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Towards Evidence-based ICT Policy and Regulation
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Research ICT Africa

Research ICT Africa fills a strategic gap in the development of a sustainable information society and network knowledge economy by building the ICT policy and regulatory research capacity needed to inform effective ICT governance in Africa. The network was launched with seed funding from the IDRC and seeks to extend its activities through national, regional and continental partnerships. The establishment of the Research ICT Africa (RIA) network emanates from the growing demand for data and analysis necessary for the appropriate and visionary policy required to catapult the continent into the information age. Through network development RIA seeks to build an African knowledge base in support of ICT policy and regulatory design processes, and to monitor and review policy and regulatory developments on the continent. The research arising from a public interest agenda is made available in the public domain, and individuals and entities from the public and private sector and civil society are encouraged to use it for teaching, further research or to enable them to participate more effectively in national, regional and global ICT policy formulation and governance. This research is made possible by the significant funding received from the International Development Research Centre (IDRC) Ottawa, Canada. The network members express their gratitude to the IDRC for its support.

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Executive Summary

The South African telecoms sector has been in flux over the last decade from a policy and regulatory perspective. Sub-optimal outcomes after the first phase of reform saw the partial privatisation of the incumbent and the entry of a third mobile operator. In the second phase another national fixed-line operator entered the market and the market was further liberalised through the enactment of the Electronic Communications Act in 2005. This was hailed as legislation that unshackled the market constraints and enabled the optimisation of a converged environment. But the anticipated opening up of the market has been hampered by a number of legal and regulatory bottlenecks. The Act placed an onerous administrative task on the regulator. This ranged from the conversion of existing licensees to the new horizontal licensing framework, to the coordination of market definition studies for the resulting new competitive market regulation. As a result, the period under review – 2008–2009 – has seen the telecoms industry in a state of stagnation, confusion and litigation.

Following a ruling by the Pretoria High Court that former Value-Added Network Service (VANS) providers be allowed to self-provide their own networks instead of relying on networks of incumbent operators, it seemed that the sector might finally be shifted out of the doldrums. The new Act required the transfer of licences to the more inclusive category of Electronic Communications Services Licences. While the industry celebrated this ruling and the anticipated proliferation of competitors to the incumbents, the regulatory and licensing processes to ensure their competitive entry, such as interconnection and a non-discriminatory access regime and equitable spectrum allocation, remain unresolved.

The rights secured through the courts for service providers may be hollow, should the bottlenecks in the current legislation not be removed. The inability of the regulator to effectively perform its role will continue to inhibit innovation and constrain affordability. Further, it remains to be seen how the levels of competition will be affected by the ruling, as in reality the costs of rolling out a network are prohibitive for most of those now entitled to do so.

While the Electronic Communications Act has fundamentally changed the market structure of the telecoms sector, legally opening up the market to competition, this has yet to materialise in practice. The South African telecoms market continues to reflect a market with a number of vertically integrated operators. This includes two very strong incumbent mobile operators and a weak third entrant, a dominant fixed operator and a new fixed-line entrant, each providing traditional services despite their possession of horizontal licences. A state-owned broadband company consisting of the communications network of the power and transport communication networks is also struggling to enter the regulated and highly entrenched telecommunications market. Mobile operators are also currently in the process of building broadband infrastructure and are keenly following aggressive corporate/business services strategies. The impact of these developments is gradually being realised within the market. With the arrival of a competitor to the SAT 3 undersea cable operated by Telkom with the landing of Seacom in the middle of 2009, service providers initially tended to increase bandwidth availability to their customers rather than cut their prices. Early in 2010 however, Vodacom slashed its international connectivity rates by 50%, and other telecommunications operators are expected to follow suit.

A draft broadband policy was introduced with the intention of facilitating growth in the broadband market. However, the policy fails to address a number of factors that have inhibited development of the sector, particularly the market structure and institutional arrangements.
The paper makes no reference to the regulatory framework nor to the critical aspect of demand-side stimulation of the broadband market, in particular to overcoming problems associated with low levels of PC ownership or even access and computer literacy.

Critical regulatory interventions to support market entry and competitor viability such as cost-based interconnection, regulation of essential facilities and allocating spectrum have been stalled as a result of the onerous demands of the law on the regulator and their lack of capacity and expertise to respond timeously.

In terms of access, mobile services continue to grow, with the operators reporting more than 100% SIM penetration, though the 2007-2008 IRIA household survey suggests a penetration rate close to 65%, with at least 10% of respondents indicating they have multiple SIM cards. In terms of broadband access, South Africa continues to compare poorly against other lower middle income countries and, within Africa, against those in North Africa. While mobile broadband has bolstered broadband access, growth remains relatively poor and has not been high enough to push South Africa up international broadband rankings indices.

Although mobile services continue to grow, challenges remain around universal access and particularly usage. While growth in mobile has greatly increased voice access, there has been little policy intervention to address usage issues, as a result of pricing. Pricing remains a major barrier to the access and usage of both fixed-line and mobile phone services. In addition, the cost of equipment such as Internet-enabled mobile phones and personal computers is prohibitively high as is the cost of accessing services, which has limited growth in the uptake of data services.

Since the last SPR was completed in 2007, prices have remained constant and are still extremely high compared to comparator countries. Recent interconnection price reductions hold the first hope of price cuts, though the scale of the interconnect cuts means that retail prices are not likely to be reduced by the dramatic margins necessary to push South Africa higher in international rankings, without significant regulatory intervention.
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Introduction

This paper examines the performance of the ICT sector in South Africa, particularly telecommunications, in terms of identified national policy objectives which include promoting the convergence of telecommunications, broadcasting and information technologies; the development of interoperable and interconnected electronic networks; technologically neutral licensing; universal access and connectivity for all; investment and innovation in communications; efficient use of radio spectrum; the promotion of competition; and clear role allocation for policy and regulation. It may be of significance that the provision of communications services at reasonable prices and the promotion of consumer interests comes fairly late in the list of objectives of the Electronic Communications Act (2005), as the South African telecommunications market is characterised by high prices across a range of services, from mobile voice services to leased lines and broadband. Though again, in his first state of the nation address in 2009, the new President of South Africa, Jacob Zuma, again lamented the high cost of communications, which the new Minister of Communications, Simphiwe Nyanda, immediately vowed to bring down.

Historically, the focus by Government on the high cost of communications has failed to acknowledge this as an outcome of its policies, highlighting instead the excesses of network operators, and the need to bring political and moral pressure to bear on them. What the sector performance review does is reveal the linkages between policy, regulation and market outcomes. The market, structured around a few vertically integrated operators who persist despite the introduction of a horizontal licensing framework, requires resource-intensive access regulation to constantly adjust operator behaviour in response to the anti-competitive incentives inherent in such markets. The ability of the regulatory to respond effectively to this, is determined at least partially by the institutional arrangements, the technical capacity that resides within public institutions; and the appointment of those who hold public office within them. This, together with the market structure determine policy outcomes within the sector. This study assesses these outcomes in terms of the competitiveness of the sector, and its delivery on key national objectives of affordable access to a comprehensive range of services.

The following section of the paper locates the sector in the wider economy, demonstrating its significant contribution to employment, productivity and investment. Despite this, South Africa's suboptimal performance is evident when comparatively reviewed against other middle income countries and some countries in North Africa and the African island states in the major global indices on ICTs.

Increasing market concentration in the sector is then reviewed, together with increased state ownership within the sector.

The policy and legal framework provides the context for the next section, which examines the institutional arrangements for the sector and its impact on market performance. Performance is assessed across fixed, mobile and internet markets in terms of access and pricing as policy outcomes.

These findings are then used to consider the telecommunications regulatory environment through a perception survey of stakeholders of the effectiveness of regulation within the sector. South Africa's weak performance across the survey categories, from market entry to tariff and interconnection, scarce resource and universal services regulation, go some way to explaining the poor investment environment and South Africa's suboptimal performance.
SA macro-economic environment

South Africa has the largest economy on the African continent. While the economy is heavily reliant on agriculture and mining as its main export products, it is also a complex mix of sophisticated secondary industries and fast-growing tertiary services. The country’s infrastructure mirrors this complex mix, from first world developed infrastructure in some parts of the country to poverty-stricken informal urban settlements and rural settlements lacking even the most basic infrastructure, like electricity and water.

Economic growth in the immediate post-apartheid period has, after years of stagnation, been modest, underpinned largely by stringent fiscal policy. However, South African living standards continued to diverge from the OECD average. Despite increased output per worker, unemployment rose to extreme levels with only modest increases in investment. The economy continues to be characterised by widespread poverty and widening inequalities.¹

Industry trends

These trends are reflected in the communications sector. The contribution of communications services to the GDP in 2008 was 2.8% which is below other lower middle income countries.

Labour productivity² in the sector rose from under 45 in 1995, to 130 in 2000, and 172 in 2008, while formal employment in the sector has dropped from a high of 108,215 in 1985, to 63,503 in 2008. However, the inclusion of informal employment would raise the number to 74,187.³ These figures do not include what must have been substantial growth in retail services over the last decade as the mobile operators rolled out their services. This has been accompanied by a decrease in the unit labour cost from a high of R108 in 1998 at the height of the privatisation to R99.37 in 2008. Remuneration per employee in the communication sector has risen steadily since privatisation and the reduction in unskilled labour in the fixed-line sector and continued deployment of higher skilled employees, from R131,404 in 1998 to R268,211 in 2008.⁴

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² Labour productivity is defined as GDP per hour worked; where GDP for each country refers to its Gross Domestic Product, in national currency, at constant prices, and output for country. Volume measures of output are normally gross domestic product (GDP) or gross value added (GVA), expressed at constant prices i.e. adjusted for inflation. The three most commonly used measures of input are: hours worked; workforce jobs; and number of people in employment.


South Africa lacks effective competition to challenge the incumbent operators and influence market prices which are higher than comparator countries.

Excessive profits enable the payment of premium wages above the market clearing wage rate.

Such relatively high wages for productive workers in the face of large-scale exclusion of the labour force is a function of weak product market competition in the sector. As the OECD (2008: 5-6) points out: “The weakness of competition makes it possible for large incumbent firms to set high prices and make excess returns, which in turn makes it possible for them to pay wages above the competitive level without going out of business. It also makes strikes or other forms of withheld effort more costly for firms, making them more willing to pay a premium over the market-clearing wage rate.”

Incumbent firms such as those in the telecommunications sector with market dominance tend to be associated with lower output and employment and higher prices. Although real output has grown exponentially within the communications sector over the last decade from just R 43,886 m in 1998 to R 52,204 m in 2008, it is not optimal if one compares it to real output in other countries. South Africa meets all the factors described in the OECD report, and as the section on pricing reveals, it has substantially higher prices than comparator African countries, as well as OECD countries.

The introduction of competition, together with effective regulation, would likely erode excessive returns on investment accruing to these firms, resulting in higher output and a reduction of wage premiums paid by these firms. This is likely to result in increased employment in the sector, as well as other sectors using the output of infrastructure industries with weak competition, such as telecommunications, as inputs.

Capital labour ratios have also increased steadily from just over 50 in 1995 to 100 in 2000 and 234.22 in 2008, and multi-factor productivity has increased from 63.74 in 1995 to 100 in 2000 to a high of 109.51 in 2004, and currently stands at 101.17.

Real gross domestic fixed investment has increased steadily, more or less doubling every five years to R22,806 million in 2008, which is above national averages and is reflective both of the rapid technological changes in the telecommunications sector in both fixed and mobile networks, and to some degree the high returns that operators are able to reinvest in their networks.

