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An updated international price comparison, with regulatory recommendations

BUSINESS LEADERSHIP SOUTH AFRICA

Occasional paper number 3

November 2007

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An updated international price comparison, with regulatory recommendations

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About Genesis Analytics

Genesis Analytics is a Johannesburg-based economics consulting firm that provides diagnostics, policy advice, strategic direction, institutional design, regulatory design, and implementation support to governments, multilateral organisations, business associations and private companies in South Africa and other developing countries.

Published in November 2007 by:
Business Leadership South Africa
St Margaret's
3 Rockridge Road, Parktown, 2193

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ISBN: 978-0-620-39947-0

Designed and produced by Acumen Publishing Solutions, Johannesburg
Printed by Colorpress, Johannesburg

Contents

Figures

Tables

Acronyms and abbreviations

ADSL	Asymmetric digital subscriber line. A technology used to provide broadband Internet connections over standard phone lines
AsgiSA	Accelerated and Shared Growth Initiative for South Africa
COA/CAM	Chart of Accounts and Cost Allocation Manual
DOC	Department of Communications
EASSy	Eastern Africa Submarine Cable System
ECA	Electronic Communications Act (2006)
ECNS	Electronic communications network service
ECS	Electronic communications service
Gbps	Gigabytes per second. A gigabyte is one billion bytes
ICASA	Independent Communications Authority of South Africa. The South African telecommunications and broadcasting regulator
IGA	Inter-governmental assembly
IRU	Indefeasible right of use
ISP	Internet service provider
ISPA	Internet Service Providers' Association
Kbps	Kilobytes per second. A kilobyte is a thousand bytes of data
Leased lines	A private telephone circuit permanently connecting two points, normally provided on a lease by a local posts, telephone and telegraph provider
LLU	Local-loop unbundling
LLUC	Local-loop unbundling committee
LRIC	Long-run incremental cost
Mbps	Megabytes per second. A megabyte is one million bytes
NEPAD	New Partnership for Africa's Development
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing power parity. A PPP exchange rate reflects the actual cost of buying a basket of goods in the country concerned. It is thus a better reflection of domestic purchasing power than market-determined exchange rates
SAFE	South Africa Far East cable. Runs up the east coast of Africa and provides the principal telecommunications connection between South Africa and Asia
SAT-3	South African Telecommunications Cable No 3. Runs up the west coast of Africa and provides the principal telecommunications connection between South Africa and Europe
SBO	Symmetric broadband origination
SMS	Short message service
SNO	Second national operator
SOE	State-owned enterprise
SPV	Special purpose vehicle
USAASA	Universal Services and Access Agency of South Africa, previously known as the Universal Services Agency
USAF	Universal Service and Access Fund

USAL	Under-serviced area licence
VANS	Value-added network services
WASC	West Africa Submarine Cable

Executive summary

SERVICE INDUSTRIES PLAY a crucial role in national economic development. Telecommunications, transportation, financial services, and so forth are not only important in their own right, but are also important inputs into other industries. Because service outputs feed into other industries, economies with highly priced and inefficient service sectors will find their competitiveness in extractive and manufacturing industries affected as well.

In 2005, Business Leadership South Africa commissioned two research reports on the South African telecommunications market. The first report, entitled *Telecommunications prices in South Africa: an international peer group comparison* (Genesis Analytics 2005a), found overwhelming evidence that South African telecoms prices were well above the level in the country's international peer group. The second, *Reforming telecommunications in South Africa: twelve proposals for lowering costs and improving access* (Genesis Analytics 2005b), identified 12 key steps that should be taken to reform the market and improve price outcomes.

Two years have passed since the initial research was undertaken. In that time, the sector has seen a number of developments – the Department of Telecommunications has held two price colloquia, the Neotel licence has been issued, and the Independent Communications Authority of South Africa (ICASA) has issued several discussion documents. However, it is not clear that these developments have resulted in a substantially more competitive South African telecommunications market. This report evaluates progress made in terms of lowering the costs of telecommunications and improving the regulatory environment over the past two years.

International price comparison

As in 2005, the choice of the international comparison group was undertaken carefully, in order to select only high-performing telecoms countries and avoid sample bias. South African prices were compared to prices in 14 countries, six of which can be regarded as a 'peer group' of countries at a similar level of economic development, and eight of which are global high performers in telecoms. The countries selected are shown in Table 1 on page 8.

Table 1: International comparison: countries

	PPP-adjusted GDP per capita US$	Population size (m)	Population density per sq km	Gini coefficient[1]
South Africa	12 347	46,9	38,6	57,8
International telecoms best practice				
Australia	31 646	20,3	2,7	35,2
Denmark	21 317	5,4	127,7	24,7
Hong Kong	31 165	6,9	6 663,7	43,4
Netherlands	32 927	16,3	481,7	30,9
South Korea	21 868	48,3	489,2	31,6
Sweden	31 062	9,0	22,0	25,0
United Kingdom	32 005	60,2	248,9	36,0
United States	41 854	296,4	32,4	40,8
Peer group telecoms best practice				
Brazil	8 730	186,4	22,0	57,0
India	3 486	1 094,6	368,2	36,8
Malaysia	10 843	25,3	77,2	49,2
Morocco	4 421	30,2	67,6	39,5
Thailand	8 551	64,2	125,7	42,0
Turkey	8 430	72,1	93,6	43,6

Source: World Bank databases

A range of data, voice, retail and business product prices were examined. Although 2007 South African telecoms prices were somewhat closer to international norms than 2005 prices, the results still strongly suggested that local prices are well above those of the comparison group.

Data products: international leased lines, national leased lines, and broadband fees

Four data products were examined, namely international leased lines (the monthly rental fee for a 2mbps connection to the United States), national leased lines (the monthly rental fee for a 10km, 2mbps connection), and retail and business broadband (defined as a 512kbps and a 1mbps connection respectively).

In 2005, international leased-line prices stood out as differing most sharply from prices in the comparison group – South Africa had the most expensive international leased-line prices in the group, and was 399% more expensive than the average price. Since 2005, Telkom has decreased the price of its 2mbps connection by a massive 44% – however, prices remain 404,7% higher than the average price. Price results were better in national leased-line markets. South Africa went from 102% above the average price in 2005, to 26,5% higher than the average price in 2007.

One of the most important inputs into broadband prices is international and local bandwidth. Given the very high cost of South African international bandwidth, and the fairly high cost of local bandwidth, it is not surprising that our business broadband is the third-most expensive among the 15 countries surveyed; and is 127,2% higher than the average price. Likewise, retail broadband is the most expensive in the 15 countries surveyed; and is 130,5% higher than the average price. These results are a slight improvement from those in 2005, when the South African prices were 148% and 139% higher respectively than those in the comparison group.

Voice products: mobile and fixed voice bundles, and international voice charges

Four bundles of services were examined, namely, retail mobile customer, business mobile customer, retail fixed-line customer and business fixed-line customer. The basket methodology of the Organisation for Economic Co-operation and Development (OECD) was used. International voice costs were evaluated on the basis of the cost of a three-minute call to the United States during peak hours.

For the business mobile telephony basket, South Africa is the most expensive of the 15 countries surveyed, and is 106,9% higher than the average price. For business users in fixed-line telephony, South Africa is the third-most expensive of the 15 countries surveyed, and is 47,4% higher than the average price.

Retail telephone costs were much lower – on the retail mobile basket, South Africa is only the eighth most expensive of the 15 countries surveyed, and is 6,1% lower than the average price. On the fixed basket for residential users, South Africa is the 6th most expensive of the 15 countries surveyed, and is 8,0% lower than the average price. On international voice, South Africa is a substantial 33,5% cheaper than the average price.

In 2005, prices were highest in South Africa for five out of the (then) ten products examined. In 2007, South Africa is the most expensive on only two out of nine products, which represents some improvement in performance. However, prices remain more expensive than the average on all but three products, namely retail mobile and fixed baskets, and international voice, and the large price differential in international leased lines and broadband has not yet been addressed.

Impact of August 2007 tariff change

The main price comparison conducted in this report was based on data collected in May 2007, prior to the August 2007 Telkom tariff revision. For completeness, we thus also include Table 2 below, which reflects the Telkom tariff changes.

Table 2: Price comparison updated for August 2007 tariff changes

	Rank	Out of: (number of countries surveyed)	Number of times more expensive than the cheapest price	% greater than the average price
International leased lines	2	14	25,6	253,3%
Domestic leased lines	5	14	4,4	12,6%
Business ADSL	3	15	4,0	96,7%
Retail ADSL	1	15	5,6	118,5%
Mobile – business basket	1	15	12,3	106,9%
Fixed line – business basket	3	15	10,4	52,0%
Mobile – retail basket	8	15	5,6	–6,1%
Fixed line – residential basket	6	15	11,0	–3,4%
International voice	10	15	2,9	–47,4%

Source: Genesis Analytics

Two key points should, however, be noted about Table 2:

- Firstly, telecoms prices exhibit a downward trend in international markets. Comparing South African August prices to international May prices is thus not entirely accurate, as there is a good chance that international prices have declined in the interim.
- Secondly, the change in South Africa's relative performance is limited. Local prices go from seventh most expensive in international voice to tenth most expensive, but fixed telephony actually becomes slightly more expensive, and all other relative positions stay the same.

The impact of the 2007 Telkom tariff changes highlights the extremely slow pace of progress that occurs in the absence of effective price regulation. South African prices are only moving incrementally towards international norms, while what is needed is a step change.

12 steps to lower prices

Table 3 on page 11 summarises progress to date on the 12 steps suggested in 2005. It is encouraging that in all but two of the steps, some progress has been made. However, on all of the recommendations, progress has been insufficient to meet the objectives originally suggested. Where progress is most advanced is in the four areas of price regulation, where success will ultimately depend on ICASA's ability to complete the regulatory process.

Table 3: Summary of progress in respect of the 12 steps

The 12 steps	Progress	Recommendation
1. Unbundle Telkom's local loop	A clear political commitment to local loop unbundling has been demonstrated. However, completing the process will take time.	ICASA must be adequately resourced to complete the regulatory process.
2. Permit value-added network services (VANS) operators to self-provide backbone infrastructure	The uncertainty surrounding the legality of self-provision by VANS remains.	Original recommendation remains.
3. Review universal service and access policy	The intention to reinvigorate the Universal Services and Access Agency of South Africa (USAASA) has been expressed, but needs to be translated into effective implementation.	Original recommendation remains.
4. Require fair rates structures	Regulatory initiatives have not yet been finalised, and only address concerns in the mobile market. Operator concessions to date are voluntary, and it is not clear whether they go far enough.	Original recommendation remains.
5. Interconnection at cost-based prices	Price regulation of interconnection has been prioritised, but must still complete a lengthy regulatory process.	ICASA must be adequately resourced to complete the regulatory process.
6. Facilities leasing at cost-based prices	The process of implementing price regulation is in its very early stages.	ICASA must be adequately resourced to complete the regulatory process.
7. Regulate international bandwidth	Telkom's commercial monopoly on the cable will end in November 2007, and cost regulation is in its initial phase.	ICASA must be adequately resourced to complete the regulatory process.
8. Regulate mandatory price comparison tools	No progress.	Original recommendation remains.
9. Greater ICASA independence and accountability	The ICASA Amendment Act has removed one source of conflict of interest but replaced it with another.	Original recommendation remains.
10. Address anti-competitive behaviour	Despite improvements related to the introduction of the Electronic Communications Act 2006 (ECA), substantial jurisdictional ambiguity remains.	Original recommendation remains.
11. Review licence and spectrum fees	No progress.	Original recommendation remains.
12. Increased funding for ICASA	It is not clear that ICASA funding has been increased sufficiently.	Original recommendation remains.

Source: Genesis Analytics

Three additional regulatory issues that deserve mention are the decision by government to back Sentech as an industry champion, the decision by the Department of Public Enterprises to create a state-owned infrastructure company (Infraco) to provide wholesale bandwidth, and interference

by the New Partnership for Africa's Development (NEPAD) in the East Africa Submarine Cable System (EASSy) programme.

Sentech

Sentech has been identified as a sector champion by government, and it is planned that it should serve as the 'core wireless broadband provider' (Matsepe-Casaburri 2007). However, Sentech is essentially a wholesale broadcast infrastructure provider: it is thus not apparent why it would be suited to serve as a champion in the market for providing retail voice and data products. The company is unfamiliar with both the product and the market involved. Attempts to boost the provision of wireless broadband would be better served by awarding licences to private operators and implementing a universal service subsidy.

Infraco

In terms of the Broadband Infraco bill, the fibre-optic networks of Transnet and Eskom will be transferred into a new company, Infraco Broadband Limited, which will remain wholly owned by the state. Infraco will, for the first four years of its existence, provide wholesale bandwidth exclusively to Neotel, selling it on a cost-plus basis.

In the short term, Infraco may provide some price relief, but in the long term, its net effect is much more uncertain. The extent to which it may result in restrictions on private-sector investments in undersea cables in order to protect government investment is a serious concern.

EASSy

International bandwidth is critical for the provision of international data and voice connectivity, and for many applications is best provided via submarine cable networks. Only the west coast of Africa currently has cable connectivity. Along the east coast of Africa, the process of co-ordinating such a cable investment has been under way since late 2002,[2] in the form of the Eastern Africa Submarine Cable System project. The cable is a project originated and driven by regional telecoms operators and the East African business community.

