



Avoiding evidence-based policy: Broadband development in South Africa

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*Alternatives for Broadband Infrastructure and Access Development
Brasilia, 16 November 2009*



research**ICT**africa.net



Research ICT Africa

- Network of researchers conducting ICT policy and regulatory research in 20 African countries across the continent in the absence of data and analysis required for evidence based policy
- Policy research based on series of supply and demand side research undertaken by 20 country African research network which is triangulated with a telecommunications regulatory environment survey



South Africa – Brazil indicators

South Africa	South Africa	Brazil	
Population	49,052,489	198,739,269	<u>2009 est, CIA world Factbook</u>
Land mass	1,219,090 sq km	8,514,877 sq km	CIA
GDP per capita (PPP)	US\$ 9,757	US\$ 9,567	2007, UNDP HDI
Gini- coefficient	57.8	55.0	WB 2009
Urbanisation	61%	86%	2008, CIA
Literacy	86.4% (2003)	88.6% (2004)	CIA
Internet users per 100 people (2007)	8.2	26.1	WEF World Information Technology Report
Internet bandwidth (Mb/s) per 10,000 population	1.5 (2008)	0.7 (2007)	

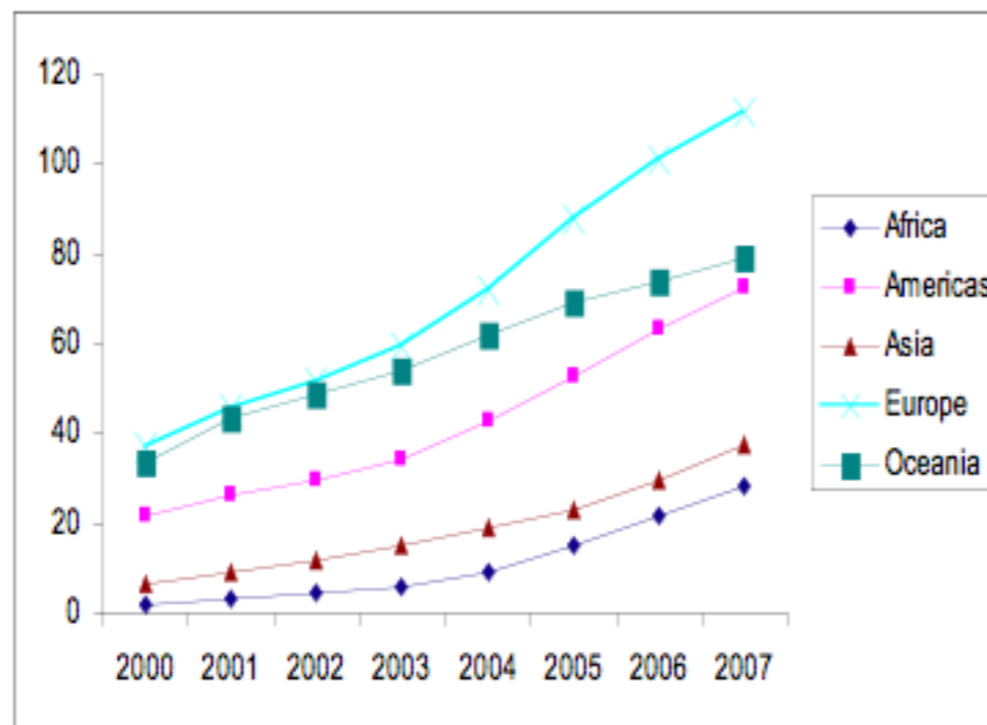




Average retail price for basic broadband in Sub-Saharan Africa \$366 p/m vs. \$40 in Europe (and India)