While South Africa boasts some of the most developed telecom networks, products and services on the continent, the development of the South African telecommunications market in terms of competitive players and their relevant penetration into the market is relatively low. As it is widely recognised that telecommunications is an essential lever for economic growth, it is difficult to understand how the liberalisation and growth of the telecoms sector has been decoupled from country-wide growth initiatives. The lag in the telecom sector is especially evident when looking at broadband penetration, where South Africa falls far behind countries with similar GDPs per capita including Argentina, Poland, Mexico, Turkey and Brazil.

As a critical element of the modern economy, telecommunications has a direct influence on the performance of an economy. Various studies have found that investment in telecommunications infrastructure has the potential to improve national productivity and economic growth in several ways. A study by Deloitte (2009) estimated that a 10% increase in telephone penetration results in a 1.2% increase in GDP in emerging markets and a 0.6% increase in developed markets, while Röller and Waverman (2002) found that the correlation of investment and growth is higher in economies with relatively high telephone penetration rates. As Madden and Savage (1998) point out: “At the most basic level, investing in telecommunications infrastructure in itself leads to growth.”

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because its products – cable, switches, etc. – leads to increases in the demand for the goods and services used in their production. Further, at a secondary level, improvements throughout the economy occur through the reduction of transmission and transaction costs, improved marketing information and the accelerated diffusion of information and knowledge. The investment by mobile operators has also brought significant foreign direct investment and increased opportunities for formal employment in many countries where the informal economy dwarfs the formal.

Figure 2: Telecoms revenue as percentage of GDP
Source: African Analysis 2009, RIA 2009 data

South Africa scores well against Sub-Saharan countries in most ICT indices, but is no longer consistently at the top and has declined from 47th position on the World Economic Forum Network Readiness Index in 2007 to 52nd position in 2009.

Market concentration

A commonly used measure of market concentration is the Hirschman Herfindahl Index (HII). South Africa’s markets are very similar to other concentrated markets such as New Zealand, which has a mobile duopoly; Mexico, which is dominated by Telmex; Switzerland, which is dominated by an incumbent with greater than 50% market share; and Norway, which is dominated by an incumbent with greater than 59% market share. Concentrated markets usually result in high prices and, like South Africa’s, all of these markets demonstrate relatively high prices. Poland, for example, has a very competitive market with a low market concentration score.

Figure 3: Herfindahl-Hirschman Index (using customer market share)
Source: Vodacom & MTN Annual Reports, CellC press releases, author’s own calculations

There is increasing evidence of linkages between telecommunications infrastructure investment and secondary improvements in the economy through information and transaction efficiencies.

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The figure above highlights the extent of market concentration in the telecommunications market in South Africa. The mobile market is dominated by MTN and Vodacom, with CellC capturing a small market share. The fixed market is dominated by Telkom, with the new entrant Neotel making very small in-roads. The figure below, using mobile market customer market share over the last nine years to demonstrate HHI, shows a very concentrated market. The introduction of CellC in 2002 saw the market concentration score dip slightly. However, from 2005–2008 the incumbent players were able to consolidate their positions in the market, resulting in it becoming less competitive. So while the size of the overall market increased, Vodacom and MTN added subscribers faster than CellC and hence competition did not increase. Despite the South African market not having a standardised definition of a subscriber and the difficulty in tracking numbers in absolute terms, the South African mobile market is still a concentrated market.

Ownership

The state is still a significant player in the sector, through shareholdings in Telkom, Sentech and Infraco (through Eskom and Transtel), and even more so if one includes the broadcasting and IT sectors. However, there has been some movement in state ownership with the sale of Telkom’s unutilised subscription broadcasting services, Telkom Media, which was granted a licence in 2008. Telkom also sold a 15% stake in Vodacom to Vodafone and will distribute the remaining 35% to its shareholders.
The sale of Telkom’s share of Vodacom in 2009 means that the government has changed the structure of its ownership in the South African telecoms sector. Prior to the Vodafone transaction, the SA government owned 37.7% of Telkom, which in turn owned 50% of Vodacom. The new structure means that the South African government continues to own 37.7% of Telkom but now has a 14% direct shareholding in Vodacom. The net effect is a reduced involvement in the South African telecommunications sector. The sale of the state IT company Arivia.com also reduced state ownership in that market segment.

Policy and legal framework

South Africa has had no major policy review of telecommunications since the mid-nineties when it embarked on a major consultative process that resulted in a White Paper on Telecommunications and the consequent Telecommunications Act of 1996. This resulted in the partial privatisation of the incumbent, Telkom, in 1997, and the introduction of a third mobile operator after a protracted and highly contested licensing process in 2002. A national colloquium was held in 2001 in anticipation of the end of Telkom’s monopoly and the opening up of the public switched telecommunications market to competition. Expectations arising from the liberalisation timetable in the Green Paper and an overwhelming call at the national colloquium for more than one fixed-line operator were not met. The 2001 Amendment Act allowed for the licensing of only one fixed-line operator and there was no further liberalisation of the market. Resale of services in the fourth year of Telkom’s exclusivity, competition in national long distance two years later, and a year after that the opening up of international services and local loops as proposed in the White Paper were not introduced.

While the delayed licensing of first the mobile operator and then the second fixed-line operator dragged on, the imperatives of the converging environment and institutional crises wracking first the Independent Broadcasting Authority (IBA) and subsequently the South African Telecommunications Regulatory Authority (SATRA), resulted in a process to merge the two authorities. This was done through the 2000 Independent Communications Authority of South Africa (ICASA) Act. This, however, preceded any policy or law on convergence and resulted therefore…

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14 Vodacom Annual Report (2009), p.6
in a single institution informed by two different statutes on broadcasting and telecommunications. The ICASA Act was amended in 2006 to accommodate the changes to the appointment process of the Council in line with the intentions of the Electronic Communications Act of 2005.

**Broadcasting reform**

Broadcasting law had also undergone major reform since the first post-apartheid broadcasting legislation was introduced in 1993 by the Transitional Executive Council, which saw the introduction of the first broadcasting regulator, the Independent Broadcasting Authority (IBA). The IBA Act also mandated the Triple Inquiry into the viability of the public broadcaster, local content and cross-media ownership. But with the end of the Government of National Unity, and following a far less consultative process than had been enjoyed by the telecommunications sector, the Broadcasting Act was passed in 2000 in order to stamp the authority of the new government on policy in the sector, which until then had developed rather organically out of the civil society position that had resulted in the IBA and subsequently from the Triple Inquiry.

This resulted in the privatisation of a number of commercial licences of the public broadcaster and the introduction of a number of greenfield commercial licences and community broadcasting licences. In 2001, a free to air operator, e-TV, was licensed in order to compete with the SABC. In 2007 the merged regulator, ICASA, granted four television broadcasting subscription licences: Walk on Water, On Digital Media, Telkom Media and e-Sat, but at the end of 2009 none of these were operational. E-sat opted to become a News Channel (e-News) on the DSTV bouquet in 2008. On Digital Media had planned on launching broadcasting services initially in 2008 and then in 2009. It was subsequently granted an extension until July 2010 to be on air by ICASA but announced that it would begin broadcasting in April 2010. Walking on Water Television has made no announcements as to when it will launch commercially, and Telkom Media, which was expected to be most successful, has already sold a 75% stake to Shenzhen Media South Africa, a Chinese company, which has rebranded it as Super5Media. Telkom Media has been granted both a cable and a satellite option and intends to offer both satellite and IPTV. Super5media has not released any intention to launch, and according to a source in the company, in late 2009 had retrenched 22 of its 78 employees.

By 2003, with the regulators merged through the ICASA Act of 2000 but several aspects of the Telecommunications Act not yet implemented, the Department of Communications announced its intention to hold a colloquium on convergence in order to forge a Bill by the end of that year. The Convergence Bill was not accompanied by any policy document to provide guidance to either Parliament or the industry, and was sent back to the Department for revision by Cabinet and Parliament several times. In 2005, it was eventually passed as the Electronic Communications Act, not to be confused with the Electronic Communications Transactions Act, which had been passed in 2002 to cover e-commerce. With the intention of preparing the sector for a converged and competitive environment, the Act was signed into effect in 2006, though many of the aspects of the law have yet to be implemented. The telecommunications sector now finds itself in an interregnum following a series of stalled interventions intended to open up the sector and enable competition.

Specifically, it sought to ensure a non-discriminatory access regime, an effective competition framework and efficient and equitable spectrum assignment and use in a technologically neutral licensing framework. Several onerous administrative requirements, however, have hampered its desired swift implementation.

**Licensing**

The Electronic Communications Act introduces a horizontal licensing framework, which includes class licences and exemptions, with the intention of making the licensing process less onerous for entrants in certain categories and for the regulator to administer.

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<th>Electronic Communications Network Service licence</th>
<th>Electronic Communication Service licence</th>
<th>Broadcasting Services</th>
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<tr>
<td>Individual Licence that includes for profit national and provincial infrastructure providers. State owns 25%+</td>
<td>Individual service Licence (voice telephony using numbers from ICASA; state owns 25%+)</td>
<td>Individual Broadcasting Services Licence (commercial or public; national and provincial; state owns 25%+)</td>
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</table>
ICASA is in the process of converting existing licences into the new framework which was required by law to be completed by October 2008 at the latest, including the permitted six month extension. ICASA issued regulations in 2008 exempting certain ECS and ECNS from licensing. However, it also issued regulations requiring entities that want to provide licence-exempt services to nevertheless apply to ICASA for permission to do so, making the licence-exempt category, in essence, another licence category.

Despite this attempt at creating a horizontal licensing framework, without a fundamental shift in policy the market remains structured around vertically integrated incumbent operators, now with effective duopolies in both the fixed and mobile market, despite the entrance of a very marginal third mobile operator in 2002. Policy and regulation influences the nature of competition and the ability of companies to compete. The vertically integrated fixed-line incumbent retains dominance over the backbone, while competing downstream with its competitors, inducing the kind of anti-competitive behaviour that has seen it brought before ICASA and the Competition Commission. While in the mobile market, the effective duopoly has resulted in price matching, poor service quality and other uncompetitive behaviour associated with duopolies. The regulator has not been able to monitor the large incumbent operators and the level of competition in the market.

The variation in state involvement – one moment decreasing involvement through selling off portions of Telkom and the next increasing involvement through the creation of an infrastructure company, Broadband Infraco – illustrates that the state has often acted in direct contrast to its stated objectives. This increased state provision and investment in the sector is a direct result of policy and regulatory and institutional failure to fully liberalise and introduce competition. As a result, South Africa’s market is characterised by concentrated markets as illustrated by the HHI analysis, high prices, constrained access and high input costs, which ultimately constrains the development of the information society in South Africa.

Since the passage of the Electronic Communications Act, it is becoming increasingly apparent that the rollout of broadband electronic communications networks is important to economic, social and political development in South Africa. Recognising this national deficit, the Department of Public Enterprises (DPE) embarked on a separate process to establish Broadband Infraco (Infraco), a state-owned company that has invested in national and international backbone electronic communications networks. The Broadband Infraco Act has been passed, as well as an amendment to the EC Act that facilitated the licensing of InfraCo. Public hearings were held in July 2009 and in October 2009 ICASA issued a network licence to Infraco, which is confined to the provision of wholesale infrastructure. The company was not granted the electronic communications services that would have permitted it to provide services to retail clients.