Price competition in international cable bandwidth often depends on the structure of the contract used by the cable consortium. If only one operator in each country has landing rights (as is the case with SAT-3, the west coast cable), it will be possible to create many regional monopolies, associated with very high prices. Concern that this will characterise the EASSy cable structure as well has prompted NEPAD intervention in the project (with NEPAD initiatives in this field widely viewed as driven by South African policy-makers).[3]

In 2006, NEPAD produced a broadband infrastructure protocol which has since been ratified by 12 member states, including South Africa. The protocol introduces substantial changes to the initial structure of the project, including equal state shareholding via special purpose vehicles, an intergovernmental regulator controlled by member states, and a uniform tariff to be charged by all operators. To implement the protocol, signatories will have to harmonise domestic policy and regulation with the protocol – this will result in a delay in implementing the project.

The way in which the protocol introduces state ownership is also cause for concern. The EASSy project was initiated by regional telecoms operators, a number of whom are privately owned. To the extent that the project infringes on the pre-existing commercial interests of the initiating firms, it can be regarded as a form of expropriation. Such interference with the activities of the private sector increases the uncertainty of any investment, and decreases the incentive to invest.

An inter-governmental assembly (IGA) will hold a golden share in the cable's special purpose vehicle (SPV) structure, and will have authority to, among other things, regulate the rate of return of operators. In South Africa, the jurisdiction of the IGA and ICASA will overlap as regards price regulation of international bandwidth.

The NEPAD protocol has drawn criticism from a number of operators involved in the EASSy project.[4] A number of parties have indicated that they are in the process of pursuing alternative cable investments – as many as four additional east coast projects are currently rumoured to be in discussion (Southwood 2007). It seems likely that the ultimate outcome of the NEPAD intervention will simply have been to delay the implementation of the original project, and increase the perceived regulatory risk faced by investors in such infrastructure.

The NEPAD protocol is a potentially damaging addition to the existing price-regulation process in international bandwidth. The protocol should be adapted to provide greater discretion to regional operators and regulators. The principle of compulsory equal equity shares for signatory states should be abandoned, and ownership of the cable should revert to the originally proposed voluntary private participation model.

Conclusion

Despite a great deal of activity in the telecommunications market over the past two years, we find little evidence that the pricing problem has been solved. The pricing results clearly illustrate that:

- business use of telephony is far too expensive;
- we continue to have some of the most expensive broadband in the world; and
- Telkom's ability to charge unjustifiably high prices in international bandwidth markets remains unchanged.

The first-best solution to these problems in the medium to long term is the rapid introduction of competition on infrastructure. The licensing process currently under way is crucial in expanding

the number of operators that may provide infrastructure. However, parallel initiatives in targeting infrastructure development through state-owned enterprises (SOEs) may undermine the process of competition and lower prices in the long term. This is especially the case if such initiatives result in constraints to the licensing of private operators that have demonstrated a willingness to invest in infrastructure.

In addition, while pockets of dominance remain, prices will not be constrained. Price regulation becomes an important short-term tool to bring about lower prices. In this regard, small incremental changes to prices (such as practised through price cap regulation) are not sufficient. Rather, a step-wise change in prices is required through cost-based price regulation. ICASA faces a major task in implementing such cost-based pricing, but has been making encouraging progress towards this end.

Main report

Introduction

SERVICE INDUSTRIES PLAY a crucial role in national economic development. Telecommunications, transportation, financial services and so forth are not only important in their own right, but are also important inputs into other industries. Because service outputs feed into other industries, economies with high-priced and inefficient service sectors will find their competitiveness in extractive and manufacturing industries affected as well.

Government's current thinking on growth is encapsulated in the Accelerated and Shared Growth Initiative for South Africa (ASGISA), which identifies six binding constraints on growth, as follows:

- the volatility and current valuation of the rand;
- the high cost, low efficiency, and poor capacity of the national logistics system;
- the shortage of suitably skilled labour;
- barriers to entry, limits to competition and limited new investment opportunities;
- the regulatory environment and the burden on small and medium businesses; and
- deficiencies in state organisation, capacity, and leadership.[5]

The telecoms market displays a number of these binding constraints. Many telecoms sub-markets are dominated by a very small group of operators, with market entry constrained by the licensing requirements of a not-untroubled regulator. It is in this context that Business Leadership South Africa has commissioned this second review of telecommunications prices and regulation in South Africa.

The current report revisits two research reports commissioned by Business Leadership in 2005, on the South African telecommunications market. The first report, *Telecommunications Prices in South Africa: An International Peer Group Comparison* (Genesis Analytics 2005a), found overwhelming evidence that South African telecoms prices were well above the level expected in the country's international peer group. The second piece of research, *Reforming Telecommunications in South Africa: Twelve Proposals for Lowering Costs and Improving Access* (Genesis Analytics 2005b), identified 12 key steps that should be taken to reform the market, and to improve price outcomes.

Two years have passed since the initial research was undertaken. In that time, the sector has seen a number of developments – the Department of Telecommunications has held two price colloquia,

the Neotel licence has been issued, and ICASA has issued a number of discussion documents. However, it is not clear that these developments have resulted in a substantially more competitive South African telecommunications market.

The report proceeds as follows:

Section 2 of the report examines whether South African telecoms prices have become more competitive, as compared with those of an international peer group. The results are comparable to the ones in the 2005 research – meaning that we can assess whether or not South Africa's international price competitiveness has improved.

Section 3 briefly examines what progress has been made in the market structure and regulation of telecommunications. The 12 steps identified and recommended in 2005 have not all been taken. We address which key inhibitors still remain in place in the market, and whether or not the initiatives currently being undertaken are likely to be helpful or harmful to telecoms development.

The 2007 price benchmark

ALTHOUGH THE 2007 price comparison is not on exactly the same terms as the 2005 comparison – both the products examined and the group of countries have changed somewhat – it represents, by and large, an update of the 2005 study. As such, it allows us to develop an understanding of whether South African telecoms prices have depreciated sufficiently to 'catch up' with international best practice over the period. For reference purposes, the results of the 2005 price comparison exercise are summarised in Appendix 1.

Selecting the comparison group

One of the most important steps of any international comparison is the process of selecting the comparison group. If the comparison group contains inefficient telecoms markets, the comparison will be biased, and South African price performance will look better than it is. Alternatively, if the comparison countries have functional characteristics which make telecoms operating costs unusually low, South African price performance will look worse than it is. As in the 2005 exercise, therefore, a great deal of attention was paid to ensuring that the comparison group was stocked with high-performing telecoms markets, and that a substantial proportion of the countries selected had similar functional characteristics to South Africa's. The methodology involved is detailed in Appendix 3.

The characteristics of the high-performing telecoms countries selected are shown in Table 4 below. As can be seen, 14 comparator countries were selected, of which eight are high-income developed countries, and six are developing countries. Of the comparison group, Brazil and Malaysia have the greatest similarity to South Africa, in terms of GDP per capita, population density, and income distribution.

Table 4: International comparison: countries

	PPP-adjusted GDP per capita US$	Population size (m)	Population density per sq km	Gini coefficient[6]
South Africa	12 347	46,9	38,6	57,8
International telecoms best practice				
Australia	31 646	20,3	2,7	35,2
Denmark	21 317	5,4	127,7	24,7
Hong Kong	31 165	6,9	6 663,7	43,4
Netherlands	32 927	16,3	481,7	30,9
South Korea	21 868	48,3	489,2	31,6
Sweden	31 062	9,0	22,0	25,0
United Kingdom	32 005	60,2	248,9	36,0
United States	41 854	296,4	32,4	40,8
Peer group telecoms best practice				
Brazil	8 730	186,4	22,0	57,0
India	3 486	1 094,6	368,2	36,8
Malaysia	10 843	25,3	77,2	49,2
Morocco	4 421	30,2	67,6	39,5
Thailand	8 551	64,2	125,7	42,0
Turkey	8 430	72,1	93,6	43,6

Source: World Bank databases

Product group selected

The basket of goods examined was selected in order to highlight prices of particular importance, and across a range of data, voice, retail, and business products. Four data product prices were examined, as follows:

- international leased lines: the monthly rental fee for a 2mbps connection, from the country in question to the United States (and in the case of the United States, an average price to an EU country);
- national leased lines: the monthly rental fee for a 2mbps connection, between two points separated by 10km; and
- two broadband products: a retail offering of 512kbps and a business offering of 1mbps. Here the product selected had to offer an asymmetric connection (ie different upstream and downstream bandwidths), and all products selected had to be supplied via a fixed-line technology (ie not wireless Internet). Broadband prices quoted include applicable sales taxes.

Five voice products were examined, as follows (all prices include applicable sales taxes):

- mobile voice: the total cost of a typical bundle of mobile services, for either a retail or a business customer;
- fixed voice: the total cost of a typical bundle of fixed telephony services, for either a retail or a business customer; and
- international voice charges: the cost of a three-minute call to the United States during peak hours (and in the case of the United States, an average price to a EU country).

For mobile and fixed-voice charges, 2006 OECD basket methodology was used. These baskets are designed to mirror usage patterns by a typical business or retail user, and allow the overall cost of a package, including connection charges, short message service (SMS) fees, and so forth, to be evaluated. All products were converted into US dollars using the average exchange rate for the year ended 31 March 2007, as shown in Appendix 4. For interest's sake, the cost of retail products adjusted for purchasing power parity (PPP) is also shown. PPP adjustments allow an evaluation of the relative affordability of the products shown. PPP factors are from the World Bank, and are also shown in Appendix 4.

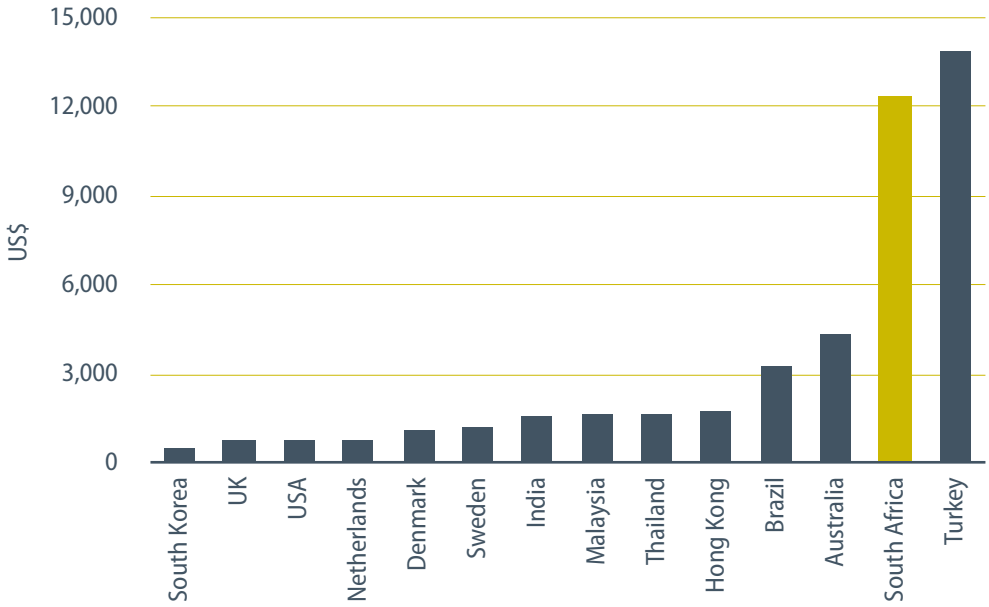
Data products

We begin by examining the cost of business data products. The first product, as shown in Figure 1, is a 2mbps international leased line. In 2005, this was the product which stood out as differing most sharply from prices in the comparison group – South Africa had the most expensive international leased-line prices in the group, and was 399% more expensive than the average price.

Since 2005, Telkom has reduced the price of its 2mbps connection by a total of 44%. However, in 2007, South Africa remains:

- the second-most expensive among the 14 countries surveyed;
- 36,6 times more expensive than the cheapest product surveyed; and
- 404,7% dearer than the average price.

Figure 1: 2mbps international leased line monthly fee



Source: Company websites, oanda.com

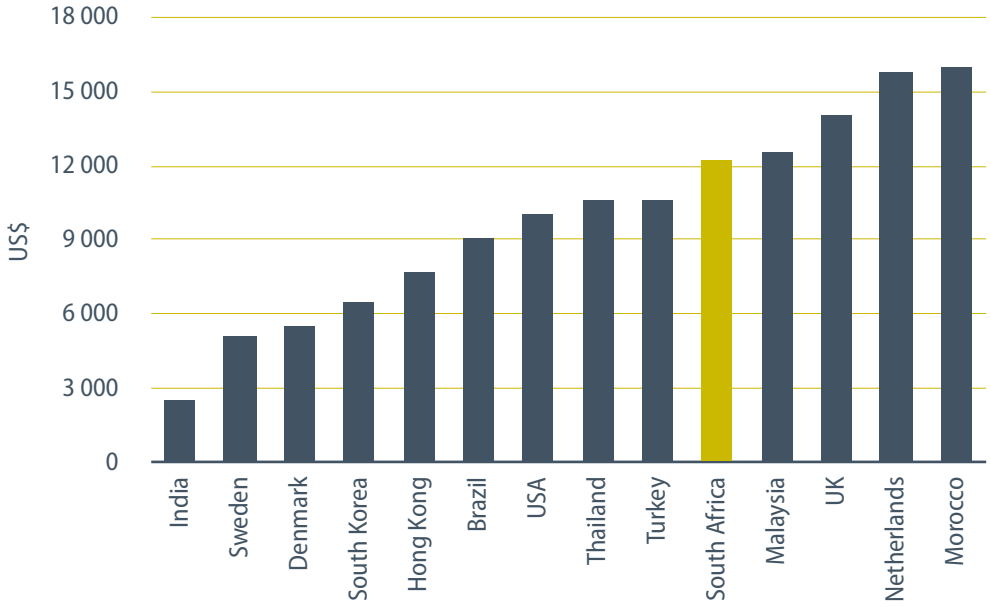
Moreover, it needs to be noted that, if Turkey (which is an extreme outlier in the comparison group) were excluded, South African international leased lines would be 828% more expensive than the average.