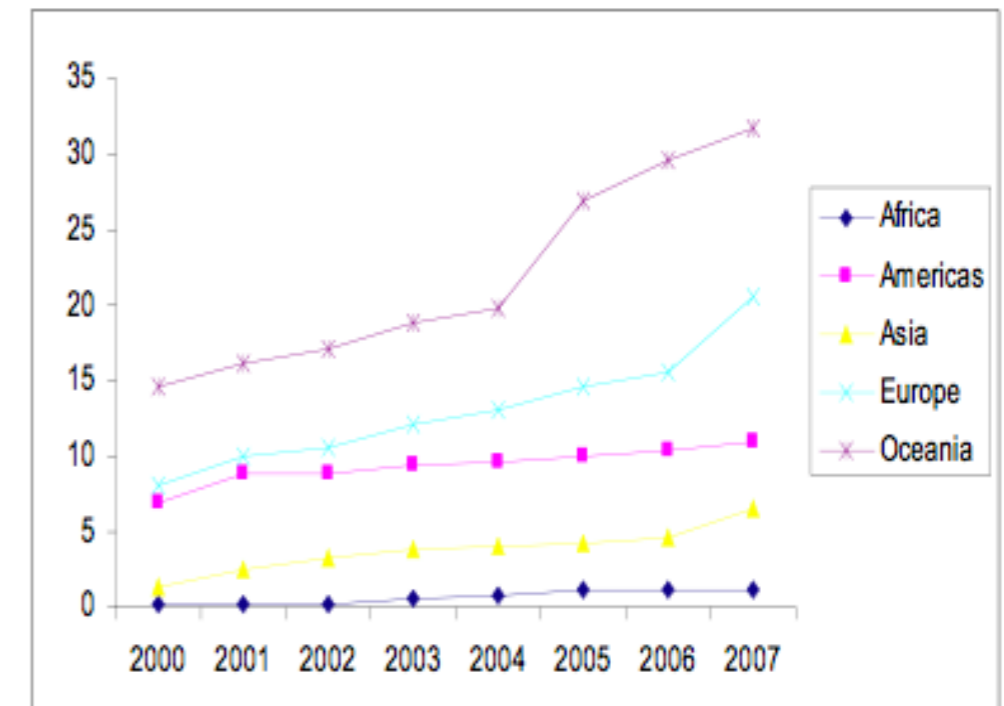
(Mark Williams (2008) Broadband for Africa, infoDev)