A distinct policy outcome of the last decade and half is the rise in state interests in a number of existing and potentially new players in the telecommunications market, including Telkom, Sentech Infraco, and the SABC. Government has struggled with the dual roles of adopting policy and legislation that is enabling for the industry on the one hand, and protecting state commercial interests on the other.

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Universal access

With the promulgation of the Electronic Communications Act, the Universal Service Agency (USA), which had been established in terms of the Telecommunications Act of 1996, became the Universal Services and Access Agency of South Africa (USAASA). It was tasked with addressing some of the concerns around the political influence of the Ministry on the USA, to which it reported directly. In addition, the 2001 Telecommunications Amendment Act allowed for the appointment of a Board, though the members were appointed directly by the Ministry. The EC Act allows the Minister to issue policy directions to the board in carrying out its oversight functions. The Act requires USAASA to make recommendations to the Minister as to what constitutes universal service and access, but it is the Minister who is required to make determinations in this regard and publish them in the Government Gazette.

The requirements of the Act in relation to USAASA require it to "promote and encourage, facilitate and offer guidance in respect of universal service and access and foster the adoption of, and use of the new methods" of obtaining universal service and access. To do so it may undertake investigations, conduct research, and survey and evaluate the extent to which universal service and access have been achieved. It is also required to advise ICASA on universal service when requested to do so.

The USAASA is required to manage the Universal Service and Access Fund, to which all licence holders must contribute, in accordance with the instructions of the Minister. ICASA, however, is the agency responsible for prescribing the basis and manner of contributions, which may not exceed one percent of a licensee’s annual turnover. The Minister is responsible for determining the exact percentage of turnover. Neither ICASA nor the Minister have to date done so, leaving the existing regulations, which require all licensees to contribute 0.2 percent of annual turnover, in force, despite the repeal of the Telecommunications Act under which they were prescribed. The Act extends contribution to the Fund to broadcasting licensees, who may now also access the fund. Those already contributing to the Media Development and Diversity Agency (MDDA) will have these offset against any USAF levies.

Despite the administrative challenges posed by the requirements of the Telecommunications Act in order for the USF levies to be determined and to be disbursed, the EC Act continues to require that all levies paid into the fund be transferred to the national revenue fund. The funds can only be accessed through Parliament if it appropriates money for that purpose.

It is clear that market realities have overtaken universal service policy and strategies. Despite initially being intended as a fixed-line strategy, fixed-line tele-density has barely increased since 1996. In the meantime mobile penetration has increased significantly since 1996 and continues to grow with innovations such as pre-paid. High prices, however, have limited usage by the poor. Universal service obligations have had mixed results, with successes in mobile community service phones, but less so in internet access to schools, SIM card rollout and other strategies such as Public Internet Terminals. Of the seven USALs originally granted licences, only one operates with fewer than 10,000 subscribers today. Fund monies have been collected but not utilised extensively, resulting in a stand-off between the USAASA and Treasury.

A number of stalled processes have been revived recently, including the definitions of national universal service access and that of the national “needy people”; underserviced areas; and the methodology for access to, and utilisation of, the Fund. However, a decade later, market and technological realities have moved far beyond the initial design and thinking of universal service options.

Despite these not being finalised, in September 2009 it issued an invitation to apply for subsidies from the Universal Service Fund and is currently evaluating responses. In 2008/2009 the Universal Service Access Fund (USAF) received an allocation of R 34.581 million, of which R 35.661 million was disbursed by the fund.18

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Broadband Policy

In September 2009, the Department of Communication issued a draft broadband policy for comment, with the purpose of increasing accessibility and affordability throughout South Africa. While the need for a broadband policy is acute, the policy itself fails to address the existing constraints on sector development more generally, and specifically the institutional arrangements and the market structure. Without the correction of the structural constraints on the sector, the objectives of the broadband policy are unlikely to be met.

Although the paper says the policy aims to clarify the roles of the state, state owned entities, authorities and private sector in broadband infrastructure development, and while it has a section on the role of the state, the policy paper makes no reference to the regulatory framework or agency at all. It also makes no reference to the state broadband company Infraco, nor the necessary co-ordination of the state entities involved in broadband rollout, specifically the Department of Communication – responsible for the to-date weak “managed liberalisation” policy of the last decade – and the Department of Public Enterprises, the sole shareholder of Infraco, the state broadband operator.

The role of the state in broadband policy is to focus on investment where instances of market failure are prevalent. However, with the current market structure and constraints on market entry at the network level, market failure becomes very difficult to assess. Critical issues of the co-ordination of rights of way and of complementary spectrum usage, which have plagued the rollout of new entrants, are not raised. There is no discussion of services and infrastructure - other than the broad reference to the “government should not operate directly in retail services provision but leave these markets to the private sector players”.

There is no reference to an open access regime seen increasingly as central to driving the rapid development of the broadband market, creating local champions, enabling rapid deployment in poorer areas (especially through complementary wireless services), and creating opportunities for innovation and small and medium enterprises.

While support is expressed for infrastructure sharing, there is no discussion of the potential of functional separation or structural separation to deal with inherently anti-competitive or dominant markets, such as has been successfully implemented in the United Kingdom with Open Reach, the structurally separated facilities business of British Telecom. No opportunity is created in the policy for leveraging public and private partnership funding in infrastructure. Although it was the intention to create a public-private partnership to fund Infraco, the private partners withdrew, leaving Infraco potentially undercapitalized at only R727 million for the proposed 11000 km network.

Overall, the draft broadband paper lacks vision. The policy is not integrated into national economic growth and development strategies. Unlike the US broadband policy which underpins the role of a lever for economic recovery, economic stimulation and job creation, nor recognition of the linkages between broadband penetration and increases in GDP. Perhaps more important is the absence of a demand stimulus strategy – whether by stimulating personal computer ownership, education computer literacy strategies, or the co-ordination across Government in sectors from health to education as well as public services.

Regulation

The regulatory framework is currently uncertain in a number of respects. Many of the regulations and other secondary legislation required to fulfill the implementation of the Electronic Communications Act are still pending or not yet proposed. In line with the provisions of the Act, ICASA has instituted a number of processes that have either stalled or not reached conclusion within the statutory period prescribed, due to complexity (market definitions), contradictions within the law (interconnection) or the absence of technical or administrative capabilities.

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19 See the RIA Report on Proposed Amendments to the ECA prepared with technical assistance of Lisa Thornton Inc for the Shuttleworth Foundation at www.saconnect.co.za
Regulatory bottlenecks

Several of the areas in which ICASA is required to act are now, as a result of the competition framework contemplated by the EC Act, dependent on the definition of relevant markets required from the regulator in Chapter 10 of the Act. As a result, ICASA set in motion a process to prescribe the Competition Framework anticipated by Chapter 10 of the ECA. Draft regulations were gazetted for public comment in March and public hearings held in June 2008. A year later there has been no further activity in finalising this framework. Though external consultants have completed most of the regulations required by the Act, it seems that ICASA is unable to make the requisite decisions to publish these findings.

Interconnection Termination Rates

South African consumers have long been subject to some of the highest mobile interconnection rates in the world. Despite having already been in business for over a decade, in 2001, with the entry of the third mobile competitor in sight, the incumbent mobile operators increased their asymmetrical mobile termination rate from 20 cents to R1.25 -- a rise of over 500% -- while the fixed termination rate was set at 27 cents. The unchecked nature of this action reflected the preoccupation by both the Department of Communication and the regulator with the monitoring and compliance of the fixed-line operator at the expense of the mobile market. Historically the mobile market was perceived as an elite service for the corporate sector and rich, although it was already evident that its reach had extended way beyond these segments of the population. For example, the mobile market experienced exponential growth levels following the introduction of pre-paid services and the intention of new entrant bidders for cellular licenses to service the mobile market. This in turn prompted the regulator to pay attention to access and pricing issues.

In 2006, in line with its mandate to safeguard consumer welfare, ICASA sought to regulate the termination prices of mobile phone calls, which had risen by over 500% in five years and are currently more than double the termination rates in Botswana, Kenya, Uganda, and Tanzania.

In 2007, the regulator began a Section 21 public enquiry into mobile termination rates with the gazetting of a discussion paper on mobile termination rates. The operators argued in the hearings that although it was agreed that mobile termination was by definition a monopoly service, the Electronic Communications Act, which came into effect in 2006, required that the market definition and significant market power tests in the competition chapter (Chapter X) be completed before a rate could be set. On the basis of legal opinions received ICASA concurred with this view, but failed to proceed with the market definition process. A findings document on termination was published by ICASA in November 2007, which concluded primarily that the competition framework envisaged in Chapter 10 would require implementation before any meaningful intervention could follow.

In 2009, following a ruling by the courts enabling a plethora of former VANS to operate under the Electronic Communications Network Services licences, the issue of securing interconnection and the cost at which mobile operators were terminating calls became a serious barrier to entry into the market. This had been acknowledged as a problem in many liberalising markets, with the European Union setting a global trend on moving towards crossbreed Long Run Incremental Cost pricing. This was followed by a number of African countries, including Botswana, Kenya, Nigeria, Tanzania and Uganda. In June 2009, on the basis of an international and African benchmarking study, the Namibian Communications Commission slashed its mobile termination rates and set a symmetrical termination rate of 43 Namibian cents with a glide path to 30c in 2011.

 Barely months before, following elections in April 2009 and the death of the former Minister of Communications, a new African National Congress administration came into power vowing to slash South Africa’s high communication costs. Immediately upon coming into office the new Minister of Communications committed himself to addressing the high cost of communications in South Africa. The Ministry brought pressure to bear on the operators, proposing that they reach an agreement with the regulator on a voluntary cut. Opposition members also identified South Africa’s high mobile charges as an issue for popular mobilisation. In July 2009, the Parliamentary Portfolio Committee on Communication, at the behest of the Independent Democrat’s leader, Patricia de Lille, brought the matter of interconnection pricing before the committee. The committee held hearings on their proposal that the termination price be reduced from the existing R1.25 to 60 cents immediately along a glide path of 15 cent reductions annually down to 30 cents by the end of 2012 with a glide path of 10c reductions every 6 months down to 30 cents by the end of 2010. The Committee wanted to know from ICASA why Namibia had been able to slash their interconnection rates to less than half of what South Africa’s were. This was further taken up by
many of the former VANS struggling to sell on value added services with such high interconnection rates and the asymmetry between Telkom and the mobile operators.

Frustrated by the lack of progress between the operators and ICASA, the Ministry issued a directive to ICASA the day before the parliamentary public hearings were to begin, to reduce termination charges to no more than 50% above cost by the end of November 2009. The directive, however, did not say when and how this would be done, and ICASA retained its position that it would be required to proceed with a formal process. However, attempts by ICASA to ride on the political coat tails of the Minister and bring the mobile operators to book failed when the dominant mobile operators, MTN and Vodacom, attempted to present to the ICASA and industry a blended rate of 78c. The regulator refused to entertain the offer and subsequently appeared before parliament to explain how it would proceed and how it would face legal review if it did not follow due process which would result in a reduction of the termination rates more in line with those that had been proposed by March 2009.

ICASA sought to regulate the termination prices of mobile phone calls, which had risen by over 500% in five years and are currently more than double the termination rates in Botswana, Kenya, Uganda, and Tanzania

![Figure 6: Interconnection termination rates increase in ZAR](image)

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<td>South Africa Off peak</td>
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</table>

![Figure 7: South Africa’s mobile termination rates in comparison with Africa and globally (in ZAR)](image)

At the parliamentary hearings both MTN and Vodacom argued that the reduction being proposed by parliament would undermine their business and inhibit the extension of services to the poor and remote parts of the country. CellC, a net receiver of mobile payments, argued however that the
rates were extraordinarily high and should come down significantly, though they argued that this be done over a longer period of time to give business time to adjust their network gearing. They also argued that, as the smallest player and last entrant into the market they should enjoy an asymmetrical mobile termination rate. They proposed that it pay 65c to Vodacom and MTN, while they pay 75c to each other to terminate.