Although price decreases have been seen in the local market, prices have also decreased in other markets. There are five countries other than South Africa for which we collected prices in both 2005 and 2007 – and they have lowered their international leased line prices by an average of 24% over the period.

The most difficult product on which to collect pricing data was domestic leased lines, illustrated in Figure 2. Leased lines are a wholesale product for which prices are often not publicly disclosed, and may also be subject to negotiable discounts off the list price. The process of collecting prices thus often relied on secondary resources, such as price comparisons undertaken by regulators. The results suggest that South African leased line prices are fairly high. South Africa is:

- the fifth-most expensive among the 14 countries surveyed;
- 4,9 times more expensive than the cheapest product surveyed; and
- 26,5% dearer than the average price.

Figure 2: Monthly rental on a 2mbps domestic leased line



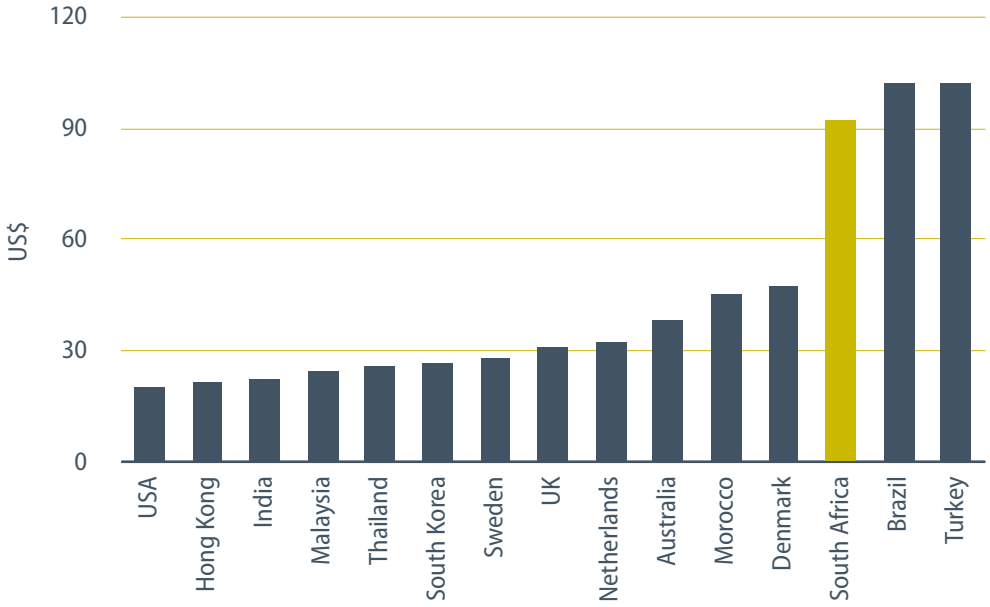
Source: Company websites, oanda.com

This result compares well with that in 2005, when South Africa was the most expensive of 12 countries surveyed, with a price 102% higher than the average price. In absolute terms, the South African price has decreased by approximately 14% over the period.

One of the most important inputs into broadband prices is international and local bandwidth. Given the very high cost of South African international bandwidth, and the fairly high cost of local bandwidth, it is thus not surprising that our 1mbps broadband, as shown in Figure 3:

- is the third-most expensive among the 15 countries surveyed;
- is 4,6 times more expensive than the cheapest product surveyed; and
- is 127,2% dearer than the average price.

Figure 3: Business ADSL (1mbps)



Source: Company websites, oanda.com

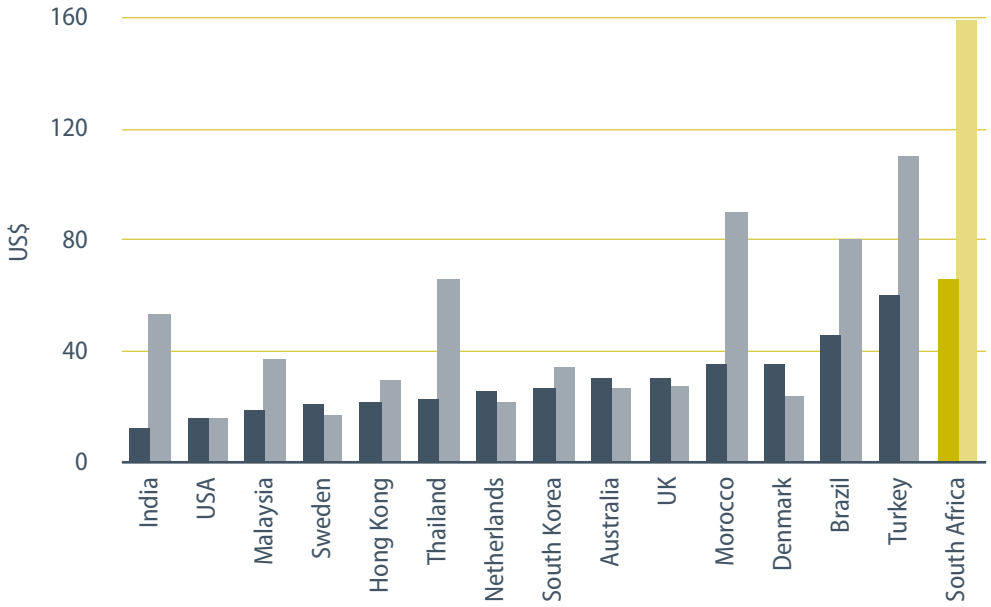
Although 1mbps is the highest asymmetric digital subscriber line (ADSL) speed currently available in South Africa,[7] in many of the comparison countries we struggled to find a product of equivalently low speed. Eight of the prices shown in Figure 3 are for a product of higher quality than the South African product, at 1,5mbps (Australia, Hong Kong, the Netherlands and the United States), 2mbps (India and Sweden), 4mbps (South Korea), and even 8mbps (the United Kingdom).

It was similarly difficult to find a comparison product for what we described as retail broadband, namely a 512kbps connection. In seven of the 15 comparators, the product surveyed was of higher quality, namely 600kbps (Brazil), 768kbps (the United States), 1,5mbps (Hong Kong and the Netherlands), 2mbps (India), 4mbps (South Korea), and 8mbps (the United Kingdom). Despite this, South African retail broadband:

- is the most expensive among the 15 countries surveyed;
- is 5,9 times more expensive than the cheapest product surveyed; and
- is 130,5% dearer than the average price.

For interest's sake, we have also included the PPP-adjusted price,[8] which gives a better measure of affordability than the US$ price. As can be seen from Figure 4, South Africa's price performance is much worse in PPP terms – the disparity with the average price widens to 252,4%.

Figure 4: Retail broadband (512kbps)



Source: Company websites, oanda.com

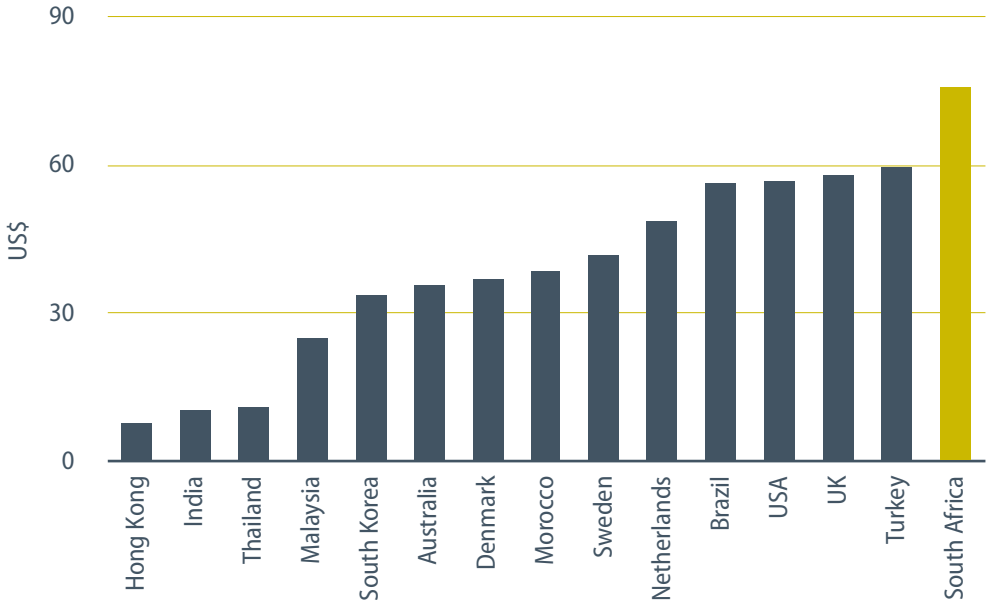
In 2005, we used speeds of 512kbps for both retail and business ADSL. However, apart from the change in product specification, the price findings for broadband in 2005 were very similar – it was the most expensive product in both the retail and the business groups, and 139% and 148% more expensive than the average price.

Voice products

To examine the cost of domestic telephony, we used a simplified version of 2006 OECD basket methodology.[9] The first basket examined is high-usage mobile telephony, which includes 140 calls and 55 SMSs a month, which we have used as a proxy for the cost of business mobile users. As shown in Figure 5, South Africa:

- is the most expensive among the 15 countries surveyed;
- is 12,3 times more expensive than the cheapest country surveyed; and
- is 106,9% dearer than the average price.

Figure 5: Mobile basket – business (high user)



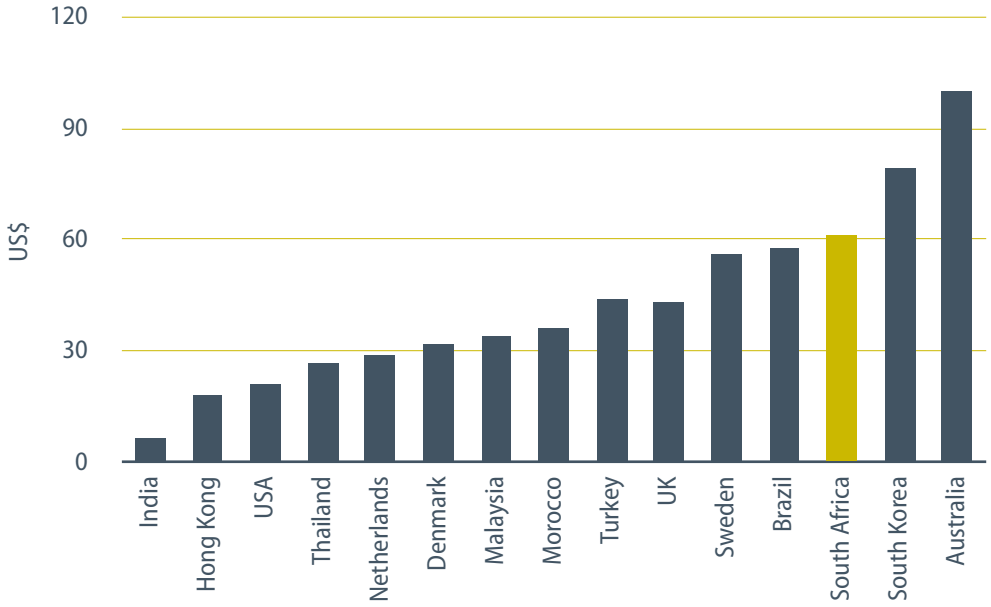
Source: Company websites, oanda.com

A much simpler pricing methodology was used in 2005, which simply compared call rates in peak times across countries. However, this simpler methodology derived very similar results – in 2005 South Africa was the second-most expensive country in the comparison group, and 107% more expensive than the average price.

The OECD also provides baskets of calls modelled for fixed-line telephony. For business users, the bundle contains a total of 215 calls a month to local, national, and mobile phone destinations. For this basket, as shown in Figure 6, South Africa:

- is the third-most expensive of the 15 countries surveyed;
- is 10,1 times more expensive than the cheapest country surveyed; and
- is 47,4% dearer than the average price.

Figure 6: Fixed basket – business user



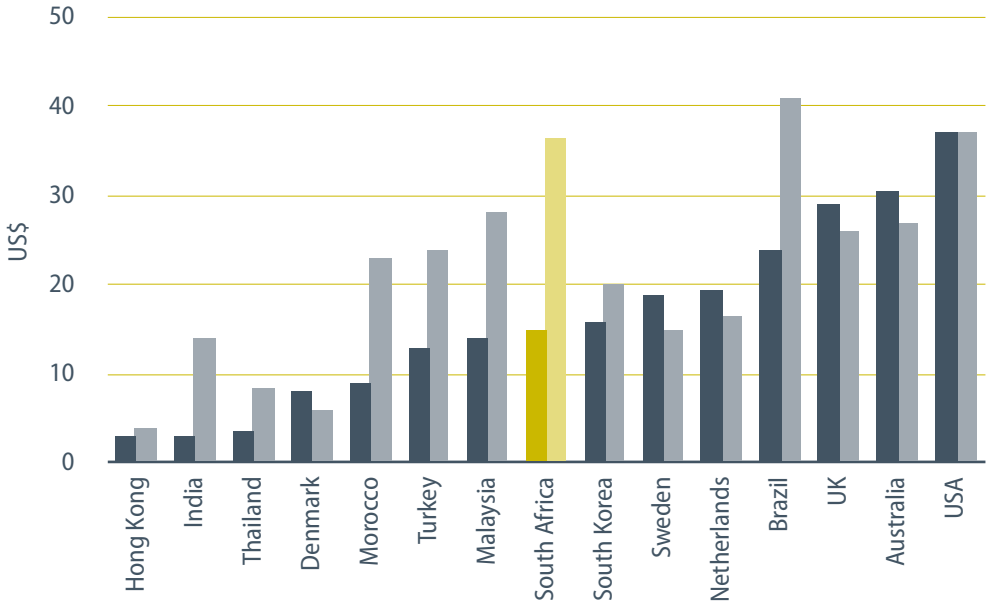
Source: Company websites, oanda.com

The 2005 price comparison, using peak call rates for local and mobile calls, found that South Africa was, respectively, the most and second-most expensive of the countries, and 199% and 107% more expensive than the average price.