Mobile penetration per region



Source: ITU (2009) Mariscal lecture UCT GSB

Internet penetration per region

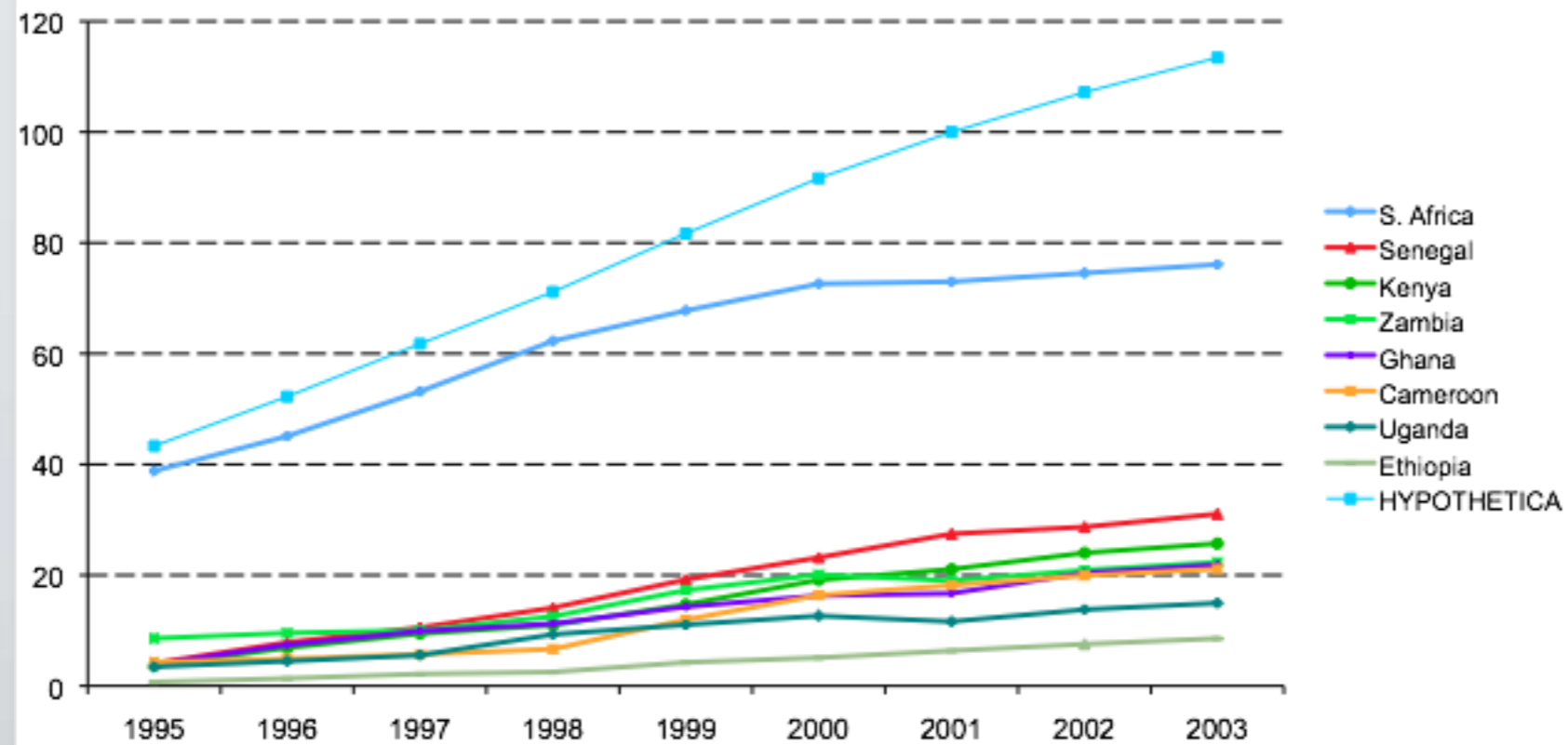


Source: ITU (2009) Mariscal lecture UCT GSB





South Africa, way ahead of sub-Saharan Africa, but way behind global average and flattening out...