The Ministerial directive did, however, compel the regulator to meet with the operators on a proposed reduction to the rate. The rates of 78c on a glide path to 61c by the incumbent mobile operators was rejected by the regulator. The Minister subsequently met with the operators and agreed to a far from cost-based blended rate of 90c with the terms of the glide path still to be decided. ICASA has indicated that it is proceeding with the fast tracking of the process to be completed by March instead of July, but how these cost based prices will relate to the terms struck by the Ministry with the operators is hard to tell.

In January 2010, the operators again proposed a cut from the current R1.25 to 89c on peak and to 77c on off-peak, with a glide path to 85c in October 2011 and 80c by 2012, but the offer was conditional on ICASA not regulating the price further for three years. ICASA therefore refused to accept the offer but subsequently accepted an offer of a 36c reduction from R1.25 to 89c on peak termination rate, while the off-peak remained 77c, but without any conditionality. The reduction was intended to take effect on the 1st of March 2010.

Number portability

Although number portability was required by the 2001 Telecommunications Amendment Act to be implemented by 2005, the practical implementation of mobile number portability only came into effect on the 18 September 2006. Since 2006 only 3% of users surveyed in the 2007-2008 RIA Household and Individual Access and Usage survey had ported their mobile number. More than 70% of respondents said that the reason they had not ported their number was because they are happy with their existing provider and the primary reason for not having a phone or the reason they gave for not using their phones was high prices.

The long period of contracts in South Africa is also not conducive to porting, as one has to wait for the contract to end or pay out the service provider to the end of the contract. Also there are not really significant differences between the pricing and terms of service, and therefore there is not much incentive to change. In focus groups conducted as part of the same research, respondents also indicated that they did not expect much difference between the price and quality of service of networks. Some indicated that they thought CellC had lower prices, but although those spoken to did not have personal experience of it, there was a perception that its network was not as pervasive as the other operators. Given the relatively few options for consumers in terms of both price and service, it is not surprising that many consumers do not see any real benefit in porting their number. The high number of dual SIMs indicate that most people do not bother with porting to a new service provider but rather purchase a second SIM to take advantage of specials and on-net pricing in order to lower communication costs.

22 Draft number portability regulations were published on 4 June 2004 in Government Gazette Number 26438. The final regulations incorporating the functional specifications were published on 30 September 2005 in Government Gazette Number 28091. The functional specifications are a set of rules drafted by the authority in a consultative process with the operators for the management and performance of mobile number portability (MNP).
Fixed-line porting between Neotel and Telkom became effective in May 2009. Fixed number porting, which is also referred to as "Geographic Number Portability" is to be implemented using a phased approach. The first phase will deal with blocks of 1,000 and 10,000 numbers (mostly corporate customers). The second phase will focus on individual numbers (mostly for residential customers). Individual customers are not permitted to port their numbers during the first phase. The date for number porting of residential clients under the second phase is yet to be announced.

Local loop unbundling

Local loop unbundling is provided for under the Electronic Communications Act. To this end the minister of communications set up the Local Loop Unbundling Committee (LLUC) to address the issue of access to Telkom South Africa’s last mile network. This is commonly referred to as the local loop. Telkom is required to provide Neotel with shared access to its local loop, which is being addressed via the unbundling of the local loop from the core network for access by other operators and resellers. The local loop unbundling process includes a number of regulatory interventions aimed at providing new market entrants access to the incumbent’s local access network. The rationale behind local loop unbundling is to foster competition and reduce telecommunications costs by eliminating large investments by competitors to build their own infrastructure for last mile connectivity. LLU is expected to encourage service-based competition, thereby encouraging innovation and growth of the telecommunications industry. The implementation of local loop unbundling is expected to be complete by 2011.

Licensing

These regulatory delays identified above were further compounded by the delays in issuing EC Act compliant licences. In 2006, as required by the ECA, ICASA set about converting old Value Added Network Services (VANS) licences into electronic communications network services licences in terms of the new technology neutral, horizontal licensing framework as set out in Chapter 3. This process was required to be completed within 24 months of the enactment of the Act, with a six-month extension if required. ICASA initially announced its decision to licence only a select group of the existing VANS licensees. This resulted in legal action by Altech after it was excluded from the list of Value Added Network Service (VANS) licensees, granted under the old Telecommunications Act, that would be converted to ECNS. Altech brought a court action challenging the decision to limit the number of converted ECNS licences against ICASA and the Minister of Communications on whose directive ICASA had acted. It also sought relief from a contested prohibition on VANS being able to provide their own network facilities without having to obtain these from incumbent licensed telecom network operators such as Telkom or Neotel.

The matter hinged on Ministerial policy directions to ICASA in 2007 instructing the regulator to determine which, if any, VANS should be authorised to provide and operate electronic communications facilities or be granted ECNS licences. These are licences that permit an operator to build national networks and compete directly with the fixed and mobile operators in the market.

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24 Government Gazette No 29923 of (2007), Ministerial Policy Determinations, Department of Communications, General Notice 469.
This direction itself related to the contested Ministerial policy directives from 2004, which were at the time interpreted by the regulator to mean that VANS could self-provide. The day before they were to become operational, the Ministry issued a press release rejecting this interpretation, resulting in a string of stranded investments, abandoned business plans and “pirate” operators.

In the process of selectively converting licences to the new ECA licensing regime, ICASA overturned its own previous ruling, confirming the Ministry’s now clearly expressed view that former VANS could not self-provide. In terms of the licensing conversion process, ICASA envisaged that only those selected VANS who received the new licences from the regulator following the 2007 policy direction, with no clear criteria for their award, would be entitled to self-provide.

But the court, in granting the relief sought by Altech, declared that the prohibition on self-provisioning is in direct conflict with the enabling legislation and ordered that all VANS operators licensed before the start of the conversion process be allowed to self-provide, in accordance with the initial policy direction and the initial interpretation offered by ICASA in 2004.

While the industry celebrated this ruling and the anticipated proliferation of competitors to the incumbents, the regulatory and licensing processes to ensure their competitive entry, such as interconnection and a non-discriminatory access regime and equitable spectrum allocation, remain unresolved. Without the bottlenecks that exist in the current law being removed and the necessary regulations being put in place, the rights secured through the courts for service providers may be hollow and may continue to constrain the institutional responsiveness of the regulator.

**Regulatory intervention in Vodacom listing**

The regulator again found itself in the courts, and newspapers, in May 2008, when, having previously approved the sale of 15% of Vodacom’s shares to Vodaphone (as had the Competition Commission), it went to court on the Friday prior to the Monday listing of the company to block the listing. The court ruled in favour of the defendants, Vodacom, awarding them costs.

However, barely five months later the Government quashed an attempt by Bharti Airtel to enter into a deal with MTN that would have given Bharti a 49% stake in MTN, while MTN’s shareholders would have taken up a 36% stake in Bharti, of which MTN would own 25%. In addition, under the merger MTN and Bharti would have achieved a combined income of US $20 billion and over 200 million subscribers, creating the third largest wireless operator world-wide. The collapse of the deal can be attributed to the South African government’s refusal to withdraw its demand that the Indian government amend its laws to allow dual listing, which allows companies to retain their separate legal identities and listings on stock exchanges. In this case, companies collectively run operations and share profits or losses. Such arrangements are generally used to protect the national identities of companies.

**Other regulatory issues**

The leased line market enquiry by ICASA did not yield a formal findings document within the statutory 180 day period, though the findings document that has not been formally issued found Telkom to be dominant in the leased line market.

Likewise, enquiries into spectrum allocation, particularly for high demand WiMax spectrum, which started in 2006, were not concluded, despite the conclusion of public hearings and the publication of a spectrum findings paper in June 2008. It is unclear what the delay in this process is attributable to, but the licence conversion and recent approach of pricing spectrum to international benchmarks may have had some impact. The Department of Communications has subsequently announced its intention to conduct a spectrum audit, but they anticipate this will take two years.

The failure to introduce these pro-competitive measures has had a chilling effect on new and aspirant entrants to the market and is unquestionably a major contributor to the much lamented high cost of communications in the country.

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Telecommunications Regulatory Environment Survey

The TRE assessment is a diagnostic instrument for assessing the performance of the policy and laws affecting the telecom sector and the various government entities responsible for implementation. The desired objective of telecom policy reform and regulation is improved sector performance, measured in four dimensions: connectivity, price, quality of service and choice. In the case where sector performance indicators show performance that can be considered satisfactory but TRE scores are low, it may be possible that the problem is the communication of the regulatory actions. If the latter conclusion were reached, the appropriate action would be to improve the way the regulatory authority communicates its actions.

South African TRE scores are low both in comparing one dimension against another, compared to the scores against the last time the TRE was conducted in 2006, and in comparison to the many of the scores of other African countries surveyed. The perceptions reflected in the survey need to be assessed against actual sector performance indicators (of market entry, connections, price, quality and choice).

In most of the regulatory environment categories the regulator in South Africa was rated ineffective. In addition, the regulator was rated highly ineffective for tariff regulation, interconnection and facilities. Pricing is expected to remain a key issue on the regulatory agenda in 2010.

![Figure 9: Telecommunications regulatory environment survey for South Africa](image)

As reflected in this report, there has been little regulation of the dominant operators in South Africa and competitive disputes have languished within the regulator, the competition commission and the courts. An appeal by Telkom against a 2005 Competition Commission finding of anti-competitive behaviour and proposal to the Competition Tribunal of a R3.7 billion penalty was overturned late in 2009, after this survey was conducted.

Despite the appointment of new leadership in the renamed Universal Service Agency of South Africa (USASA), it is still struggling with definitions of “universal access” and “needy people” required by the 1996 legislation. Despite longstanding universal services levies amounting to billions of rands, various initiatives, such as underserviced licences, public internet terminals and supply-side driven telecentres have proved unsuccessful.

While fixed lines and ADSL prices have been the subject of regulatory intervention in the past, it has nevertheless left them high by international standards: mobile prices have not been effectively regulated. And despite the reduction in mobile termination rates, mobile operators have warned that these will not necessarily be passed through to end users.

Spectrum availability for new services has been a major source of contention and is seen as a major bottleneck to market entry and expansion. The Department of Communication, responsible for

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spectrum planning, has committed itself to an audit that it believes will take two years, and an ICASA indication that it intends to auction spectrum has made little progress, frustrating industry opportunities and market innovation.

The regulator has indicated its dissatisfaction with the quality of mobile services in particular and has threatened to take action, but to date none has been taken. Meanwhile networks have become more and more congested with increasing numbers of subscribers.

Market entry has continued to be stifled by the policy framework of ‘managed liberalisation.’ The entry of the second public switched network operator, Neotel, has not driven down prices nor greatly extended services outside of corporate niche markets. It has invested in backbone but has not been able to compete directly against the highly entrenched incumbent operator, particularly in the residential market where little progress has been made. The opening up of the market by the Altech ruling in 2006, which overturned ICASA restrictions on ECNS licences and ruled in favour of self-provision of telecommunications facilities, has been hampered by the failure of the regulator to create a conducive environment for new entrants.