South Africa performed very close to the average on the retail mobile basket, which includes 30 outgoing calls and 33 SMSs a month. As shown in Figure 7, South Africa is:

- the eighth-most expensive among the 15 countries surveyed (but the third-most expensive on a PPP basis);
- 5,6 times more expensive than the cheapest country surveyed; and
- and 6,1% cheaper than the average price on a US$ basis (although the same product is 78,7% more expensive than the average on a PPP basis, indicating that affordability levels are not as good).

Figure 7: Mobile basket – retail (low user)



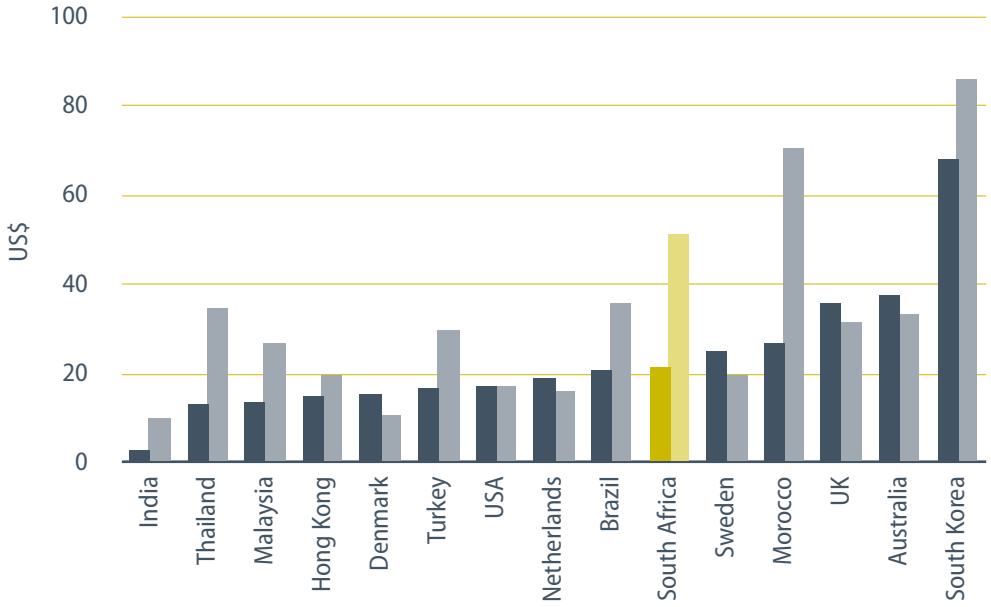
Source: Company websites, oanda.com

This is a substantial improvement on the 2005 findings, where South Africa was the fifth-most expensive out of 15 countries sampled, and 37% more expensive than the average price.

The fixed basket for residential users includes 48 monthly calls to local, national, and mobile destinations. For this basket, as shown in Figure 8, South Africa:

- is the sixth-most expensive among the 15 countries surveyed (but the third-most expensive on a PPP basis);
- is 10,5 times more expensive than the cheapest country surveyed; and
- is 8,0% cheaper than the average price (but 62,7% higher than the average on a PPP basis).

Figure 8: Fixed basket – residential user



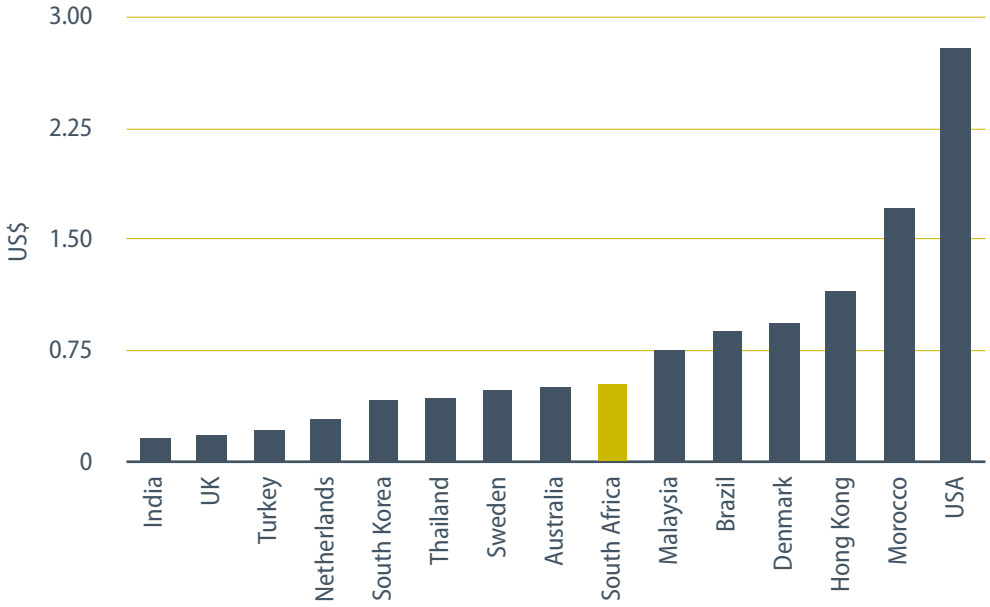
Source: Company websites, oanda.com

In the 2005 report, retail local calls were found to be the fourth-most expensive in the comparison group, and 79% more expensive than the average price. This is a substantial improvement on the 2005 findings.

International voice price results are shown in Figure 9, and are the second voice product in which South Africa out-performs the comparison group. On a three-minute international call to the United States (and for the United States, to Europe), South Africa:

- is the seventh-most expensive among the 15 countries surveyed;
- is 3,7 times more expensive than the cheapest product surveyed; and
- is 33,5% cheaper than the average price.

Figure 9: Cost of a three-minute international call



Source: Company websites, oanda.com

In 2005, South Africa was fifth out of the group and 14% cheaper than the average price. The improvement in the 2007 price performance reflects a 15% decrease in the South African tariff over the period.

The results of the price comparison are summarised in Table 5 below. In 2005, prices were highest in South Africa for five out of the (then) ten products examined. In 2007, South Africa is the most expensive on only two out of nine products, which represents some improvement in performance. However, prices remain more expensive than the average on all but three products, namely retail mobile and fixed telephony, and international voice, and the large price differential in international leased lines and broadband has not yet been addressed.

Table 5: Summary of price results

	Rank	Out of: (number of countries surveyed)	Number of times more expensive than the cheapest price	% greater than the average price
International leased lines	2	14	36,6	404,7%
Domestic leased lines	5	14	4,9	26,5%
Business ADSL	3	15	4,6	127,2%
Retail ADSL	1	15	5,9	130,5%
Mobile – business basket	1	15	12,3	106,9%
Fixed line – business basket	3	15	10,1	47,4%
Mobile – retail basket	8	15	5,6	–6,1%
Fixed line – residential basket	6	15	10,5	–8,0%
International voice	7	15	3,7	–33,5%

Source: Genesis Analytics

The impact of the August 2007 tariff change

In terms of its licence requirements, Telkom is required to present an annual tariff revision to ICASA for approval. The 2007 tariff change was implemented on 1 August, and contained several large tariff decreases, most notably a 30% decrease in the cost of international leased lines. The price comparison, summarised in Table 5 above, was compiled on data collected prior to the Telkom tariff revision, in May 2007. For completeness, we thus also include Table 6 below, which reflects the Telkom tariff changes.

Table 6: Price comparison updated for August 2007 tariff changes

	Rank	Out of: (number of countries surveyed)	Number of times more expensive than the cheapest price	% greater than the average price
International leased lines	2	14	25,6	253,3%
Domestic leased lines	5	14	4,4	12,6%
Business ADSL	3	15	4,0	96,7%
Retail ADSL	1	15	5,6	118,5%
Mobile – business basket	1	15	12,3	106,9%
Fixed line – business basket	3	15	10,4	52,0%
Mobile – retail basket	8	15	5,6	–6,1%
Fixed line – residential basket	6	15	11,0	–3,4%
International voice	10	15	2,9	–47,4%

Source: Genesis Analytics

Two key points should, however, be noted about Table 6:

- Firstly, telecoms prices exhibit a downward trend in international markets. Comparing South African August prices with international May prices is thus not entirely accurate, as there is a good chance that international prices have declined in the interim.
- Secondly, the change in South Africa's relative performance is limited. Local prices go from seventh-most expensive in international voice to tenth-most expensive, but fixed telephony actually becomes slightly more expensive, and all other relative positions stay the same.

The impact of the 2007 Telkom tariff changes highlights the extremely slow pace of progress that occurs in the absence of effective price regulation. South African prices are only moving incrementally towards international norms, while what is needed is a step change.

12 steps to improve prices[10]

THE 2005 BUSINESS Leadership South Africa report, *Reforming Telecommunications in South Africa: Twelve Proposals for Lowering Costs and Improving Access,* identified 12 actions that should be pursued by the Minister of Communications and ICASA in order to reduce South African telecoms prices. This section provides a brief summary of these recommendations, grouped into policy directives, regulatory actions, and legislative and other changes (as in the original report), and evaluates the progress that has been made over the past two years towards implementing these recommendations.

Policy directives

Unbundle Telkom's local loop[11]

2005 recommendation: Local-loop unbundling (LLU) would allow Neotel and the VANS operators to provide services such as voice and broadband in competition with Telkom, which would help bring down the price of such services.

Regulatory processes such as LLU are long-term, technically complex initiatives that represent a real test of the institutional capacity of ICASA. Substantial progress has been made towards completing the various components of the LLU process, as follows:

Market definition and market power. LLU represents a major intervention in the free operation of a market, which ICASA can only undertake if competition in that market is proven to be inadequate in disciplining prices. Section 67 of the Electronic Communications Act 2006 sets out the conditions under which ICASA can undertake such an intervention. In particular, ICASA is required to define the market concerned for competition purposes, and determine whether an operator has market power. On 3 May 2007, ICASA gazetted a discussion document on wholesale telecommunications markets which began this process. The document defines the local-loop market, and identifies Telkom as having significant market power in this market.

This document will be debated at public hearings that remain to be scheduled, and stakeholders are likely to submit lengthy analyses on the various issues. The hearings are a significant part of the process. For example, MTN, Vodacom and Telkom have lodged detailed criticisms of ICASA's recent

call-termination review, including challenges on legal and regulatory process as well as on the economic arguments advanced by ICASA.

ICASA regulatory processes. If ICASA can defend the argument that Telkom has market power in local loop, the implementation of LLU is one regulatory solution that will be open to it. In fact, the wholesale telecommunications discussion document already includes a number of suggestions on the structure of LLU regulation. Three key pro-competitive conditions proposed by ICASA are:

- that Telkom must provide access to the local loop 'upon reasonable request' and at various entry points;
- the provision of co-location facilities (including co-location rights in local exchanges) that would reduce the cost of making connections to the local loop at various points; and
- a requirement to enable the provision of carrier pre-selection,[12] carrier selection (indirect access), and wholesale line rental (allowing service providers to present customers with a single bill including access and call costs).

These requirements will need to be implemented via a number of routes, including Telkom licence requirements, general market regulations, and so forth. The creation of an enabling regulatory environment for unbundling is expected to take three to six months (*Sunday Times* 2007a).

DoC technical processes. The department of communications (DOC) convened an LLU committee (LLUC) to make suggestions on how unbundling should be carried out. This document will guide ICASA on the technical implementation of unbundling. The LLUC report tabled the following recommendations, among others:[13]

- A combination of three unbundling models should be used, based on the relevant socio-economic conditions of the area in question (Ensor, McLachlan, and Mawson 2007), namely:
  - full unbundling (Telkom infrastructure used by various operators);
  - line sharing (Telkom only provides voice access); and
  - bitstream (wholesale) access.
- Any licensed operator should have access to the local loop to deliver voice and/or data services.
- ICASA should implement carrier pre-selection as soon as possible.
- All necessary co-location of facilities needed to ensure smooth unbundling and easy access for new entrants must be allowed.
- Customers should be allowed to switch between service providers as soon as possible (Olivier 2007).
- ICASA should regulate the pricing of access to the local loop.
- ICASA should regulate issues such as access to facilities, maintenance, and other issues related to the quality of services provided.
- ICASA should create capacity to inspect Telkom's premises physically to gather information needed to ensure an effective unbundling process.

The process of technically implementing LLU will require substantial effort on a number of fronts. The LLUC (2007:177) report suggests that 'the implementation of LLU should be managed in much the same ways as a complex IT or outsourcing project and requires discipline, the use of project management tools and adequate resources to run as a successful initiative'. Because of the technical complexity of the task, it will by necessity take time: the LLUC (ibid: 180) therefore only calls for unbundling to be in 'an advanced stage of implementation by 2010'.

This announcement was met with mixed feelings, as eloquently summarised in the following opinion expressed in *Business Day* (2007):

> It is hard to decide whether to *rejoice* that the unbundling of the local loop could begin as early as next year or to *weep* that it will take at least four years to complete [*emphasis added*].