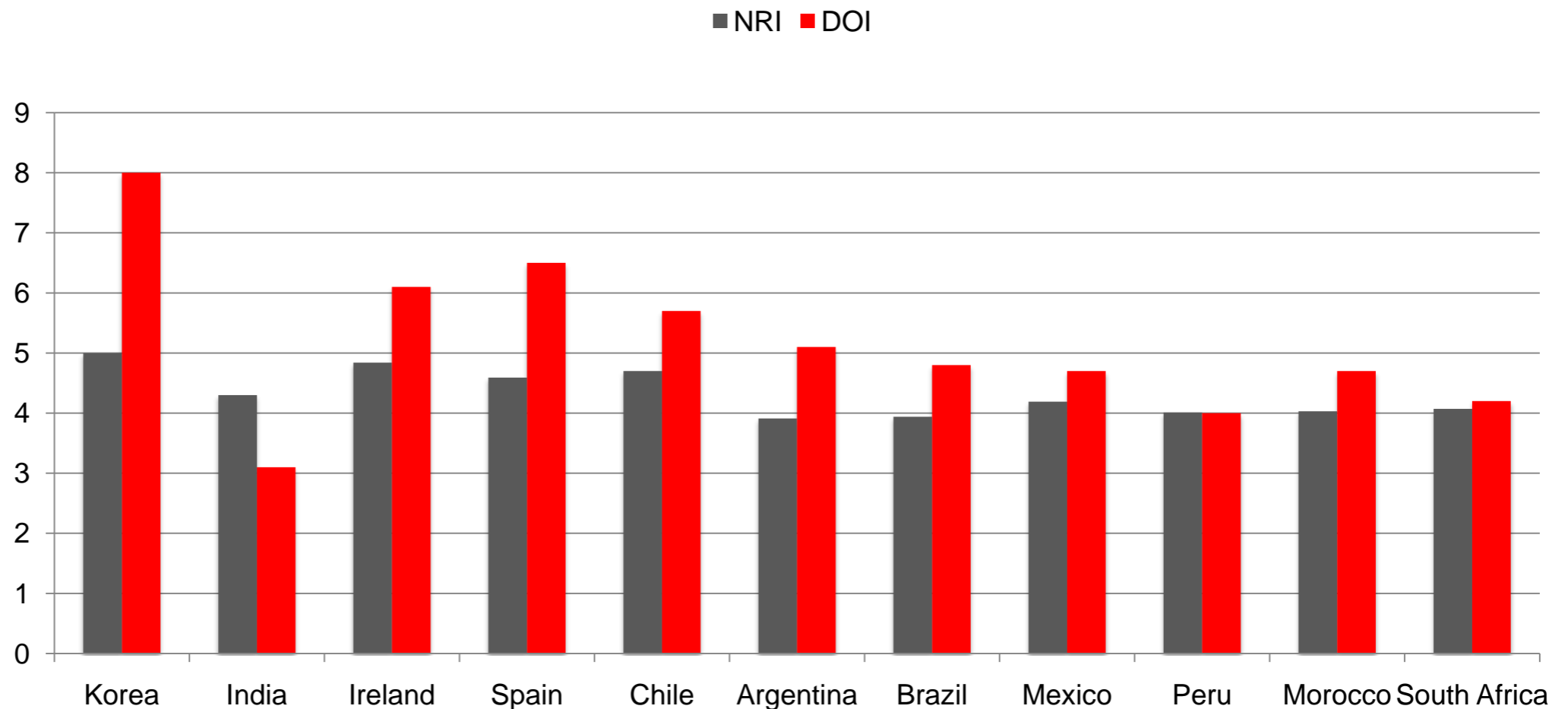


Source: Orbicom Infostates 2005



South Africa lags other developing and emerging economies in terms of ICT adoption: Network Readiness Index (NRI) and Digital Opportunities Index (DOI).

	WEF Networked Readiness Index				WEF Global Competitiveness Report		Digital Opportunity Index		
	2006-2007	2007-2008	2008-2009		2008-2009		2005/2006		
	Rank		Score		Rank	Score	Rank	Score	
Brazil	53 / 122	59 / 127	59 / 134		3.94	56 / 133	4.23	65/181	0.48
South Africa	47 / 122	51 / 127	52 / 134		4.07	45 / 133	4.34	86/181	0.42





Early starters in policy reform (1995) seen few of the anticipated benefits

- ❑ 1994- First democratic elections (Monopoly operator and 2 new GSM licensees)
- ❑ 1995 - White Paper on Telecommunications (facilities vs. service based competition)
- ❑ 1996 - Telecommunications Act (est. of regulator and create conditions for privatisation of incumbent, and further mobile liberalisation, liberalised ISP/VANS market, but must use Telkom facilities)
- ❑ 2000 - ICASA Act - creation of joint telecom + broadcasting regulator
- ❑ 2001 - Telecommunications Amendment Act (SNO + feasibility of further mobile competition - 4th operator)
- ❑ 2002- Electronic Communications & Transaction Act
- ❑ 2005 - Electronic Communications Act (convergence - effective 2006)
- ❑ 2007 - Infraco Act (state owned broadband company)





South African telecom reform characterised by an absence of evidence based policy, resulting in by policy and institutional failure, particularly regulatory failure, a poorly structured, uncompetitive market and as a result poor access other than mobile, and high costs across all services

operators		Subscribers
Fixed	Telkom (1996) Neotel (2005)	Telkom 4.5m Neotel 30,000
Mobile	MTN/ Vodacom (1993) Cell C (2003)	Vodacom 40 00 000 MTN 30 000 000 Cell C 7 00 000 Claim 100 % penetration – household survey rural penetration less than 30%
VANS	200 (Voice & self provide since 2008)	
Undersea cable	SAT 3, Seacom (2009)	





- ❖ Despite horizontal licensing regime, operators remain vertically integrated with same patterns of dominance
- ❖ Anti-competitive incentives in market remain requiring constant adjustment by regulator
- ❖ Regulator largely ineffectual due to constraints on authority and lack of competencies.

	ECNS	ECS	Broadcasting Services
Individual	Individual ECNS Licence (for profit; national and provincial; state owns 25%+)	Individual ECS Licence (voice telephony using numbers from ICASA; state owns 25%+)	Individual Broadcasting Services Licence (commercial or public; national and provincial; state owns 25%+)
Class	Class ECNS Licence (for profit municipal, but not where state owns 25%+)	Class ECS Licence (data services, voice telephony not using numbers from ICASA)	Class Broadcasting Services Licence (community and low power)
Exempt	Provider of ECNS exempt from licensing (small ECNs such as local area networks, PTNs)	Provider of ECS exempt from licensing (non-profit, resale)	