This is largely due to the onerous statutory requirements on the regulator as a result of the Electronic Communications Act, including the migration of operators onto the new licensing regime and the establishment of the competition framework to define markets and determine significant market power prior to instituting critical pro-competitive measures such as interconnection and facilities leasing; essential facility regulations.

With little relief from the policy constraints on the market, and no demonstration of improved capacity within the regulator to build investor confidence in the sector or protect consumer welfare, the overall perception of the regulatory environment remains poor. In fact, of the countries surveyed, it is one of the few reflecting a lower overall score than in the previous survey. Acts such as the last minute attempt by the regulator to go back on its approval of the sale of Vodacom to Vodafone days before the listing further damaged perceptions of it, raising concerns of further capricious behaviour.

The political intervention by the Ministry of Communication in interconnection pricing, together with the regulator being challenged by Parliament on its failure to bring down mobile termination rates have all compounded the negative perception of the regulator and have raised questions around its ability to regulate effectively.

The regulatory perception survey assesses the regulator and the entire telecommunications regulatory environment. This includes the policy framework and regulatory effectiveness. South Africa scored the second most negative perception of the eleven countries surveyed. However, Tanzania and Mozambique were viewed positively by stakeholders in their countries.

**Figure 10: Comparative Telecommunications regulatory environment survey for selected countries in Africa**
Infrastructure development

There has been increased activity in rolling out telecoms infrastructure in international, national and access networks in the past two years. Over the next three years, four submarine cable systems are expected to provide international commercial services. These are: SEACOM in 2009; EASSy in 2010; MainOne in 2010; and WACS in 2011. Seacom began to offer commercial services at the end of July 2009, and its major customers were Internet Solutions and Vox Telecoms and the academic network Tenet.

Broadband InfraCo fell victim to the lack of coordination between the Department of Public Enterprises, which is its shareholder, and the Department of Communications, which is responsible for locating its licence in the liberalised competitive market into which it is being inserted. The delays to the much awaited low cost access to the InfraCo network by operators, even Neotel who have an exclusive three year roaming agreement on the InfraCo resulted in MTN, Neotel and Vodacom co-building an alternative national infrastructure network with the first leg of a Johannesburg/Durban/Cape Town triangle near completion. This consists of a 98km fibre optic metropolitan network and 5 000 kilometres of national fibre. The projected rollout period is estimated to be 30 months.

Figure 11: Network Capex of fixed and mobile incumbents in ZAR million
Sources: MTN and Telkom Annual Reports 2009

It is hoped that with increased investment in infrastructure, bandwidth pricing will come under pressure as more competitors with excess capacity enter the market, and as a result, the increased migration of voice to VPN solutions. Currently, Telkom's core competitive strength is in infrastructure services and as more competitors enter the market, it is likely to erode its core competitive strength.

InfraCo

The fibre-optic networks of Transnet and Eskom have been transferred into a new company, InfraCo Broadband Limited, which will remain wholly owned by the state in terms of the broadband InfraCo Bill. InfraCo will, for the first four years of its existence, provide wholesale bandwidth exclusively to Neotel, selling it on a cost-plus basis. The company is one of the main investors in the West African Cable System (WACS), a high-capacity submarine system being constructed on Africa's West Coast. The cable is expected to land in 2011. In the short term, InfraCo may provide some price relief, but in the long term, its net effect is much more uncertain. Initially, there was some concern that InfraCo might squeeze South Africa's private sector investment. As indicated above, the amount of time that it has taken to issue its licence – over two years – means that in the interim the telecom landscape has changed. In that period, MTN and Vodacom have invested large amounts in fibre optic cable, Seacom has begun operations and there are several other cables scheduled to land in the next year. The Minister of Communications has now also issued a directive indicating that InfraCo will only receive an ECN licence to be backbone carrier and will not be able to provide ECNS (services) as it had proposed to. The concern is now that InfraCo, which is ultimately meant to be self-sufficient, will not be able to compete in an increasingly competitive infrastructure market.

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30 29 October 2008, see Broadband InfraCo IECNS licence www.ellipsis.co.za/tag/broadband-infraco-licensing/
With increasing market saturation at current prices and increased rights from the new licensing regime, MTN and Vodacom are re-positioning themselves to provide converged services. They are both focusing on network expansion and upgrades in order to boost capacity, reduce transmission costs and provide higher data speeds and better quality services such as mobile Internet access and more advanced technologies such as mobile WiMax.

These investments mean that the infrastructure market will be very different compared to two years ago when Infraco was first proposed by Government. This is not an uncommon problem with public sector investment in the telecom industry. It is the same problem that led to the downfall of the New Zealand Government’s Shared Government Network (GSN). The GSN was intended to provide broadband infrastructure to government departments across New Zealand. In the time it took to start operations the market became increasingly competitive and the economic rationale for the GSN was no longer applicable. As a result, the New Zealand Government has closed down the operations of the GSN and written off its investment. The irony is that this is exactly the same problem that placed CellIC and Neotel in the unenviable positions they now find themselves. For example, in the time it took CellIC to be licensed (also over two years), the mobile market changed fundamentally, with MTN and Vodacom gaining significant market share mainly through the introduction of pre-paid services, and hiking interconnection prices by 515%. Similarly, delays in the licensing of Neotel also allowed Telkom to consolidate its market position.

Dark Fibre Africa

Dark Fibre Africa is installing a carrier-neutral open access ducting infrastructure in South Africa. Through this underground infrastructure, any operator with a communications licence can run a fibre optics network. The infrastructure leased to telecommunications operators is called “dark fibre” because “the fibre optic cables used by transmission equipment to transmit data via light waves are unlit until a data service provider starts using the cables”. Dark Fibre Africa launched operations in October 2007. By August 2009, the company had laid 115 000 kilometres of fibre in over 860 kilometres of trenches. In 2009, Dark Fibre Africa signed an agreement with Teraco, South Africa’s first carrier-neutral data centre provider. Given that both companies are carrier-neutral providers Teraco’s customers can connect directly to any customer within Dark Fibre Africa’s network.31

Undersea cables

There has been increased activity in rolling out telecoms infrastructure in international, national and access networks. Over the next three years, four submarine cable systems are expected to provide services in Africa. The Seacom cable, which will run down the eastern seaboard of the continent and link South Africa, Mozambique, Madagascar, Tanzania and Kenya with India and Europe, is perhaps most significant for South Africa through providing alternative access for international services. The company began to offer commercial services at the end of July 2009 and its customers include Internet Solutions and Vox Group (offered through Neotel). Seacom is expected to reach max capacity by 2019. Prior to the landing of the SEACOM cable many of the countries relied on satellite connections for international connectivity. In addition, international connectivity and internet access costs were prohibitively high. The expected rollout schedule of the international sub-marine cable systems is as follows:

- 2009 – SEACOM (commercially launched mid-2009)
- 2010 – EASSy
- 2010 – MainOne
- 2011 – West African Cable System (WACS)

The undersea cables are expected to reduce telecommunications costs significantly due to the availability of redundant bandwidth. In addition, the undersea cable projects are expected to drive quality data, support rural expansion projects and enable the provision of new and advanced services.

Market Analysis

Legally, the South African telecoms market is partially liberalised within a converged licensing structure. The Electronic Communications Act of 2005 explicitly supports increased levels of competition. However, in practice, the market is still structured around two traditionally vertically-integrated Public Switched Telecommunications Network (PSTN) operators (two fixed networks), three mobile operators and a multi-media network operator. The mobile markets operates effectively as a duopoly as a result of the difficulties CellC has experienced getting a foothold in the market following the lengthy delays in the granting of its licence. The incumbent mobile operators dominate the market with market shares of 55% and 36% respectively – thus the third operator has managed a market share of only 9% (which also includes an MVNO agreement with Virgin).

As the mobile market is reaching saturation, MTN and Vodacom have been looking into moving into new spaces that are not their traditional lines of business. Collectively, MTN and Vodacom have spent R7.3bn in mergers and acquisitions to expand their capability in the telecoms and IT services markets. Vodacom acquired Gateway Communications in December 2008 for R5.7 billion, acquired a controlling interest of 51% in StorTech, a managed services company for R140.3 million and exercised its call option to acquire an additional 14.9% in WBS for R119.2 million. MTN acquired 69.4% of Verizon Business SA operations for R1.4 billion.

The South African telecoms market is the largest on the continent. Voice services, both fixed and mobile, continue to generate the highest revenue unlike more mature markets. Despite the proliferation of licensed operators, they currently only occupy a small portion of the market. The
South African telecoms market comprises only three key players. Particularly pertinent to this review of the South African market is the continued and increased state involvement in the sector, from fixed-line to broadcasting.

**Access**

**Fixed-line**

**Telkom**

Telkom’s fixed-line results over the last five years reflect a service in decline. Fixed-line penetration is down by 1.5% and, at 9.5%, is now well below the pre-privatisation figure of 10% and its 2000 high of 12%. The number of voice subscribers continues to decline at just less than 1%, nearly 100 000 down on last year. The number of residential users continues to decline due to mobile substitution. While post-paid only declined by 1.3%, pre-paid declined by 3.5% and public payphones by nearly 5% at 143,000 in 2008 compared to 715,000 only five years ago.\(^\text{32}\)

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<td>Payphones</td>
<td>715</td>
<td>169</td>
<td>165</td>
<td>158</td>
<td>143</td>
<td>-4.9</td>
</tr>
<tr>
<td>Fixed-line penetration rate (%)</td>
<td>10.1</td>
<td>10.1</td>
<td>10</td>
<td>9.8</td>
<td>9.5</td>
<td>-1.5</td>
</tr>
<tr>
<td>Revenue per fixed access line (ZAR)</td>
<td>5341</td>
<td>5250</td>
<td>5304</td>
<td>5275</td>
<td>5250</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

**Table 2: fixed lines**

**Neotel**

The decline in the residential fixed market in particular is also due to the continued competitive focus on the more lucrative business customers by the PSTN operators. In April 2008, Neotel launched its commercial services after having acquired its licence in 2006. Neotel provides fixed wireless access CDMA and WiMax services and is looking to acquire additional spectrum for mobile WiMax.\(^\text{33}\)

**Payphones**

Despite the diminishing revenues from payphones, with the high cost of communication services there appears to be continued demand for payphone access. Demand-side data from the Research ICT Africa 2007-2008 household and individual user survey indicates that consumers are still using public payphones, largely as a result of the cheaper call rates, no upfront investment on phones and conveniences offered by mobile payphones, particularly community service obligation phones provided by the mobile incumbents. The study highlighted that of those people using public payphones, more than 30% used them more than once a week. In the table below, over 50% of

\(^{32}\)Telkom Annual Report (2009)  
\(^{33}\)Unfortunately, Neotel refused to participate in this study and is not required to issue an annual report, so there are few details regarding its impact on the sector or its contribution to achieving national policy objectives.
consumers said they use public phones because they are cheaper. The community pay phone rate is a key driver of prices and their attractive price is driving usage.\textsuperscript{34}

![Figure 13: Response to the question: have you used a public payphone in the last 3 months?](source)

**Pricing**

Pricing has been a big issue in South Africa for a long while now. Two inquiries on pricing were held over the last three years, with no real action following. In 2009, the Department of Communications commissioned an international peer benchmarking study which involved detailed comparative reviews of tariffs, usage, access and quality of service in five nominated peer countries. The five countries selected for its relevance to the South African market were Chile, Korea, India, Brazil and Malaysia. The study focused on aspects of fixed, mobile and data services. It was found that South Africa has some of the highest rates amongst its peer group.