The minister of communications, however, countered the claims that she is effectively extending Telkom's monopoly by four years by pointing out that unbundling of the local loop has traditionally taken far longer than this internationally, and that four years is actually 'an ambitious target' (Vecchiatto 2007). In order to ensure that the timeline does not translate into an effective four-year extension of Telkom's monopoly, ICASA will need to stipulate intermediate targets and guidelines in the regulations that govern unbundling.

One of the key elements of successful implementation by ICASA will be the determination of the price level that the infrastructure provider (that is, Telkom) can charge, which is discussed further in *Facilities leasing at cost-based prices* on page 39.

Progress: A clear political commitment to local-loop unbundling has been demonstrated. However, completing the process will take time, resources, and technical expertise, and its overall effectiveness will depend on the outcome of the current regulatory process.

Permit VANS operators to self-provide backbone infrastructure[14]

2005 recommendation: Even though economies of scale would favour Telkom and Neotel providing the bulk of backbone infrastructure, the ability to self-provide would provide VANS operators with more bargaining power in price negotiations.

The Minister of Communications issued a number of ministerial determinations on 3 September 2004, one of which was widely interpreted as giving VANS the right to self-provide fixed-line infrastructure.[15] On 31 January 2005, however, the Minister issued another statement, qualifying the determination as applying to mobile operators only.[16] This resulted in confusion concerning the legality of self-provision by VANS. In a February 2007 media statement, the Internet Service Providers' Association highlights the fact that since 2005 they have, on several occasions, tried to no avail to clarify this issue with the Department of Communications (ISPA 2007).

The Minister made another statement on the issue during her May 2007 budget speech, when she indicated that she had urged ICASA:

> … to urgently consider whether none, or only certain, of the existing VANS licensees can be authorised to provide services as well as to provide and operate electronic communications facilities or networks to ensure that such licensees are issued electronic communications network service licences in addition to other licences specified in the relevant section of the ECA, if applicable (Matsepe-Casaburri 2007).

Given the confusion that resulted from the Minister's 2004 and 2005 announcements, there is uncertainty as to the status of the 2007 announcement. While some VANS operators are optimistic that self-provision is on the horizon, others have indicated that they will not begin 'to build infrastructure aggressively until we have regulatory clarity' (*Financial Mail* 2007).

Ultimately, self-provision would be a way of changing the structure of the leased-line market, and introducing enough competition to make price regulation less of a priority. ICASA's current focus seems to be focusing on expediting price regulation, rather than on market structure. In order to tackle high prices, price regulation is critical in the short to medium term. However, introducing competition is the key mechanism for reducing prices and improving quality in the longer term. In this regard, a critical juncture will be ICASA and the Minister's decision about how to migrate VANS licences in the old Telecommunications Act to the new ECA framework: will they be given to electronic communications network service (ECNS) licences, or only electronic communications service (ECS) licences? It is noted that the ECA stipulates that licence migrations cannot decrease the existing rights held by a licensee (ie rights have to stay the same or increase). The legal question of whether VANS do currently have the right to self-provide (by 2005 ministerial declarations) will therefore likely play a key part in proposals on licence migration.

Progress: The uncertainty surrounding the legality of self-provision by VANS remains. Very little progress has been made towards finalising this issue, but the key opportunity will be how VANS licences are converted to the new ECA framework. In the meantime, ICASA has started a process to enable regulation of the wholesale leased-line market.

Review universal service and access policy

2005 recommendation: A thorough review of universal service and access policy was recommended, in order to increase the efficiency of the process, improve its sustainability, increase the cost-effectiveness of the funding mechanism, and improve monitoring systems. Instead of a separate regulator for universal service objectives, it was recommended that these functions should be transferred to ICASA.

The Universal Services Agency (USA) is currently in the process of relaunching and rebranding itself as the Universal Services and Access Agency of SA (USAASA). USAASA is also changing its strategic approach to focus more closely on its core functions of co-ordinating access activities by various

players, and providing the information and policy support to ensure that the funding available through the Universal Service and Access Fund (USAF) is spent in a sustainable manner. As part of the process, an internal stakeholder review was undertaken to gauge the perceptions and expectations of stakeholders with respect to USAASA. The review also identified opportunities for collaborations among stakeholders.

In recent times, a number of reviews of both the agency and universal services, and of access policy in general, have been undertaken. Two examples of these are the 'Universal Services Agency impact document'[17] prepared for the USAASA by the Turnkey Consortium in 2005, and 'Recommendations on how the USA and other stakeholders might assist USALs to ensure sustainability'[18] by Lisa Thornton in 2007. The former was a review of the USA's mandate, and provided an assessment of whether it had been achieved, while the latter, as the name suggests, investigated how the USA and other stakeholders could most effectively ensure that under-serviced area licences (USALs) are sustainable over time.

USAASA does not currently have access to the bulk of the contributions to the USAF. This has reduced the effectiveness of the USAASA to date.

Progress: The intention to reinvigorate USAASA and increase the efficiency of the process of universal service and access is clear. Whether this intention translates into effective implementation remains to be seen.

Regulatory action

Require fair rates structures – no minimum charges, no per minute billing, and a broad range of contract lengths

2005 recommendation: A number of rate structures in place in 2005 raised call charges in an artificial manner – for example, minimum call charges, and billing calls in blocks of 30 seconds or a minute, instead of on a per-second basis. Regulations should instead be drafted to ensure that rates are structured in line with costs, and specifically requiring Telkom to offer residential users a rate plan that includes free local calls. Mobile operators should be required to offer a range of contract terms, and contracts which do not include a 'free' cellphone.

Mobile rate structures. ICASA published a discussion document on handset subsidies in 2005, which resulted in public hearings in 2005, the publication of draft regulations in June 2006, and a second round of public hearings in April 2007. These regulations, which have yet to be finalised or implemented, deal partially with the concerns of the 2005 recommendation as regards mobile contracts. In particular, they require the provision of six-, 12-, 18- and 24-month contract terms, and separation of service and handset charges.

To some extent, these regulations have been anticipated by market developments. For example, the entry of Virgin into the South African market has increased the range of contract options available. The Virgin model is based on lower call and monthly costs, made possible by removing the 'free' cellphone that needs to be subsidised. They also offer various contract lengths, and the same call rates for contract and pre-paid customers. In response to this, the other mobile operators now also offer more flexible contracts, although the 24-month contract remains standard, and billing is still often subject to minimum or block pricing.

Fixed-line rate structures. Telkom has of its own accord introduced per-second billing, applicable from the first second, aimed at business customers, in its Telkom SupremeCall package. These packages were originally advertised as being able to cut clients' phone bills by up to 25%. This illustrates the cost savings that are available from the implementation of pure per-second billing, and is of a similar order of magnitude to the 30%–35% cost savings envisaged in the original 'Twelve steps' document. The Telkom SupremeCall package, however, requires a minimum monthly rental of R1 000.[19] SupremeCall is thus better viewed as a high-usage business product: the OECD basket methodology used to evaluate fixed-line prices, mentioned in *Voice products* above, for example, priced the cheapest Telkom product for the business bundle at R829 a month, and the cheapest retail product at R264 a month. Telkom has also recently introduced the range of Closer packages, which include free minutes and free local calls for residential customers.

Progress: Regulatory initiatives have not yet been finalised, and only address concerns in the mobile market. Operators have made some concessions, possibly in anticipation of regulation, but it is not clear whether the new options are fair and competitive, or go far enough.

Interconnection at cost-based prices

2005 recommendation: Despite the existence of regulations enabling ICASA to price interconnection by major operators at long-run incremental cost (LRIC), in 2005, the regulator had yet to declare such major-operator status. This step needed to be expedited. Time delays surrounding the collection of cost data via regulatory accounts should also be minimised.

In terms of section 67(4) of the ECA, ICASA published a discussion document on interconnection fees (wholesale call termination) in the Government Gazette of 29 January 2007.[20] This document found that there were separate markets for interconnection on each provider's network. This meant that all providers had significant market power in interconnection on their network, as providers cannot offer interconnection on one another's network. ICASA also found that competition in these markets is not effective. A number of potential pro-competitive measures were identified, including cost-based call termination and an obligation to maintain the specialised separate accounting systems that would accompany it.

The legality of the section 67(4) process as currently implemented has, however, been challenged by a number of operators on procedural grounds. The contention is that the ECA requires that:

1. Separate regulations need to be passed to outline the methodology used in enquiry.
2. A roadmap needs to be provided of all markets to be defined.
3. The market definition process needs to be concluded before the discussion of market power and potential remedies can begin.

To date these steps have all been addressed in the same discussion paper. The completion of the section 67(4) process with respect to interconnection thus depends on the outcome of any potential legal challenge.

The Chart of Accounts and Cost Allocation Manual (COA/CAM) relating to the mobile market has been submitted. The information on which to base cost-based pricing, should the section 67(4) process be completed, is thus available.

Progress: The fact that interconnection was the first discussion document produced in terms of section 67(4) of the ECA demonstrates the high priority that ICASA attributes to the issue. It seems likely that, depending on the outcome of legal challenges, the process is on track to reach a conclusion in the short to medium term (possibly within a year or two).

Facilities leasing at cost-based prices

2005 recommendation: Access to Telkom infrastructure, for local-loop unbundling or leased lines, would only improve competition for customers if such access were provided on a cost basis. Such cost-based facilities-leasing regulation by ICASA should take place before the entry of Neotel, and quickly enough for VANS operators to take advantage of market opportunities in the short term.

ICASA's May 2007 discussion paper on wholesale markets is again of reference as regards cost-based facilities leasing prices. The discussion document finds that Telkom has significant market power in the local-loop and leased-line markets, and recommends the introduction of price regulation in these markets. The suggested price control for the local loop and leased lines[21] is long-run incremental cost (LRIC),[22] supplemented by price caps in situations where calculation of the technically complex LRIC price will be too time-consuming. Once LRIC is available, however, it is suggested as the preferred form of price control.

As already stated in *Unbundle Telkom's local loop* above, market reviews are a consultative process, and public hearings now need to be convened to provide stakeholders with an opportunity to have their comments and concerns heard before regulations regarding cost-based facilities leasing can be passed. It is thus not a foregone conclusion that the suggested measures will be implemented as is.

Progress: The process of implementing facilities leasing at cost-based prices has been started. However, the process is expected to take some time, particularly with respect to gathering costing information, and is not set in stone. It is possible that the process could be concluded in the short to medium term.

Regulate international bandwidth

2005 recommendation: Two regulatory alternatives were suggested for regulating price on international bandwidth. The first was to declare SAT-3 an essential facility, which would allow ICASA to institute cost-based pricing; while the second would be to require Telkom, as the SAT-3 consortium administrator, to sell unused capacity on SAT-3 to Neotel and Sentech.

Section 43(10) of the ECA specifically prohibits the use by telecoms licensees of exclusivity provisions as regards submarine cables. Accordingly, the Minister of Communications has taken the policy decision[23] that the exclusivity provisions of the SAT-3 consortium will be null and void in South Africa as at 1 November 2007. This means that Telkom's contractual monopoly of the cable will cease on that date. In terms of current international gateway licences, Sentech and Neotel in particular should be able to start serving this market immediately, as long as capacity is made available by the consortium administrator (which is coincidentally also Telkom). In order to ensure that such capacity is released, the minister has also directed ICASA to prescribe, as set out in Section 43(8)(b) of the ECA, a list of essential facilities, paying particular attention to SAT-3.

International leased lines are specifically addressed in ICASA's May 2007 discussion document on wholesale markets. Telkom is found to have significant market power in international leased lines, and thus they fall under the scope of the cost-based facilities leasing regulations proposed in *Facilities leasing at cost-based prices* above. There is some overlap between the regulatory interventions proposed in the wholesale markets document, and the essential-facilities policy direction of the minister. Both will ultimately result in price regulation, and an obligation to offer capacity by Telkom. As one of the grounds for declaring significant market power in terms of the section 67(5) of the ECA is control of an essential facility, the two regulatory initiatives are complementary.

Progress: A number of current initiatives address the cost of international leased lines. Although cost regulation will only be possible in the medium term, as it depends on the same processes as cost-based facilities leasing, the end of the contract-based commercial monopoly of Telkom on SAT-3 will take place by November 2007.

Regulate mandatory price comparison tools

2005 recommendation: The complex structure of call-rate packages makes it difficult for consumers to determine which operator offers the best deal, and thus inhibits price competition. It was suggested that ICASA offer a price-comparison programme to consumers via its website, which would allow consumers to determine the likely cost of each package, given the expected distribution of calls.

Progress: As far as the authors of this report are aware, no progress has been made regarding the provision of mandatory price comparison tools.

Legislative and other changes

Greater independence and accountability

2005 recommendation: ICASA should be as independent as possible, thus allowing it to act aggressively in order to bring down telecommunications prices. It should also become more accountable for developments in the telecommunications sector, for example via appearances before the parliamentary portfolio committee on communications.

Esselaar, Gillwald, and Stork (2006) point out that the ICASA Amendment Act of 2006 removed a conflict of interest that was previously structurally enshrined in legislation, namely that the Minister of Communications (as a representative of the state's interests as a major shareholder in Telkom) was able to veto ICASA regulations. However, a new conflict of interest has been entrenched, in that the power to appoint the ICASA decision-making committee has been transferred from the president to the Minister of Communications (Esselaar, Gillwald, and Stork 2006).

The ICASA Amendment Act of 2006 addresses internal accountability issues, but this does not extend to the accountability of the authority as a whole. It does not, for instance, require it to appear before the parliamentary portfolio committee on communications as suggested in the 'Twelve steps' detailed in this section.

