging their positions in adjacent markets to potentially gain unfair competitive positions in these adjacent markets.

Internet Solutions is of the view that the multifaceted problems obstructing Internet growth will be exacerbated by a non-competitive sector that favors specific Over the Top players over others. If one breaks these issues into the following categories it becomes clear that simple cost is only one aspect of the problem.

The categories include:

- Geographic foot-print of access technologies: this specifically talks to the issue raised by ICASA of a non-uniform spread of all available technologies leading to limited choice for certain users in certain areas.
- Affordability of access technologies: price is a major factor especially where the cost of communication represents a significant percentage of household income.
- Reliability of access technologies: reliability is a key factor in adoption and continued use of a technology, specifically where a specific OTT service (e.g. e-commerce services) requires a consistent connection type to be viable.
- Speed of access technologies: broadband speeds are a known factor in internet adoption and penetration.
- Skills associated with use of access technologies and OTT services: these type of skills range from simple literacy or the requirement for proficiency in a non-mother tongue such as English.
- Intensity of use of access technologies and OTT services: it has been found that simple Internet penetration statistics do not correlate well with socio-economic benefits. Once again, internet penetration is a necessity but not sufficient condition for the flow of socio-economic benefits. The intensity of the use of OTT services, however, does correlate well with socio-economic benefits. Several studies have shown strong correlations with GDP growth, job creation, innovation, OECD better life index, access to basic services, transparency, e-government and education.

## 6. Innovation and Net Neutrality

This non-discriminatory requirement inherent in the concept of Net Neutrality is what fundamentally drives competition and innovation of those that make use of those services, as all players and new entrants to a market are operating on an equal playing field. All of



these principles are well understood, and well tested. The key issue for ICASA to address is to unequivocally define the access network as part of the greater telecoms network, that it is regulated according to the same principles. By doing so, ICASA will ensure competition and innovation in the access network provisioning space, as subscribers to the service can select a network provider on its specific merits and price point, and not on the (possibly non-optional) bundling of additional services. At the same time, consumers and businesses can choose from a range of information service providers that compete based on affordability, quality of service and innovation.

A proposed approach to regulating for Net Neutrality is to return to the basic principles of “common carrier” regulation:

- The intent of the “common carrier” principle is to allow companies, in this case network operators, to build businesses in a stable and dependable regulatory environment. In return, they serve the public good by providing services on a non-discriminatory basis to those that wish to use those services for their private or business requirements.
- The benefits to telecoms companies of being regarded as “common carriers” is that they are given latitude by government to do things that most other companies cannot, such as trench cables over public land, install base stations and cabinets, buy and use spectrum, even demand access to private property to build network infrastructures (S21, 22 of the ECA).
- The access network must be considered as being of the “common carrier” category, as while the access network includes the “last mile” that may be a dedicated connection between a telco’s fixed line streetside cabinet or base station and the specific subscriber’s premises. It is a fundamental part of the network’s capability to deliver connectivity to the rest of the Internet.

With this in mind, telecoms companies cannot have it both ways, to be regulated as common carriers in the backbone, but not on the access network. In all cases, the access and distribution network (physical and IP layer) must be considered separately from service layer (any application running over connection), as “common carrier” benefits are a prerequisite to build a large scale physical network, but are not a prerequisite to provide an over-the-top service. In US telecoms policy parlance, they describe these two respectively as “telecommunications services” and “information services”.

Essentially, by allowing network operators to mix and match services provided under “common carrier” and non-common carrier regimes allows them to cherry pick which regime suits them better, whether or not it is in the interests of the public good or competition. In effect, explicitly defining the access network as part of the “common carrier”



regime of the core and distribution network (i.e. mandated non-discriminatory access), in effect brings about Net Neutrality with the overwhelming benefits. This policy has already demonstrated in improving competition, driving innovation and allowing small players and start-ups to compete and grow.

## **7. Disruptive technologies – TV White Spaces**

The creation of an unregulated spectrum band (ISM) has unleashed a stream of technology and business innovations never seen before. This has created a multi-billion dollar WiFi and Bluetooth industries that have delivered a massive array of extremely desirable products and services.

Currently, regulators in northern Europe are looking at a similar ultra-light regulation of TV White Spaces (TVWS), essentially the regulations boiling down to a single line: “a user of white space spectrum must not interfere with the primary spectrum owner”. The intention here is to allow massive innovation in White Space technology by reducing barriers to entry, both in terms of licensing, and much higher engineering design costs created by complex standards.

While certain spectrum should be reserved for exclusive use by national operators in the interests of economies of scale (ubiquity, affordability), public safety, etc, lighter regulation almost invariably results in more innovation and competition, as well as lower barriers to entry. With this in mind, Internet Solutions recommends that White Space spectrum regulation should follow a principle of targeting and sanctioning bad behaviour in instances where an operator of equipment prejudices the rights of others rather than trying to mandate good behaviour.

The model followed with the license-exempt point-point WiFi providers is a case in point where a regulatory intervention is required in the case of egregious activity with active self-regulation filling the gap. By only protecting the incumbents as far as what is a necessary requirement for them to carry out their businesses (i.e. prohibiting radio interference with their networks), enormous scope is created for innovative entrants to use unused radio spectrum in the high demand UHF bands.



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## **8. Conclusion**

Internet Solutions strongly supports spectrum sharing as it will create an environment conducive to new entrants in the market that can simultaneously increase choice for both downstream service providers and consumers.

Internet Solutions also strongly supports an open access regime, where a competent and capacitated authority ensures that infrastructure can be shared by operators to increase competition, drive innovation, and provide more choice. This includes both legacy infrastructure, such as LLU for Telkom exchanges, and new infrastructure, such as radio masts and fibre networks. As such, we strongly encourage a progressive approach to new wireless technologies that can access spectrum dynamically and which can bring a significant change in the efficiency and flexibility of use of this scarce resource. Traditional “winner takes all” models of national spectrum licences have worked well in the past, but are no longer the best option for the next decades.

Finally, we would like to thank ICASA for the opportunity to make our written submission on the state of competition in the ICT sector. Internet Solutions would appreciate an opportunity to make an oral presentation in respect of this inquiry.