South Africa still effectively has only one fixed-line operator providing services. Neotel\textsuperscript{35} is yet to make a significant mark. It was initially anticipating 60,000 subscribers, but has not managed to achieve 50,000\textsuperscript{36} in 2010. This lack of competition is clearly evident in South Africa’s fixed-line pricing of both voice and data – it charges some of the highest prices in the world. Given the delays in licensing the SNO, both Telkom and the mobile operators were able to take advantage of this and capture the remaining addressable market. International best practice illustrates that second network operators require competition enabling provisions in policy like unbundling of the local loop, asymmetrical rates, infrastructure in order to make any significant in-roads in the market and hence provide competitive alternatives to consumers. This is lacking in the South African market and Neotel is expected to compete on an equal basis with Telkom.

Neotel’s difficulty in gaining market share has meant that Telkom’s prices in nominal terms have increased over the last few years, as the figure below illustrates. Though prices have declined in real terms, in a competitive market prices would have to decline substantially in order to be globally competitive.


\textsuperscript{35} It is difficult to make any substantive assessment of Neotel’s position in the market beyond the press release and marketing material they issue. Being unlisted they are not required to produce any annual report and attempts to get the most basic subscriber, investment, or revenue data provided by other unlisted late entrants in the mobile market, proved futile. Unofficial sources indicate an operating loss for Neotel of $500 million during 2009. This makes an real assessment of the hostility or conduciveness of the policy and regulatory environment for the successful entry and competitiveness speculative at best.

Figure 14: Telkom Call Charges

Against countries in the OECD area, South Africa compares poorly. Based on the OECD medium-user basket, South Africa has the highest priced basket. The net effect of Neotel’s entry into South Africa has been negligible in terms of fixed line prices.

![Telkom Call Charges - PEAK](image)

<table>
<thead>
<tr>
<th>Country</th>
<th>Call Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>830</td>
</tr>
<tr>
<td>Poland</td>
<td>556</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>540</td>
</tr>
<tr>
<td>Turkey</td>
<td>447</td>
</tr>
<tr>
<td>Hungary</td>
<td>428</td>
</tr>
<tr>
<td>Mexico</td>
<td>355</td>
</tr>
<tr>
<td>Finland</td>
<td>348</td>
</tr>
<tr>
<td>Greece</td>
<td>313</td>
</tr>
<tr>
<td>Belgium</td>
<td>311</td>
</tr>
<tr>
<td>France</td>
<td>302</td>
</tr>
<tr>
<td>Italy</td>
<td>300</td>
</tr>
<tr>
<td>OECD</td>
<td>288</td>
</tr>
<tr>
<td>Austria</td>
<td>286</td>
</tr>
<tr>
<td>Japan</td>
<td>285</td>
</tr>
<tr>
<td>Korea</td>
<td>277</td>
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<tr>
<td>Australia</td>
<td>270</td>
</tr>
<tr>
<td>New Zealand</td>
<td>253</td>
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<tr>
<td>Slovak Republic</td>
<td>227</td>
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<tr>
<td>Switzerland</td>
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<tr>
<td>Netherlands</td>
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</tr>
<tr>
<td>Germany</td>
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</tr>
<tr>
<td>Spain</td>
<td>198</td>
</tr>
<tr>
<td>Portugal</td>
<td>182</td>
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<tr>
<td>Sweden</td>
<td>137</td>
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<tr>
<td>United States</td>
<td>122</td>
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<tr>
<td>United Kingdom</td>
<td>111</td>
</tr>
<tr>
<td>Ireland</td>
<td>89</td>
</tr>
<tr>
<td>Denmark</td>
<td>76</td>
</tr>
<tr>
<td>Norway</td>
<td>41</td>
</tr>
</tbody>
</table>

Figure 15: OECD residential fixed-line basket: medium-usage

**Usage**

The RIA demand-side figures for 2007-2008 confirm that less than 20% of households have a fixed-line telephone. This constitutes about 2.2 million residential subscriber lines. The disparity can be
explained by the large-scale disconnection of subscribers unable to afford services after being brought onto the fixed line market over the last 10 years with the universal service targets set by Government as part of the privatisation agreement. The study found that 8% of homes which previously had a working telephone were currently disconnected.

Figure 16: Reasons why a household does not want a fixed line

Almost 60% of users indicated that even if fixed prices were to come down, they were still not interested in getting a fixed-line phone. It is crucial to understand the reasons for the declining number of fixed-line subscribers and to determine, from a policy and regulatory point of view, what can be done to ameliorate this decline. The decline in Telkom’s fixed-line network has severe implications for the development of widespread affordable access to a full information infrastructure, and this level of access is essential in overcoming the country’s digital divide.

The situation for data services does not look much better. Demand-side data highlights that despite almost 15% of South African households owning a computer, only 4.8% of households have access to the Internet. Once again, the reasons for this could lie in the pricing of services, which illustrates that data services in South Africa are fairly high even by African standards.

Figure 17: Monthly average household expenditure on Internet in African countries

Broadcasting

Broadcasting digital migration is the process of converting the broadcast of television and radio from analogue to digital technology. After much delay the Government released the Broadcasting
Digital Migration (BDM) policy which sets the parameters of migrating the country's broadcasting from analogue to digital. These parameters are to be implemented over a three-year period and completed in 2011.37

The South African Government has identified broadcasting digital migration as a national priority due to its potential to address a number of developmental objectives including, narrowing the digital divide, building an inclusive information society and knowledge economy. In addition, broadcasting digital migration is expected to facilitate e-governance and better access to information and services. Furthermore, the migration to digital broadcasting creates opportunities for the development and dissemination of local content, thereby driving social cohesion. Other benefits of broadcasting digital migration include the efficient use of spectrum, which can be channelled to alternative uses: enhanced picture quality, an increased number of channels, diverse content and the development of specialised services for disabled persons. South African television viewers are expected to receive 16 TV channels, data channels and an electronic programme guide upon completion of the migration process.

Despite an early start with the establishment of a Digital Advisory Body in 2002 by the Ministry of Communications to advise on how South Africa should proceed toward inevitable digital migration, following by years of intensive deliberation and consultation, the report of the Advisory Body was never formally made public or adopted. Following a long hiatus the Department of Communications officially launched the Digital Dzonga, a new advisory body for South Africa's digital migration tasked with overseeing South Africa's migration process towards digital terrestrial broadcasting, in 2008. The advisory body is made up of representatives from both the private and public sectors. This includes members from ICASA, the Department of Communications, SABC, e.TV, M-Net and SencTech, all of whom have relevant experience in broadcasting, media and technical knowledge of digital technology.

Dual illumination is supposed to begin in April 2010, whereby television broadcasts will be in both digital and analogue formats. Initially 60% of the country will migrate to digital formatting. DTT will be expanded to the rest of the country on an incremental basis up to 2011. Digital Dzonga aims to charge R700 for the set boxes required for television sets to display digital signals. A 70% subsidy will be provided by government to poor households in order to purchase the sets. Family members will have to prove that they are in possession of a TV licence and that they receive a government grant or pension.

In 2010, the Ministry of Communications announced that R400 million had been allocated from the universal access fund to finance the subsidies.

Mobile

The market has three mobile operators but is essentially dominated by the two incumbents. Mobile market dynamics have not changed significantly in the past two years, with Vodacom in the lead followed by MTN. CellC has successfully carved itself a niche by targeting lower-income subscribers, but has, after seven years in operation, only managed to secure under 15% of the market. In 2006, it entered into a partnership with Virgin as a virtual mobile operator. Virgin has focused its efforts on the high-end youth market, hoping to capitalise on its brand positioning internationally. More than 85% of the market is currently controlled by Vodacom and MTN. However, all three mobile operators have been competing aggressively by offering various air time promotions, including successful zone pricing discounts and flat rates on regional roaming where prices are determined on the basis of real-time traffic assessment within a particular cell. They also provide various unique and common value-added services, such as zone pricing, flat rates on regional roaming, airtime promotions and sales of "smart-phones".

Access

Interestingly, while mobile operators are indicating penetration rates of 100% on the basis of SIMS sold, demand-side data from RIA's household user survey indicates a much lower penetration rate of 62%.

Despite high penetration levels, there is a significant number of multiple SIMS in use, with 1.13 active SIM cards per user. From the percentage of individuals with multiple SIM cards, the over-count of those with access to communications by using the sum of mobile active SIM cards, could be as high as 4.85 million (10.8% of all SIM cards). Often dual SIM ownership is a sign of high prices and an attempt to control costs by not making off-net calls. To benefit from cheaper on-net calls and to take advantage of different call specials by the various operators users keep dual/multiple SIMS. Hence, the total number of subscribers in South Africa is likely to be considerably lower than indicated from the supply-side data.

<table>
<thead>
<tr>
<th></th>
<th>Total number 16+ with mobile phone or active SIM</th>
<th>Share 16+ with mobile phone or active SIM</th>
<th>16+ own mobile phone/active SIM: lower 3 disposable income quartile</th>
<th>16+ own mobile phone/active SIM: top disposable income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>63 101 014</td>
<td>77.3%</td>
<td>74%</td>
<td>93%</td>
</tr>
<tr>
<td>South Africa</td>
<td>20 185 135</td>
<td>62.1%</td>
<td>54%</td>
<td>84%</td>
</tr>
<tr>
<td>Ghana</td>
<td>7 491 378</td>
<td>59.8%</td>
<td>53%</td>
<td>79%</td>
</tr>
<tr>
<td>Botswana</td>
<td>645 737</td>
<td>59.5%</td>
<td>53%</td>
<td>83%</td>
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<tr>
<td>Kenya</td>
<td>10 772 696</td>
<td>52.0%</td>
<td>42%</td>
<td>79%</td>
</tr>
<tr>
<td>Namibia</td>
<td>625 707</td>
<td>49.3%</td>
<td>37%</td>
<td>86%</td>
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<tr>
<td>Zambia</td>
<td>2 459 961</td>
<td>45.5%</td>
<td>36%</td>
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<tr>
<td>Cote d'Ivoire</td>
<td>5 042 524</td>
<td>41.8%</td>
<td>33%</td>
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<td>Senegal</td>
<td>2 502 300</td>
<td>39.8%</td>
<td>29%</td>
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<tr>
<td>Cameroon</td>
<td>2 979 597</td>
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<tr>
<td>Benin</td>
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<td>30.2%</td>
<td>20%</td>
<td>49%</td>
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<tr>
<td>Burkina Faso</td>
<td>1 844 701</td>
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<tr>
<td>Mozambique</td>
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<td>17%</td>
<td>63%</td>
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<tr>
<td>Tanzania</td>
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<td>14%</td>
<td>46%</td>
</tr>
<tr>
<td>Uganda</td>
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<td>20.7%</td>
<td>12%</td>
<td>46%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>520 259</td>
<td>9.9%</td>
<td>4%</td>
<td>26%</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>1 387 910</td>
<td>3.2%</td>
<td>1%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Table 3: Mobile phone ownership

The table below illustrates that the majority of mobile phone ownership is in the upper income segments of South Africa. About 84% of people in the top income bracket own a phone while only 54% of people in the lower three income quartiles own a phone. Penetration levels for poorer people are still at only half the population in that income bracket. These figures once again point to South Africa’s high Gini coefficient and the disparity in wealth. While most of the rich remain serviced by current operators, the poor remain unconnected.

Further, granular analysis of phone ownership highlights that the majority of mobile phones in South Africa are in urban areas.