Progress: The ICASA Amendment Act has removed one source of conflict of interest but replaced it with another. Potential problems with respect to conflicts of interest and lack of accountability thus remain.

Address anti-competitive behaviour

2005 recommendation: The Telecommunications Act was enacted prior to the Competition Act. As a result, its definitions, scope, jurisdictional aspects of dealing with anti-competitive practices, and fines are out of line with the Competition Act, creating the opportunity for jurisdictional disputes and inconsistent treatment across the two regulators (ICASA and the Competition Commission/Tribunal). Such jurisdictional ambiguity needs to be clarified. A potential solution would be to allow the competition authorities to prosecute anti-competitive practices in telecoms, but with support from ICASA (either technical support, or the ability to lodge and pursue complaints independently).

Jurisdictional ambiguity with respect to competition in telecommunications is only partially addressed by the ECA. Section 67(9) of the ECA states that 'subject to the provisions of the [ECA], the Competition Act applies to competition matters in the electronic communications industry'. ICASA is furthermore defined as a regulatory authority in terms of the Competition Act. In terms of sections 67(11) and 67(12), ICASA and the Competition Commission may ask for assistance or advice from each other on relevant proceedings.

ICASA and the Competition Commission currently have a memorandum of understanding in place, which was signed in 2002 (Sukazi 2002). The memorandum sets out the treatment of mergers where approval from either one or both of these institutions is needed. Although it also addresses the issue of complaints, jurisdiction in this area is not clearly defined and is open to dispute. The memorandum also makes explicit provision for the sharing of information and resources between the two institutions.

Esselaar, Gillwald, and Stork (2006) believe that the precedent established by the recent Competition Commission finding against Telkom, relating to its takeover bid for software services company Business Connexion, could serve as a springboard for a 'more interventionist approach' to the electronic communications industry by the Commission. This view is, however, debatable. The jurisdiction with respect to mergers is clearly set out in the memorandum of understanding, and in this case it clearly resided with the Commission. The requirement to establish a complaints and compliance committee within ICASA in terms of the ICASA Amendment Act indicates that ICASA is not expected to give up its jurisdiction over competition issues to the Commission. The Commission is currently investigating a number of telecommunication cases, but its jurisdiction in this area is still disputed. Telkom is currently disputing the fact that the Commission has the right to initiate proceedings against it in the high court.

The jurisdictional issues between ICASA and the Competition Commission have thus not been cleared up. Opportunities for 'jurisdiction shopping' remain, given that ICASA is not endowed with the commission's ability to issue court orders or fines.

Progress: While jurisdiction in respect of mergers is clearly set out, the same is not true in respect of complaints. Substantial jurisdictional ambiguity thus remains.

Review licence and spectrum fees

2005 recommendation: Licence and spectrum fees are necessary to recoup the running costs of the regulator, but raise the costs of operators, feeding higher consumer prices. A review of the trade-off between prices and government revenue was thus recommended.

The revenues earned by ICASA from licence and spectrum fees are substantial. In the 2006/07 financial year, for example, ICASA fees, together with the post office licensing fee, amounted to around R1,3 billion,[24] and essentially covered all the expenses of the DOC for the year. Once Telkom dividends and other revenue streams are added in to the departmental budget, the DOC makes a net annual profit in the region of R1,9 billion a year for the treasury.

Revenues from ICASA fees are projected to rise slightly over the medium term. There does not seem to be any plan to forego this source of revenue, nor any progress towards an investigation of whether licence and spectrum fee levels are consistent with wider objectives of affordability.

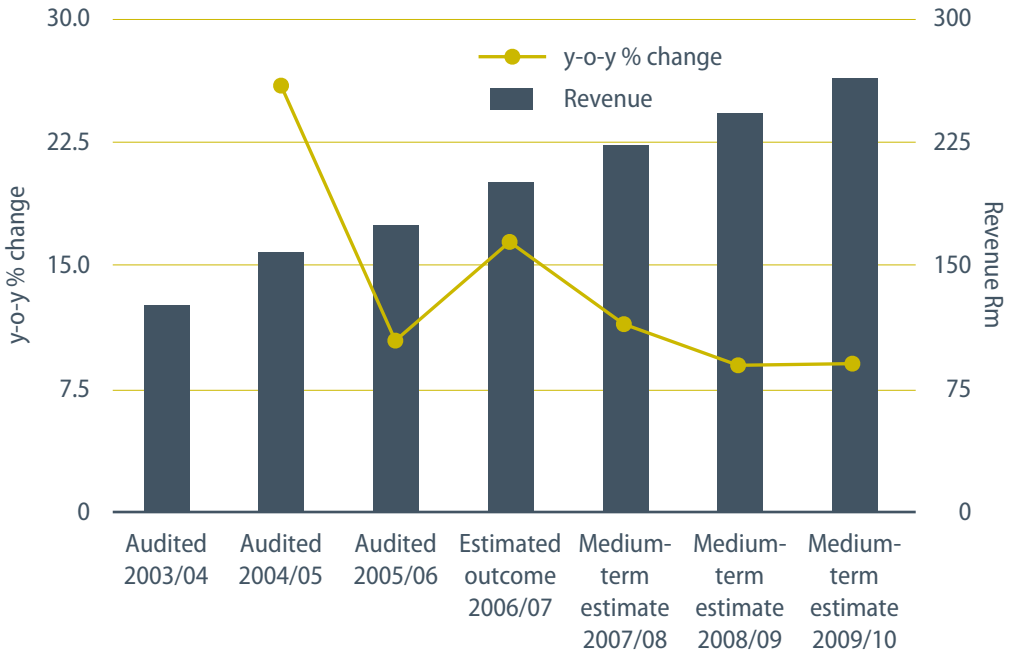
Progress: No progress seems to have been made towards achieving this goal, and thus the original recommendation remains pressing.

Increased funding for ICASA

2005 recommendation: Implementing the Electronic Communications Act (then the Convergence Bill), as well as the twelve steps recommended, would require additional funding for ICASA.

The 2007 national budget issued by treasury makes explicit reference to the additional burden placed on ICASA by the need to fulfil the requirements of the ECA. The budget also refers to 'a need to promote greater competition in the South African communications market by dealing swiftly with competition complaints and proactively reviewing the market'.[25] Despite this recognition of the burden on ICASA, however, the projected increase in funding is not particularly substantial. As can be seen in Figure 10 on page 44, with the exception of the 2004/05 financial year, which predates the introduction of the ECA, ICASA funding is increasing at a gradual rather than a step-wise rate.

Figure 10: Historical and projected ICASA funding



Source: 2007 estimates of National Expenditure. Calculations by Genesis.

The issue of capacity at ICASA is, however, driven more by staff turnover rates than by funding at present. ICASA was hit by a major exodus of staff in 2006, and it needed to advertise many senior posts. Funding is thus not the only issue that needs to be addressed, as attention must also be given to retaining and replenishing the pool of skilled employees.

Progress: It is not clear that ICASA funding has been increased sufficiently, but staff retention issues are probably more important at present.

Table 7 on page 45 summarises progress to date on the 12 steps suggested in 2005. It is encouraging that, in all but two of the steps, some progress has been made. However, on all of the recommendations, progress has been insufficient to meet the objectives originally suggested. Where progress is most advanced is in the four areas of price regulation, where success will ultimately depend on ICASA's ability to complete the regulatory process.

Table 7: Summary of progress in respect of the 12 steps

The 12 steps	Progress	Recommendation
1. Unbundle Telkom's local loop	A clear political commitment to local-loop unbundling has been demonstrated. However, completing the process will take time.	ICASA must be adequately resourced to complete the regulatory process.
2. Permit VANS operators to self-provide backbone infrastructure	The uncertainty surrounding the legality of self-provision by VANS remains.	Original recommendation remains.
3. Review universal service and access policy	The intention to reinvigorate USAASA has been expressed, but needs to be translated into effective implementation.	Original recommendation remains.
4. Require fair rates structures	Regulatory initiatives have not yet been finalised, and only address concerns in the mobile market. Operator concessions to date are voluntary, and it is not clear whether they go far enough.	Original recommendation remains.
5. Interconnection at cost-based prices	Price regulation of interconnection has been prioritised, but must still complete a lengthy regulatory process.	ICASA must be adequately resourced to complete the regulatory process.
6. Facilities leasing at cost-based prices	The process of implementing price regulation is in its very early stages.	ICASA must be adequately resourced to complete the regulatory process.
7. Regulate international bandwidth	Telkom's commercial monopoly on the cable will end in November 2007, and cost regulation is in its initial phase.	ICASA must be adequately resourced to complete the regulatory process.
8. Regulate mandatory price comparison tools	No progress.	Original recommendation remains.
9. Greater ICASA independence and accountability	The ICASA Amendment Act has removed one source of conflict of interest, but replaced it with another.	Original recommendation remains.
10. Address anti-competitive behaviour	Despite improvements related to the introduction of the ECA, substantial jurisdictional ambiguity remains.	Original recommendation remains.
11. Review licence and spectrum fees	No progress.	Original recommendation remains.
12. Increased funding for ICASA	It is not clear that ICASA funding has been increased sufficiently.	Original recommendation remains.

Source: Genesis Analytics

Additional Issues

Three additional regulatory issues that deserve mention are the decision by government to back Sentech as an industry champion, the decision by the Department of Public Enterprises to create a state-owned infrastructure company (Infraco) to provide wholesale bandwidth, and NEPAD interference in the EASSy cable program.

Sentech

In a recent budget vote speech, the Minister of Communications highlighted the strategic role of Sentech, in the eyes of the cabinet, to serve as the 'core wireless broadband provider' (Matsepe-Casaburri 2007). The decision to back Sentech as sector champion raises many questions. Sentech is essentially a wholesale broadcast infrastructure provider: it is thus not apparent why it would be suited to serve as a champion in the market for providing retail voice and data products. The company is unfamiliar with both the product and the market involved.

The main concern surrounding Sentech is the fact that a scarce spectrum licence has been awarded to a company that has not demonstrated the ability to use the licence efficiently in a competitive setting. Also, this licence was awarded without a competitive bidding process, or a transparent assessment of the ability or business case of the provider.

While it is thus possible that subsidised provision of broadband services may be the only way to roll out these services to low-income areas, it is not clear that using Sentech would be the most effective way of doing so.

Recommendation: Attempts to boost the provision of wireless broadband would be better served by price regulation in wholesale markets, and the encouragement of competition in retail markets, than by using Sentech as a sector champion.

Infraco

Both Transnet and Eskom have for years been investing in a fibre-optic network. However, they have not held the kind of telecommunications licences that would have allowed them to use this network to compete with Telkom. The second fixed line operator, Neotel, expended substantial effort trying to purchase these assets from Transnet and Eskom – with the second national operator (SNO) licence in hand, the fibre-optic network would have provided Neotel with additional national backbone functionality, which would contribute to a more competitive offering by the new entrant, particularly on national leased lines.

However, a policy decision has subsequently been made not to privatise these assets. The Broadband Infraco Bill instead proposes that:

- Instead of being sold to Neotel, the fibre-optic networks of Transnet and Eskom will be transferred into a new company, Infraco Broadband Limited, which will remain wholly owned by the state;
- Infraco will, for the first four years of its existence, provide wholesale bandwidth exclusively to Neotel and will do so on a cost-plus basis (Barradas 2007);
- Within this exclusivity period, Infraco will apply for a licence that will make its capacity available directly to the market (ibid); and
- government then intends to privatise Infraco once competitive conditions in the wholesale broadband and international bandwidth markets are more favourable (ibid).

In the words of the bill itself, the state 'intends expanding the availability of broadband access to underdeveloped areas and ensuring that the bandwidth requirements for specific projects of national interest are met' via the Infraco mechanism. The logic behind the shift from private-sector provision of bandwidth to public-sector provision is as follows:

> Investigations into the high broadband costs in South Africa compared to international counterparts revealed that connectivity providers, other than Telkom Limited ('Telkom'), have a cost structure where up to 80% of costs comprise costs attributable to Tier 1 national backbone connectivity and Tier 3 international connectivity, both of which are supplied by Telkom. The logical conclusion was to intervene to address these national backbone and international connectivity cost structures. This is based on the assumption that if these costs are addressed, Tier 2 (the Local Metropolitan Area network and last mile) connectivity providers would quickly pass this onto the market as a result of competitive pressure.

In the short term,[26] the implementation of Infraco should allow the state to decrease wholesale leased-line prices, which should then feed through to decreases in broadband retail prices offered by Neotel. For example, the department of public enterprises has stated that Infraco wholesale prices should be around two-thirds lower than Telkom wholesale prices (*Sunday Times* 2007b). This is a positive development.

However, the initiative brings with it some risks. The first of these is that there are usually strong prima facie grounds for believing that publicly owned firms will tend to be less efficient than privately owned firms. For the interested reader, we have limited this theoretical discussion to Appendix 2.

Secondly, if Infraco is to spur lower prices, it is crucial that Neotel feed low wholesale prices through from Infraco to its customers. We understand that, while Infraco will price its offering on a cost-plus basis to Neotel, this does not guarantee that Neotel will pass through such reasonable pricing. The initial mechanism to ensure that Neotel would pass on low rates to the market was the threat of licensing Infraco separately, and selling directly to other service providers. However, it appears as if that option is not longer viable in terms of the licensing regime of the ECA. While Infraco may still have access to a credible threat to induce Neotel into passing on lower prices, it is not apparent what this may be.

Thirdly, Neotel is already taking longer than anticipated to provide effective competition to Telkom. The further delays introduced by the Infraco initiative have made consumers wait longer for relief from high prices.

Fourthly, the state investment in infrastructure might re-incentivise government to protect these investments from competition in order to ensure they remain viable. The recent reports that government might block new undersea cable operators (for example, EASSy and Seacom) from landing in South Africa in favour of building two of their own undersea cables seem particularly worrying. There appears to be some basis for government involvement to ensure an undersea cable consortium does not settle on creating monopoly access points to the cable. However, even if government is concerned by this issue, there seems to be no economic justification for protected government investment. This is especially true when private investment is readily forthcoming. Blocking operators from landing in South Africa is highly likely to be bad for overall competition and bad for consumers. The fact that government is considering such harsh measures gives some weight to the concerns stated above that government investment in Infraco may serve to undermine the broad policy objectives of the sector.

Recommendation: In the short term, Infraco may provide some price relief, but in the long term, its net effect is much more uncertain. The extent to which it may undermine private investment in infrastructure is particularly worrying.

EASSy

International bandwidth, which is critical for the provision of international data and voice connectivity, can be provided via either satellite or cable links. Only the west coast of Africa has cable connectivity, via the SAT-3/SAFE system. In many of the countries which access the cable, including South Africa, only one company has wholesale access to the cable infrastructure. This monopolistic provision is unsurprisingly associated with very high prices in many of these countries.

Even monopolistic access to cable is, however, arguably preferable to relying solely on satellite connections. Satellites typically can't handle the same volume of data as cable can, so they are of limited use for high bandwidth applications, like broadband service provision. When used for telephony, satellite systems introduce a substantial delay and echo to calls. Finally, international evidence suggests that satellite technology will always tend to be more expensive than cable for point-to-point applications (again, like broadband Internet connections).

Along the eastern coast of Africa, international telecoms services are dependent on satellite connectivity, as no cable investment has yet been made. This is a major inhibition to the development of the telecommunications sector in these countries. Since late 2002,[27] the process of co-ordinating such a cable investment has been under way, in the form of the Eastern Africa Submarine Cable System (EASSy) project. The cable, which is projected to run from Mthunzini in KwaZulu-Natal to Port Sudan, is a project originated and driven by regional telecoms operators and

the East African business community. For many of the countries of the east coast, this project may represent their first access to cable connectivity. For South Africa, the main impact of the project is its potential to introduce a competitor to the SAT-3 system.

Competition in international cable bandwidth is, however, not necessarily dependent on the existence of competing networks. Typically, rights to bandwidth on a cable are allocated between cable consortium members – each consortium member holds an indefeasible right of use (IRU) to a certain amount of bandwidth, which can then be on-sold to other telecoms companies. The reason SAT-3 resulted in so many regional monopolies was that only one operator per country joined the consortium, and thus only one operator per country held IRUs.

The commercial structure of the EASSy project is thus of vital concern when evaluating its likely impact on competitive conditions. If the same structure used by SAT-3 was adopted, one would expect to see the creation of a string of monopolistic markets along the east coast (and, of course, if Telkom controlled access to EASSy in the same way that it has historically controlled access to SAT-3, the maintenance of the South African monopoly). Conversely, a consortium commitment to supply excess capacity to licensed operators on request would substantially allay competition concerns.

NEPAD intervention. The NEPAD protocol process is widely viewed as driven by South African policy-makers.[28] NEPAD was initially invited to be an observer to EASSy steering committee meetings. However, over the period of negotiations, NEPAD became increasingly active in the project. In 2006, NEPAD produced a 'Protocol on policy and regulatory framework for NEPAD ICT broadband infrastructure for Eastern and Southern Africa', which has since been ratified by 12 member states, including South Africa.

The protocol introduces substantial changes to the initial structure of the project, including equal state shareholding via special-purpose vehicles, an inter-governmental regulator controlled by member states, a uniform tariff to be charged by all operators, and regulation of the rate of return on investment. In order to implement the protocol fully, the signatories will have to amend their policy and regulation to harmonise the domestic framework with the requirements of the protocol. The level of change entailed is in and of itself problematic, as it introduces delay into the implementation of the project.

The introduction of state ownership envisaged in the protocol is also of concern. Over and above the efficiency considerations discussed in Appendix 2, the manner in which state ownership has been introduced is troubling. The EASSy project was initiated by regional telecoms operators, a number of whom are privately owned. The NEPAD protocol imposes state ownership on the project in a manner which is now disputed by some of the original project participants. To the extent that the project infringes on the pre-existing commercial interests of the initiating firms, it can be regarded as a form of expropriation. Such interference with the activities of the private sector increases the uncertainty of any investment, and decreases the incentive to invest.

The protocol also allows signatory governments to exercise substantial control over the cable once it is in operation. An IGA, comprising all signatory governments, will hold a golden share in the cable's SPV structure, and will have authority to regulate the rate of return of operators, ensure operator compliance with the protocol, have oversight on policy and regulatory issues, and have the right to admit non-telecoms companies to join or invest in the SPV. In South Africa, the jurisdiction of the IGA and ICASA will overlap as regards price regulation of international bandwidth, creating further jurisdictional concerns. In addition, it is not clear that the IGA's regulatory role will be sufficiently independent from member states to ensure that political agendas do not influence its actions.

The NEPAD protocol has drawn criticism from a number of operators involved in the EASSy project.[29] A number of parties have indicated that they are in the process of pursuing alternative cable investments – as many as four additional east coast projects are currently rumoured to be in discussion (Southwood 2007). It seems likely that the ultimate outcome of the NEPAD intervention will simply have been to delay the implementation of the original project, and increase the perceived regulatory risk faced by investors in such infrastructure.

Even if no other projects come on line, however, it is still not clear that the price-regulation structure envisaged by the protocol is ultimately the best way of handling regulation of the cable. Ideally, some care should be taken to ensure that the contracts which govern the development of the cable do not prohibit more than one operator per country, or include other specifically anti-competitive clauses. Other than this, each country will retain the right to license and regulate operators in the international bandwidth market, much as South Africa is currently in the process of examining pricing in wholesale markets via ICASA. The simultaneous regional regulation envisaged by the protocol may be of use to countries with weak regulatory infrastructures, but is probably not in the interest of those with a more developed regulator, and has resulted in damaging delays for the region as a whole.

Recommendation: South Africa already has a process in place to regulate international bandwidth prices, and the NEPAD protocol is a potentially damaging addition to the existing regulatory process. The protocol should be adapted to provide greater discretion to regional operators and regulators. The principle of compulsory equal equity shares for signatory states should be abandoned, and ownership of the cable should revert to the originally proposed voluntary private participation model.

Conclusion

DESPITE A GREAT deal of activity in the telecommunications market over the past two years, we find little evidence that the pricing problem has been solved. The pricing results clearly illustrate that:

- business use of telephony in South Africa is far too expensive;
- we continue to have some of the most expensive broadband in the world; and
- Telkom's ability to charge unjustifiably high prices in international bandwidth markets remains unchanged.

The first-best solution to these problems in the medium to long term is the rapid introduction of competition on infrastructure. The licensing process currently under way is crucial in expanding the number of operators that may provide infrastructure. However, parallel initiatives in targeting infrastructure development through SOEs may undermine the process of competition and lower prices in the long term. This is especially the case if such initiatives result in constraints to the licensing of private operators that have demonstrated a willingness to invest in infrastructure.

In addition, while pockets of dominance remain, prices will not be constrained and price regulation becomes an important short-term tool to bring about lower prices. In this regard, small incremental changes to prices (eg those practised through price cap regulation) are not sufficient. Rather, a step-wise change in prices is required through cost-based price regulation. ICASA faces a major task of implementing such cost-based pricing, but has been making encouraging progress towards this end.

Appendix 1: The 2005 price benchmarking exercise

The 2005 telecoms benchmarking exercise compared South African telecoms prices to prices in a group of 14 high-performing telecoms peers. Eight members of the comparison group were developed nations while six were developing nations, as shown below.

Table 8: 2005 international comparison: countries

	PPP-adjusted GDP per capita, US$	Population size (m)	Population density per sq km	Gini coefficient
South Africa	10 000	45,3	37,1	59,3
International telecoms best practice				
Canada	29 003	31,6	3,4	33,1
Hong Kong	26 845	6,8	6 554,6	43,4
Israel	19 194	6,7	324,4	35,5
Norway	32 797	4,6	14,9	25,8
Singapore	24 389	4,3	6 967,2	42,5
Sweden	25 985	9,0	21,8	25,0
South Korea	19 497	47,9	485,3	31,6
United States	35 992	291,0	31,8	40,8
Peer group telecoms best practice				
Brazil	7 559	176,6	20,9	58,5
India	2 538	1 064,4	358,0	32,5
Malaysia	8 591	24,8	75,4	49,2
Morocco	3 844	30,1	67,5	39,5
Philippines	4 487	81,5	273,3	46,1
Thailand	6 937	62,0	121,4	43,2

Source: Genesis 2005a, 15

Prices were compared across a basket of ten data, voice, retail and business products. The results of the price comparison are summarised in Table 9 on page 53.

Table 9: Summary of 2005 benchmark findings

	Rank	Out of: (number of countries surveyed)	Number of times more expensive than the cheapest price	% greater than the average price
Business ADSL	1	15	9,3	147,7%
Domestic leased lines	1	12	14,7	101,5%
International leased lines	1	11	31,4	398,6%
Retail ADSL	1	15	8,0	139,2%
ISP fees	4	13	5,1	45,3%
Business – local calls	1	15	10,7	198,5%
Business – international calls	5	15	3,3	–13,6%
Business – mobile calls	2	15	22,7	106,8%
Retail – local calls	4	14	7,9	79,3%
Retail – mobile calls	5	15	10,7	37,2%

Source: Genesis 2005a, 29

The key differences between the 2005 benchmarking exercise and the methodology employed in the current benchmarking exercise are as follows:

- ISP fees: the 2007 comparison does not cover ISP fees. The retail market is increasingly switching towards broadband and away from dial-up Internet, making ISP fees on dial-up less relevant as a price indicator. In addition, in the 2005 research it was found that wholesale data products, and in particular international bandwidth fees, are a major driver of ISP fees. As these wholesale data costs are covered in the 2007 comparison, it was felt that ISP fees could be safely excluded.
- Changes to the international comparison group: the relative telecoms performance of the comparison group would have changed over time. In order to ensure that the comparison group remained high-performing, telecoms performance was re-evaluated, resulting in a slightly different group of countries being chosen. The mix of developed and developing countries was, however, maintained.
- Basket methodology: in 2005, straight comparisons of representative fees were used. For example, for fixed business voice, the peak calling rate in a representative voice package in each country was compared. In 2007, we have instead employed OECD basket methodologies to compare the overall structure of all call fees in a package. This is a more sophisticated methodology, which increases the rigour of the pricing results.
- Changes to product specifications: the primary change was to alter the business broadband product to a 1mbps product, instead of the 512kbps product examined in 2005.

These changes have been undertaken to ensure that the quality of the price comparison remains high. The 2005 and 2007 comparisons remain similar enough for the later survey to constitute an update on the earlier survey.

Appendix 2: Efficiency in state-owned enterprises

The issue of whether developmental states should play a larger role in economic growth is of some importance to the current South African policy debate. The use of SOEs as instruments of economic and social policy is of particular importance. Although this use probably does extend the economic power of the state, it also carries substantial costs for economic growth, as the SOE sector is likely to be systematically less efficient than the private sector.

The difference between efficiency levels in state and private-sector firms arises from a number of factors, as follows:

- Conflicting objectives: while private-sector firms are usually only required to maximise profits, SOEs are typically asked to maximise a range of potentially conflicting social and business objectives. This substantially complicates the SOE manager's job, and if no guidance is given on how to reconcile conflicting objectives, effective decision-making may be extremely difficult.
- Changing objectives: as political opinions change, the instructions an SOE manager receives will often also change. Such changes are frequently disruptive to internal business efficiency.
- Double agency problem: many businesses are not managed by their owners. In such businesses, the owner must find ways of ensuring that the manager (that is, the agent) acts in ways that are consistent with the owner's interests, rather than, for example, the agent's preference for an easy life. In publicly owned firms, the agency problem is doubled: the owner is the taxpayer, whose interests are represented by government, which then appoints management. Because the relationships between the owner/principal and management/agent are much more complex and indirect in the SOE environment, there is much more potential for a breakdown of the owner's ability to control management.
- An implicit state guarantee: the ultimate commercial discipline for private firms is the threat of bankruptcy. However, in public firms, managers may believe that the firm has an implicit guarantee from the state, and would be bailed out by the taxpayer in the case of an emergency. This reduces efficiency incentives.

In essence, it is very difficult to provide a rigorous incentive structure for managers at SOEs. Faced with a wide range of conflicting and rapidly changing objectives, and with little likelihood of being effectively disciplined by either owners or the market, SOEs often choose a path of passive resistance. At worst, they may choose simply to serve the interests of their employees.

It should also be borne in mind that state investment can 'crowd out' private-sector investment. If the private sector is willing to invest, and the state chooses to invest instead, a potentially efficient private investment is crowded out by a probably inefficient public investment. Finally, state investment is unlikely to be competitively neutral. For example, the implicit state guarantee discussed above can make funding systematically cheaper for the SOE than for a risky private firm, thus conferring a form of competitive advantage. The SOE may also have an advantage when bidding for state tenders, or when negotiating with the regulator. This competitive advantage may further increase the tendency of the SOE to crowd out private operators, despite the high probability of low efficiency at the SOE.