Figure 18: Mobile phone ownership by geographic area
Mobile penetration rates continue to be impressive. South Africa has risen from the fourth-ranked country among the benchmarked nations in 2000 to first in March 2008. Even though it is now the top-ranked country in terms of mobile penetration rates, usage of mobile services is low. This is corroborated by the RIA household survey which highlighted low mobile usage compared to high usage of community phones and cost-saving mechanisms such as “please-call-me’s” (also known as “beeping” or “flashing”). These are indicative of high prices and innovative mechanisms to reduce the cost of telephony. Focus groups undertaken as part of the RIA study highlighted the same issues.

Further evidence of high prices is based on a comparison between South Africa and other international countries. There is only one international pricing standard and it is used by the OECD to benchmark prices amongst its member countries. Using the same methodology as the OECD, South Africa can be compared to OECD member countries. While this is not an ideal benchmark, it is the only one available at present.

A complete description of the OECD methodology is to be found in the OECD Telecoms Price Benchmarking Basket of 2006. For the purposes of this report, it is sufficient to point out that a basket of prices is used to arrive at the pricing figures. The mobile basket, for example, includes a specified number of SMS, voice calls and MMS across various distances and times of day, all converted to US Dollars based on Purchase Price Parity (PPP). In the mobile sector, three baskets are used, based on increasing amounts of usage. Therefore, low usage baskets contain fewer minutes of voice calls, fewer SMSs etc. in comparison to the medium and higher usage baskets. The actual number is irrelevant – the point is to compare South Africa against a wide range of international countries and determine where it is ranked.

In the figure below, South Africa’s mobile prices are compared to OECD countries based on a low usage basket.38 Despite claims by the mobile operators that South Africa is a highly competitive market, it is clear that South Africa continues to suffer from inflated prices, particularly for those at the ‘bottom of the pyramid’, i.e. the poor. Even countries that have recently been criticised by the OECD for being uncompetitive in the mobile arena, such as Canada, score substantially better than South Africa.

38 Mobile retail pricing is highly complex. In order to allow comparisons, the OECD has created three usage baskets. These baskets are for low, medium and high usage. Each basket estimates the duration of a number of calls, their destination, the type of call – sms, mms, voice – off-net and on-net. The low usage basket, for example, includes 360 voice calls, 396 sms and 8 mms per year. For more detail on the OECD low usage basket, go to: http://www.oecd.org/document/5/0,3343,en_2649_34225_43877509_1_1_1_1,00.html
Figure 19: OECD Mobile low usage basket

The trend continues in both the medium and high usage baskets. It is sufficient to emphasise that usage prices remain high in South Africa compared to virtually every other comparable country in the world.

Figure 20: Dominant vs. cheapest low users

Pricing

A key factor influencing prices in South Africa is the high price of interconnection. As indicated below, the high cost of interconnection has had a negative impact on usage in South Africa. Currently, on-net calls make up more than half the network traffic for the operators, since most consumers are aware of the differential in on-net and off-net rates and thus attempt to limit their calls to on-net to avoid the interconnect, and the market shares of the operators are high enough so as to ensure that the majority of traffic stays on-net.

However, looking at peak on-net and peak off-net prices, there is only a marginal difference in prices, thus indicating that while interconnect is a significant driver of prices, it is not the sole driver of pricing and thus further pricing reviews are necessary in order to further drive down pricing.

CellC has been cutting on-net rates, offering half-price data services. As the only operator currently without 3G, it is planning to launch 3G to compete with MTN and Vodacom in the high end market.

It is sufficient to emphasise that usage prices remain high in South Africa compared to virtually every other comparable country in the world.
segment. In January 2010, CellC signed a deal with a Chinese equipment supplier, ZTE, worth US $378 million to supply 3G HSPA + network equipment. CellC calls it a 4G network which is capable of delivering broadband at speeds of up to 21Mbit/s.

Despite operators’ claims throughout the various hearings on the high interconnection price that this would not automatically result in a drop in retail prices, following the drop in interconnection rates on 1 March 2010, all mobile operators began to offer cuts in the retail tariffs. The fixed-line operators have indicated a pass through of the full 36c reduction to consumers.

![Diagram](https://example.com/diagram.png)

**Figure 21: Prices of SA mobile calls**

### Usage

![Chart](https://example.com/chart.png)

**Figure 21: Minutes of use for mobile operators**


Minutes of use for both MTN and Vodacom have declined over the last three years. While South African users were averaging over 70 minutes of use in 2006, this declined by more than 10 minutes over the last two years. This points very strongly to high prices constraining usage, which has possibly been further impacted by the recession in its effect on customer spend patterns.

![Chart](https://example.com/chart.png)

**Figure 22: ARPU for MTN and Vodacom**

Source: MTN and Vodacom Annual Reports (2009)

39 CellC reduced retail prepaid pricing in direct anticipation of the MTR decrease. Case in point: R1.50/min (per min billing) any time, any network:MTN have significantly reduced retail prepaid pricing just days after the MTR decrease. Case in point: R1.75/min (per sec billing), any time, any network:Telkom, Neotel and almost every major new entrant (e.g. ECN, Vox, Switch) have all reduced their retail tariffs to peak mobile.

40 Telkom presentation to Parliamentary Portfolio Committee on Communication, February 2010.
Similarly ARPU’s have also declined, however, the decline in ARPU is not as sharp as the decline in MOU. The decline in ARPU’s up to 2007 is anticipated with the saturation of the higher end of the market and the entry of new subscribers from the lower end of the market can be attributed to the decline in expenditure on basic communication services due to budgetary constraints as a result of the global economic slowdown. Alternatively, the decline in ARPU can in part be attributed to the decline in mobile subscribers due to the introduction of compulsory SIM registration in July 2009. The requirements are in line with the Regulation of Interception of Communications and Provision of Communication-Related Information Act (RICA). The Act applies to mobile operators like Vodacom, MTN and CellC and other service providers like Nashua Mobile, Virgin Mobile and Autopage. New and existing customers are required to register on a secure database. Subscribers are required to show proof of identity and formal proof of residence such as a lease, utility bill or bank statement. Existing customers that owned SIM cards prior to the implementation date have been given 18 months to register their SIM cards to avoid disconnection. In the third quarter of 2009, mobile operators reported less net additions than the first half of the year. For example, the MTN customer base declined from 17,231,000 at the end of June 2009 to 16,419,000 at 30 September 2009. The operator attributed the slower growth of its customer base partly to the compulsory SIM registration. RICA is expected to slow down subscriber acquisition by operators as the vast majority of the population either do not have formal identification or proof of address.

Value-Added Network Services (VANS)

ICASA granted and issued 288 individual Electronic Communications Network Services (I-ECNS) licences, as well as granting, without issuing, another 256 I-ECNS licences in January 2009. With the new converged licensing and increasing saturation of the mobile market, operators are increasingly positioning themselves to offer converged voice and data services to high-end corporate customers. As a result, there has been increasing consolidation in the VANS market.

There are effectively five large managed data network service providers, more commonly known as VANs, in South Africa, namely Telkom SA, Internet Solutions, MTN Verizon, BT SA and Vox Telecom. The corporate VANS market is very small and is characterised by a few providers. These Tier 1 providers are characterised by their ability to enforce a service level agreement, and the ability to run both a hard data network or software-enabled national and international network with the requisite security requirements. Smaller players focus on servicing the SME and consumer market, leasing managed services from the larger Tier 1 players. Telkom SA is the largest in the corporate data market with more than half the market share. Internet Solutions is the next largest player. With increased requirements for converged networks from a client perspective, operators are increasingly trying to provide voice and data services through a single network and customer interface. As a result, there have been a fair number of mergers within the sector which will create larger players, though its impact on competition is yet to be felt. In June 2008, MTN purchased US-owned Verizon business. At the time MTN said that the acquisition is part of its strategy to offer converged services. The merger will reduce competition in the VANS market as Verizon was a major player in that arena. Verizon was number three in the VANS market and while the MTN/ Verizon merger will take out a VANS player, it is also likely to create a stronger number three in the market. In another development, Vox Telecom purchased Storm Telecom for R360m. Vox Telecom, acquired the Absa ISP business from the bank in 2007 and followed with the acquisition of Storm, a least-cost routing and call centre operator, thus furthering its ability to play as a converged telco.

Convergence of technology platforms and the increased opening up of the market as a result of policy is likely to result in increased bandwidth demand and falling prices as more competitors enter the market. As a result, there is also likely to be increased market segmentation into business and consumer segments. With more market opportunities, products and services to consumers will hopefully increase as well. The consumer market as a whole has seen a continued dramatic shift from dial-up connections to broadband, with growth in both ADSL and 3G at more than 50%.

A number of the policy hurdles have been removed, though a number of regulatory bottlenecks, as discussed above, continue to inhibit competition. Setting up infrastructure is expensive and a wasteful duplication of resources. Further, not all of the VANS operators have access to capital and...
this is likely to create a broader two-tier market – infrastructure providers and service providers. Hence, for VANS to compete effectively, they need access to infrastructure at fair prices. The key inhibitors to the VAN’s industry currently is in the port price where 40-60% is spent on bandwidth, with the balance on the service level agreements, administration and other costs. Further international connectivity is key. VANS are unable to compete effectively if they cannot offer international access to larger companies. Moreover, they have hailed the under-cutting of Telkom’s previous monopoly bandwidth prices by Neotel together with SEACOM.

**Internet**

Within sub-Saharan Africa, South Africa continues to dominate internet access. The gap between South Africa and the rest of the continent has grown smaller, with access figures increasing only gradually in South Africa. Most of the lead that South Africa still has is based on its higher GDP per capita and not due to any policy or regulatory foresight that has contributed to the development of the market.

![Figure 23: Households with a working computer and internet connection in Africa](image)

*Source: RIA ICT Access and Usage Household and Individual Survey 2007-2008*
Broadband

Current broadband figures for South Africa reflect extraordinarily high prices and relatively low penetration.

Picot and Wernick (2007:661) argue that broadband is a necessary precondition of economic growth and competitiveness and cite an OECD (2002) study which demonstrated that one-third of the increase in productivity by 2011 in France, Germany and the UK will result from the introduction of broadband to various services. They also highlight the importance of considering both 'public good' and competition-based views in the formulation of broadband policy. They contend that the latter is concerned with market design and regulation and, with regard to broadband specifically, inter-platform competition. Public goods theory, they argue, relates to government’s furthering of diffusion and demand through the use of public funds. However, we contend, and there has long been theoretical and empirical evidence supporting this, that public good services can be delivered through private interests and the reduction of prices through market design and competition can improve efficiency and to a point affordable access, thereby better safeguarding consumer welfare.43

Figure 24 – Broadband subscribers per 100 inhabitants

South Africa’s dominance in the internet market is based on higher levels of per capita GDP and not on any regulatory foresight.

Infrastructure competition, particularly where there are cable networks, previously used only for television, and telco ADSL or fibre networks, appears to produce the fastest and most pervasive broadband rollout. But where there is a lack of infrastructure, never mind competitive infrastructure, such as in most parts of Africa, different policy and regulatory decisions need to be made. Where the cost of duplicating infrastructure is too high then regulatory intervention needs to focus on ways of enhancing services competition by ensuring fair access to a single network.\textsuperscript{44}

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, and in the fact that the lowest uncapped and unshaped bandwidth being offered in most countries exceeds the highest in South Africa.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure25.png}
\caption{South Africa’s lowest & highest broadband prices compared to OECD}
\end{figure}

\section*{Usage}

An analysis of usage of telecoms services in South Africa tells a far more compelling story on the actual state of price and its impact on consumers. RIA demand-side studies highlighted that despite high penetration levels of mobile phones there is still significant usage of public payphones. Both focus group data and quantitative research indicated that the high usage of payphones are a direct result of high prices. Furthermore, focus groups conducted in highly impoverished areas indicated that consumers were unable to afford a phone, let alone make calls. Contrary to operator claims, neither mobile nor fixed phones are available to these consumers as they are unaffordable.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure26.png}
\caption{Reasons for public phone usage}
\end{figure}

\textit{Source: RIA ICT Access and Usage Household and Individual Survey 2007 - 2008}

Despite high penetration levels, almost half the market have used a payphone in the last months. Payphone usage is largely driven by its cheaper rate.