Appendix 3: 2007 benchmark selection exercise

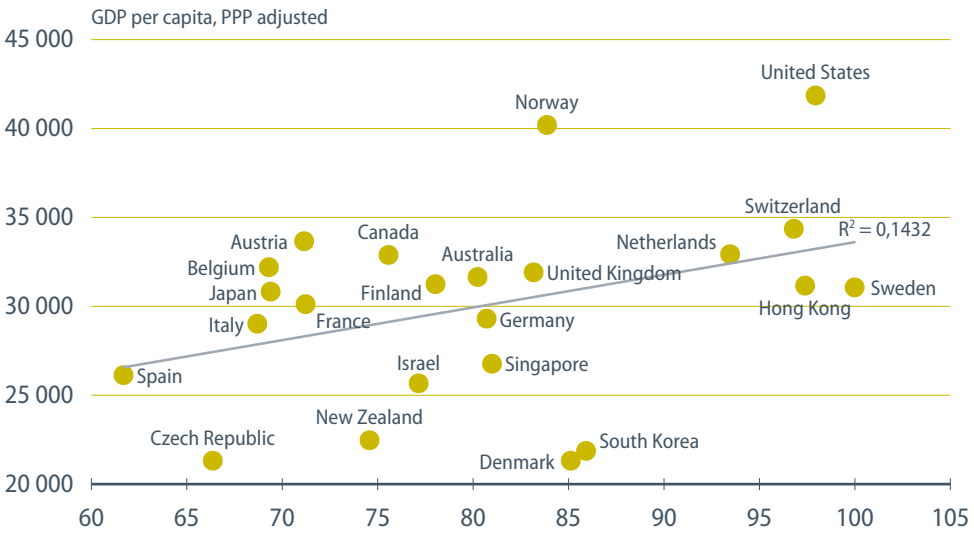
The methodology used to construct a telecoms competitiveness index in the 2005 report was again employed in the 2007 exercise. The following eight factors were used to construct the index:

- total investment in information and communications technology, expressed as a percentage of GDP (three-year average);
- the number of fixed telephone lines per 100 inhabitants;
- the cost in US$ of a three-minute phone call to the United States in peak hours (for the United States itself, the cost of the same call to the EU was used);
- the number of mobile telephone subscribers per 100 inhabitants;
- the cost in US$ of a three-minute mobile phone call in peak hours;
- the number of Internet users per 100 people;
- the cost of 20 hours of dial-up Internet use per month, in US$; and
- the number of broadband subscribers per 100 inhabitants.

Each factor was given equal weight in the index, which was constructed for a random sample of 48 countries. The index was constructed in such a way that the most competitive telecoms country would receive a score of 100, with all scores between 0 and 100.

The 23 countries with the highest index scores are shown in Figure 11 below, which plots telecoms competitiveness against GDP per capita (adjusted to achieve PPP). As can be seen, there is little relationship between income and telecoms performance at these very high performance levels. For the international best practice group, we selected eight countries that achieved very high index scores (and thus are clustered on the right-hand side of the graph), namely Australia, Denmark, Hong Kong, the Netherlands, South Korea, Sweden, the United Kingdom and the United States.

Figure 11: Telecommunications competitiveness index versus PPP-adjusted GDP per capita – scores above 60

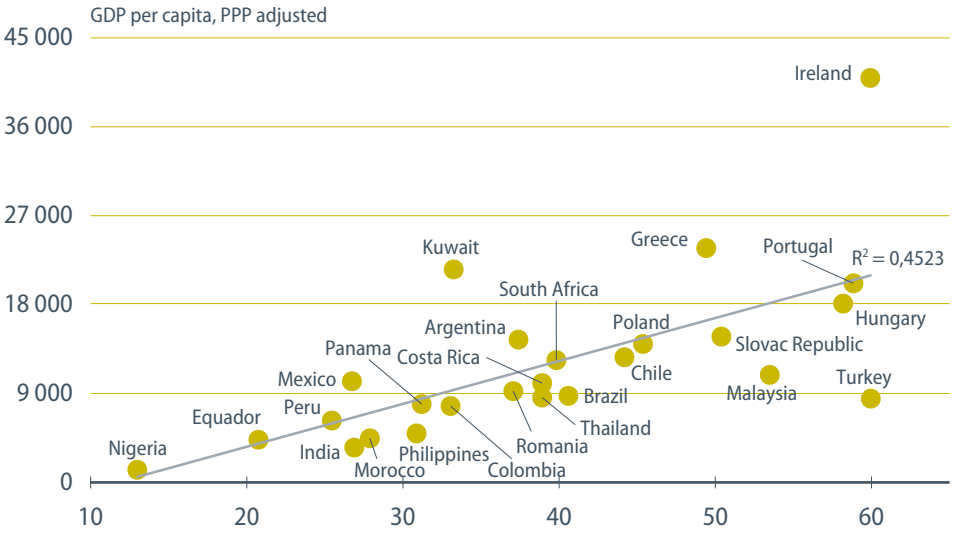


Sources: ITU 2006 yearbook of statistics; company and regulator websites. Calculations by Genesis.

At lower-income per capita levels and index scores, income per capita becomes a strong determinant of telecoms performance. As shown in Figure 12 below, which covers the 25 countries with an index score of 25 and below, GDP per capita predicts almost half of total index performance. South Africa's index score places it on the trend-line – in other words, for the comparison group, its telecoms performance as compared to its per capita income is exactly average.

Countries which are above the trend-line have a lower telecoms index performance than would on average be expected for their level of income per capita, while the situation is reversed for countries below the line. In 2005, South Africa was well above the line, so its current index score is an improvement on its index score in 2005. Well-selecting countries that sit below the line have been chosen for the benchmark comparison group. The six comparators chosen are thus Brazil, India, Malaysia, Morocco, Thailand, and Turkey.

Figure 12: Telecommunications competitiveness index versus PPP-adjusted GDP per capita – scores of 60 and below



Sources: ITU 2006 yearbook of statistics; company and regulator websites. Calculations by Genesis.

Appendix 4: Exchange rates and PPP factors

Table 10: Exchange rates and PPP adjustment factors

	US$ exchange rate, average for the year ended 31 March 2007	PPP adjustment factor
Australia	1,31	1,48
Brazil	2,16	1,24
Denmark	5,82	8,43
Hong Kong, China	7,78	5,71
India	45,25	9,44
Malaysia	3,62	1,80
Morocco	8,75	3,33
Netherlands	0,78	0,94
South Africa	7,06	2,92
Korea, Rep	960,33	758,20
Sweden	7,19	9,11
Thailand	36,71	12,75
Turkey	1,46	0,80
United Kingdom	0,53	0,60
United States	1,00	1,00

Sources: Oanda.com (downloaded 18 May 2007) and World Bank databases

Endnotes

1 The Gini coefficient gives a point estimate of income inequality. The closer the coefficient is to 100, the more unequally income is distributed in the country concerned.

2 From http://www.eassy.org/aboutus.html, accessed 10 July 2007.

3 See, for example, Gedye 2007.

4 See, for example, Kirui 2007. Sammy Kirui is the chairman of EASSY PMC.

5 Adapted from http://www.info.gov.za/asgisa/asgisa.htm#constraints, accessed 4 July 2007.

6 See endnote 1.

7 Formally, the Telkom BusinessDSL 1024 package has a speed of 1mbps. However, it was introduced on a speed of 4mbps, during an initial trial period. In the 2007 tariff review, Telkom describes this product as 'DSL 4Mbps Access' – there is thus possibly some uncertainty as to the future speed of this product.

8 As discussed under *Selecting the comparison group* on page 19, PPP adjustments allow an evaluation of the relative affordability of the products shown.

9 The basis for the methodology used is laid out in the 2006 Teligen report, 'Revised OECD price benchmarking baskets 2006', which is available from http://www.teligen.com/t_basket.asp. Basket methodology allows all the components of the cost of telephony to be assessed. Assumptions on behaviour patterns of the typical consumer are generated, so that the cost of a bundle of calls, SMSs, and subscription charges can be evaluated.

10 Genesis Analytics has provided research and regulatory recommendations to ICASA on a commercial basis on a number of occasions, and may bid on such work in future. For example, Genesis was involved in preparing the discussion document on wholesale telecommunications markets which is discussed under *Unbundle Telkom's local loop* on page 33.

11 The local loop is the physical connection (copper wire) that connects homes and businesses with the local telephone exchange. The local loop provides the direct link between a telecommunications provider and its clients.

12 Carrier pre-selection allows customers to choose which service providers they want to use for voice or data services. The provision of these services is thus not linked to ownership of the local loop.

13 Executive summary of the report available at http://www.engineeringnews.co.za/attachment.php?aa_id=5236. Full report not available in electronic format at time of writing.

14 Self-provision would allow VANS providers to procure telecommunications infrastructure from any suppler of such facilities (including themselves).

15 The ministerial determination stated that 'as of 1 February 2005 value added network services may also be provided by means of telecommunications facilities other than those provided by Telkom and the Second National Operator or any of them'. The full text of the ICASA statement can be found at http://www.Internet.org.za/icasa-media-22112004.html.

16 The statement is available at http://www.doc.gov.za/Media_Icasa_smnt_310105.htm.

17 At http://www.usaasa.org.za/docs/gen/USA%20Impact%20Study%20Report%202005-6.pdf.

18 At http://www.usaasa.org.za/docs/gen/Lisa%20Thornton%20Final%20Report.pdf.

19 http://www.telkom.co.za/athome/services/supremecall/index.html#costs as at 5 June 2007.

20 At http://dave.storm.co.za/files/Gazette_1-29568%2029-1%20ICASA.pdf.

21 Retail minus x regulation is suggested as the preferred form of price regulation for wholesale end-to-end leased lines, as an exception to the preferred LRIC methodology.

22 Calculated based on the forward-looking economic cost to an efficient provider, and including a realistic cost of capital. Typically pronounced as 'lyric'.

23 Contained in Government Gazette 29923, 25 May 2007, at http://www.doc.gov.za/images/Proposed_Policies_and_Policy_Directions%20ito_the_ECA.pdf.

24 ICASA fee revenues and post-office licence-fee revenues are described as comprising the bulk of the 'Sales of goods and services produced by department' line item in the DOC's departmental receipts.

25 2007 estimates of national expenditure, 519.

26 Infraco still needs to resolve licensing issues before going into operation. If an acceptable means of expediting licensing is not found, the Infraco process could be substantially delayed, which would decrease its short-term benefits to the market.

27 From http://www.eassy.org/aboutus.html, accessed 10 July 2007.

28 See, for example, Gedye 2007.

29 See, for example, Kirui 2007.

References

Barradas S. 2007. Infraco – government broadband network operator. *Creamer Media's Engineering News*. 18 May. At http://www.engineeringnews.co.za/article.php?a_id=109156.

Business Day. 2007. The last mile. 29 May.

Ensor L, McLachlan T, and Mawson N. 2007. Minister adds four years to Telkom's monopoly. *Business Day*. 25 May. At http://www.businessday.co.za/articles/topstories.aspx?ID=BD4A473283.

Esselaar S, Gillwald A, and Stork C. 2006. South African telecommunications sector performance review 2006. LINK Centre public policy research paper 8.

Financial Mail. 2007. Two steps forward. June 1.

Gedye L. 2006. Telkom packages 'rip off the poor'. *Mail & Guardian*. 31 July. At http://www.mg.co.za/personalfinance/articlePage.aspx?articleid=279295&area=/personal_finance/pers_fin_comments/.

– 2007. No easy walk to cable freedom. *Mail and Guardian*. 23 July.

Genesis Analytics. 2005a. Telecommunications prices in South Africa: an international peer group comparison. South Africa Foundation occasional paper 1 of 2005.

– 2005b. Reforming telecommunications in South Africa: twelve proposals for lowering costs and improving access. South Africa Foundation occasional paper 2 of 2005.

Internet Service Providers Association (ISPA). 2007. ISPA reacts angrily to minister's claims. ISPA press release. 22 February. At http://www.ispa.org.za/news/press220207.shtml.

Kirui S. 2007. EASSy parties position regarding the NEPAD protocol on broadband infrastructure. EASSy collective position draft 3(a). 15 March.

Matsepe-Casaburri I. 2007. Minister of Communications, budget vote speech. 24 May. At http://www.pmg.org.za/briefings/briefings.php?id=342.

Olivier M. 2007. Local loop unbundling should begin early next year – committee chair. *Creamer Media's Engineering News*. 25 May 2007. At http://www.engineeringnews.co.za/article.php?a_id=109845. Accessed May 2007.

Pressly D. 2007. State company could cut broadband prices sharply. *Mail & Guardian*. 16 May. At http://www.mg.co.za/articlepage.aspx?area=/breaking_news/breaking_news__business/&articleid=308610.

Southwood R. 2007. Outsider east coast fibre project comes in from the cold – Seacom goes public. *Balancing Act* 349. April.

Sukazi N. 2002. Icasa chief ushers in new age of openness. *Business Report*. 8 May. At http://www.busrep.co.za/index.php?fSectionId=650&fArticleId=117662.

Sunday Times. 2007a. Telkom not the only option in 2008. 25 May. At http://www.sundaytimes.co.za/News/Article.aspx?id=473785.

– 2007b. Broadband prices to be slashed 65%. 19 August.

Teligen. 2006. Revised OECD price benchmarking baskets 2006. Provisional definitions document. February. At http://www.teligen.com/t_basket.asp.

Vecchiatto P. 2007. No monopoly extension for Telkom. *ITWEB*. 25 May. At http://www.itweb.co.za/sections/telecoms/2007/0705251100.asp?S=IT%20in%20Government&A=ITG&O=FRGN.

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