**Wholesale service**

### Interconnection

The figure below illustrates that interconnect rates have remained the same for the last seven years. From a low of 0.20 cents in 1998, this spiked in 2001 to R1.20 and remained there. This is particularly disconcerting when call costs have been declining globally. High interconnect rates have created a situation where high prices can be justified. So while there has been the introduction of zone tariffing for low usage areas and a number of initiatives to stimulate calling during off-peak times (network denominated), as the penetration has peaked not enough has been done for peak pricing. As result, this has filtered into low usage for peak calling. As demonstrated by the focus group data, calling is a necessity and when people have to make an emergency call, this cannot be determined by the whims of the rates of a network operator. Further, significant progress towards a connected network society will not be made only during off-peak calling when rates are low.

![Figure 27: Comparison of peak interconnection rates](image)

South Africa has the highest peak interconnection rates amongst comparator countries.

Following intensive hearings and negotiations in Parliament with the operators and other interested parties, the Parliamentary Portfolio Committee has been pushing for aggressive cuts in interconnect rates. South African mobile networks currently pay each other R1.25 per peak-time minute for terminating calls on their networks. The Committee has indicated that it would like mobile operators to reduce this rate to R0.60 by November this year, and by a further R0.15 annually over the next three years. South African mobile termination rates are among some of the highest in the world and at least 2-3 times higher than a number of African countries. While most African countries have focused attention on pricing and interconnect and forced operators to lower their termination rates, South Africa has been slow in doing so.

A lowering of the mobile termination rate is long overdue, and should ideally have been done prior to the entry of the third operator. Peak time on-net prepaid rates are 70% higher than the African median.

The differential between peak on-net and off-net airtime prices is less than 20%; in other words, on-net calls (which do not include any form of termination fee) are nearly as high as off-net calls.
Leased lines

Leased lines are a critical component of communications infrastructure. Leased lines provide the backhaul connectivity to Telkom’s network for all ISPs in the country. They also provide the link between mobile sites. Telkom is the primary provider of leased line services in the country. Mobile operators are the largest customers of Telkom’s leased line services. Telkom’s high prices have been one of the factors in encouraging Neotel and the mobile operators to invest in leased line infrastructure. The increased level of competition has had a small impact on leased line prices, but Telkom is dominant in this market and prices have not reached competitive levels.

The investments by Neotel and the mobile operators saw prices drop from 2007 to 2008 (South Africa is no longer the most expensive country compared to OECD countries – a position now held by the Czech Republic), but prices between 2008 and 2009 have remained constant. Part of the explanation is that MTN and Vodacom’s investments are primarily for the benefits of their own networks and not for general resale. Unless Telkom substantially drops its prices, below the level where it makes more sense to build one’s own network, the effect is that Telkom just loses the business of the incumbent mobile operators, and prices for ISPs remain the same. Unless open access is mandated for dominant operators leased line prices will remain high.

<table>
<thead>
<tr>
<th>Country</th>
<th>Price (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iceland</td>
<td>4,063</td>
</tr>
<tr>
<td>Denmark</td>
<td>4,174</td>
</tr>
<tr>
<td>Sweden</td>
<td>5,143</td>
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<tr>
<td>Norway</td>
<td>8,029</td>
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<tr>
<td>Luxembourg</td>
<td>11,376</td>
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<tr>
<td>Austria</td>
<td>11,602</td>
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<td>Netherlands</td>
<td>15,415</td>
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<tr>
<td>New Zealand</td>
<td>15,652</td>
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<tr>
<td>Germany</td>
<td>15,716</td>
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<tr>
<td>Ireland</td>
<td>16,777</td>
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<tr>
<td>Turkey</td>
<td>18,261</td>
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<tr>
<td>Belgium</td>
<td>18,905</td>
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<tr>
<td>Greece</td>
<td>20,507</td>
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<tr>
<td>Portugal</td>
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<tr>
<td>France</td>
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<tr>
<td>United Kingdom</td>
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<tr>
<td>OECD</td>
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<td>Italy</td>
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<tr>
<td>Spain</td>
<td>27,056</td>
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<tr>
<td>Japan</td>
<td>28,817</td>
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<tr>
<td>United States</td>
<td>30,200</td>
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<tr>
<td>Australia</td>
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<td>Canada</td>
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<tr>
<td>Korea</td>
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<tr>
<td>South Africa (2009)</td>
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<tr>
<td>South Africa (2008)</td>
<td>65,651</td>
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<tr>
<td>Czech Republic</td>
<td>67,012</td>
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<tr>
<td>South Africa (2007)</td>
<td>74,115</td>
</tr>
</tbody>
</table>

Figure 28: Leased line prices using OECD methodology

The OECD leased-line basket methodology from 2006 has been used. There are many factors that influence the cost of providing leased lines. These include distance to the exchange, bitrates and local tail circuits. The OECD has made a comparison between countries possible by creating a consistent set of criteria. These criteria include a weighting of the distance to the local exchange. Distance is broken down into six different categories, ranging from 2 to 500 kms. The OECD uses three bitrates: 64kbit/s, 2 mbit/s and 35 mbit/s. For the purposes of the SPR, only the 2 mbit/s bitrate was used. Finally, over distances of 2 kms, two tail circuits of 2 kms in length are assumed. More detail on the specific weightings can be found on the OECD website, www.oecd.org.

45 The OECD leased-line basket methodology from 2006 has been used. There are many factors that influence the cost of providing leased lines. These include distance to the exchange, bitrates and local tail circuits. The OECD has made a comparison between countries possible by creating a consistent set of criteria. These criteria include a weighting of the distance to the local exchange. Distance is broken down into six different categories, ranging from 2 to 500 kms. The OECD uses three bitrates: 64kbit/s, 2 mbit/s and 35 mbit/s. For the purposes of the SPR, only the 2 mbit/s bitrate was used. Finally, over distances of 2 kms, two tail circuits of 2 kms in length are assumed. More detail on the specific weightings can be found on the OECD website, www.oecd.org.
Conclusion

This paper highlighted the fact that South Africa’s telecommunications policy and regulatory issues are far-reaching and wide-ranging. Its institutional crises seem to have deepened over the last ten years. The “managed liberalisation” of the market has been far too restrictive for the benefits of competition to be realised. The partial liberalisation of the market instead created strong incumbents who, while investing in network expansion and services that have driven up subscriber numbers, have called the shots in industry, with little effective regulation of their prices and quality of services. They have held policy makers and regulators to ransom with threats of what effects greater competition or effective competition regulation would have on their investment in the sector and the expansion of access to services.

Increased state ownership in the sector has not resulted in well coordinated centralised services. The introduction of a state broadband company by the Department of Public Enterprises into a sector for which the Department of Communications has responsibility was uncoordinated, resulting in licensing delays and sub-optimal conditions for it to compete against existing networks; not least of all its delay in coming to market. While originally eager for low-cost access to the backbone Infraco was to have provided, following the licensing delays and turf wars between the departments major operators have started building their own backbone, undercutting the wholesale business case of the Infraco business.

From interventions at the policy level regarding the interpretation of the law for the VANS operators, and policy delays needing to be resolved by the courts, to the failure to resolve critical competitive entry regulations such as interconnect pricing and spectrum access, to the more apparently capricious last minute intervention to prevent the public listing of Vodacom – all suggest weaknesses in institutional processes and a lack of coherence in the direction the sector is taking.

Institutional arrangements that compromise the autonomy of ICASA to regulate the sector effectively are reflected in its non-performance in the critical areas of competition regulation, licensing, interconnection and frequency. ICASA has been characterised by stagnation, litigation and incapacitation. No additional competition regulations have been issued since March 2008. Apart from Neotel, no new licences have been granted, no spectrum regulations have been finalised and no interconnection regulations have been issued. As a result of the Parliamentary Portfolio Committee’s intervention to bring down the cost of interconnection, ICASA has laid out a schedule to issue interconnection regulations by June 2009 through the EC Act Chapter 10 market definition and dominance assessment process. Its failure to issue any regulations in over 18 months, and the continued reduction of qualified competition staff, suggests that this is going to be a tough deadline to meet.

This weak institutional environment is highlighted by low broadband penetration, low internet usage figures and declining fixed lines on the demand side. These factors are significant hurdles to any technological innovation and productivity gains associated with an information economy. Large portions of the South African population do not have the most basic access to data services. The HHI figures highlight that the significant concentration of a few players in the South African market cannot enable industry-wide competition and innovation. Fixed services are yet to become competitive as the second network operator has been slow in taking off. Juxtaposed with the demand-side survey, this reveals that while South African consumers are gradually increasing their consumption of communication services, usage is constrained by prohibitively high prices, both in terms of the cost of communication devices and services. As a result, large dominant companies focused their investments on the high end segment, where revenues are easily guaranteed.

However, this creates challenges in terms of meeting national policy objectives in terms of universal access and service. Despite several initiatives over the years, the Universal Service and Access Agency has not been able to demonstrated significant gains. The distribution of Universal Service Funds continues to be plagued by the absence of critical definitions required by the law, which have not been completed by the Ministry a decade after the law requiring them was passed. Despite the huge impact made by mobile telephony, the number of fixed lines will continue to be an important developmental measure – because fixed-line connections offer lower access rates for usage and affordable bandwidth.

This is critical in order to increase levels of access to the Internet, which are abysmal in an economy the size of South Africa’s. The relatively high cost of GSM and the limitations on capacity mean that it is not currently viable for full Internet connectivity. Without this policy perspective it is possible that in addressing the gap between those who have access to basic voice services and those who
do not, another potentially more significant division will emerge between those with access to the enhanced services necessary to participate effectively in the economy and society, such as the Internet, and those who do not.

**Recommendations**

Recommendations on resolving the following key issues in order to foster competition:

- Develop a common vision for the sector through the development of a clear policy framework to promote competition in the market, co-ordination of state enterprises and a targeted universal services strategy to deal not only with the gaps in the market, but demand-side stimulation of the market.
- Create strong and autonomous institutional arrangements with adequate resources and capacity that will enable effective regulation of dominant players in the market and anti-competitive behaviour.
- Streamline policy and regulatory processes to prevent regulatory bottlenecks and attract international investors.
- Enable wireless spectrum allocation for critical bands and open access to networks.
- Introduce competition-enabling mechanisms to open the market and thus discourage wasteful duplication of resources.
- Examine the equitability of licence costs and their rights.
- Complete competitive entry regulation such as carrier pre-select, essential facilities regulations and local loop unbundling.
- Introduce wholesale and retail price regulation, including clarifying interconnect glide path regulations, and introduce cost-based pricing.
- Ensure access to facilities at cost with favourable terms for co-location.
- Determine rights of way access for new entrants.
References


Government Gazette No 29923 of (2007), Ministerial Policy Determinations, Department of Communications, General Notice 469.


29 October 2008, see Broadband InfraCo IECNS licence www.ellipsis.co.za/tag/broadband-infracolicensing/