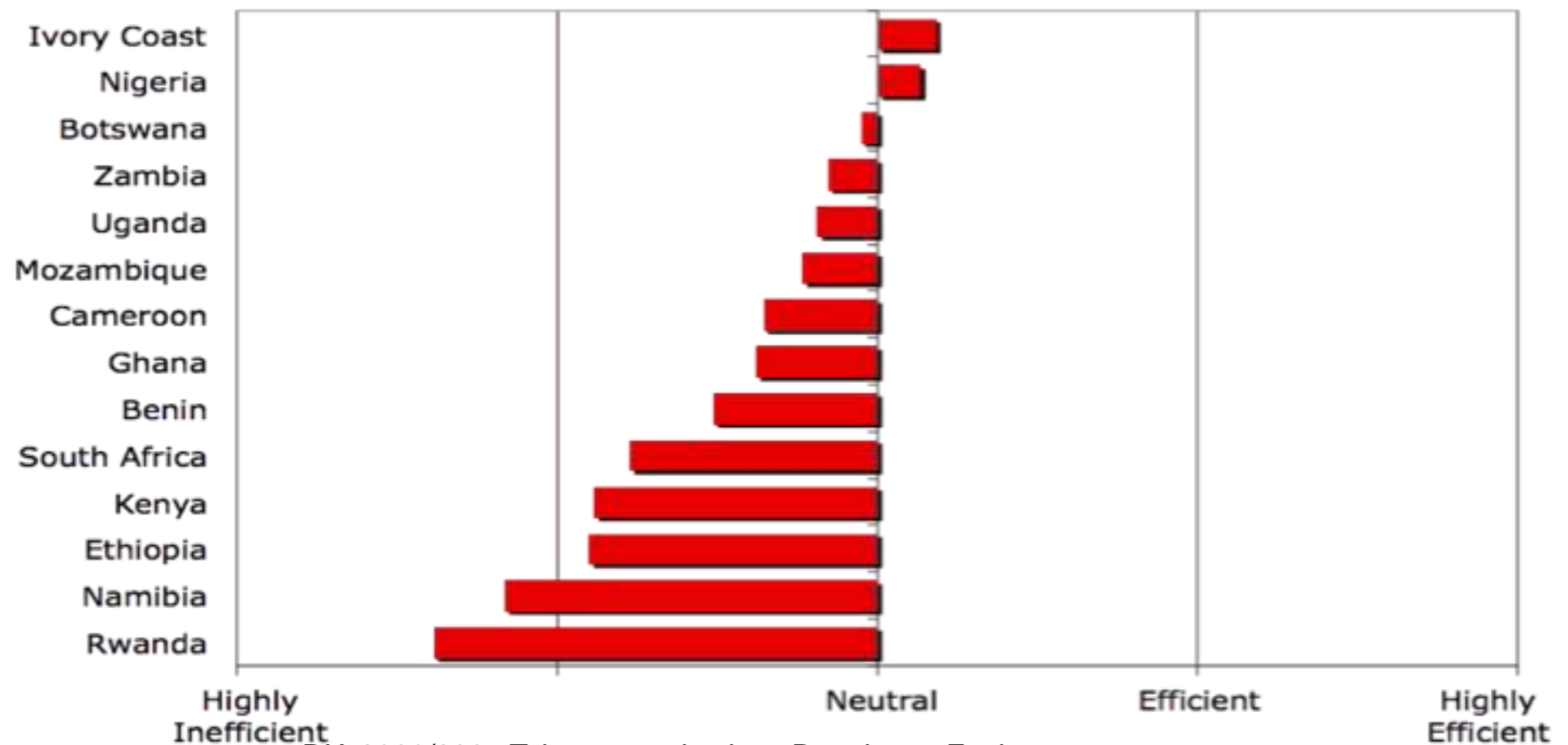
Access regulation

- ❑ Resource intensive access & competition regulation
- ❑ Human capability and institutional capacity constraint
- ❑ Independence and accountability compromised by institutional arrangements
- ❑ Information asymmetries
- ❑ Backlash against incompetence of regulator without acknowledgement of linkages
- ❑ All hinder the successful implementation of any broadband strategy



Telecommunications regulatory environment survey (2006/7)

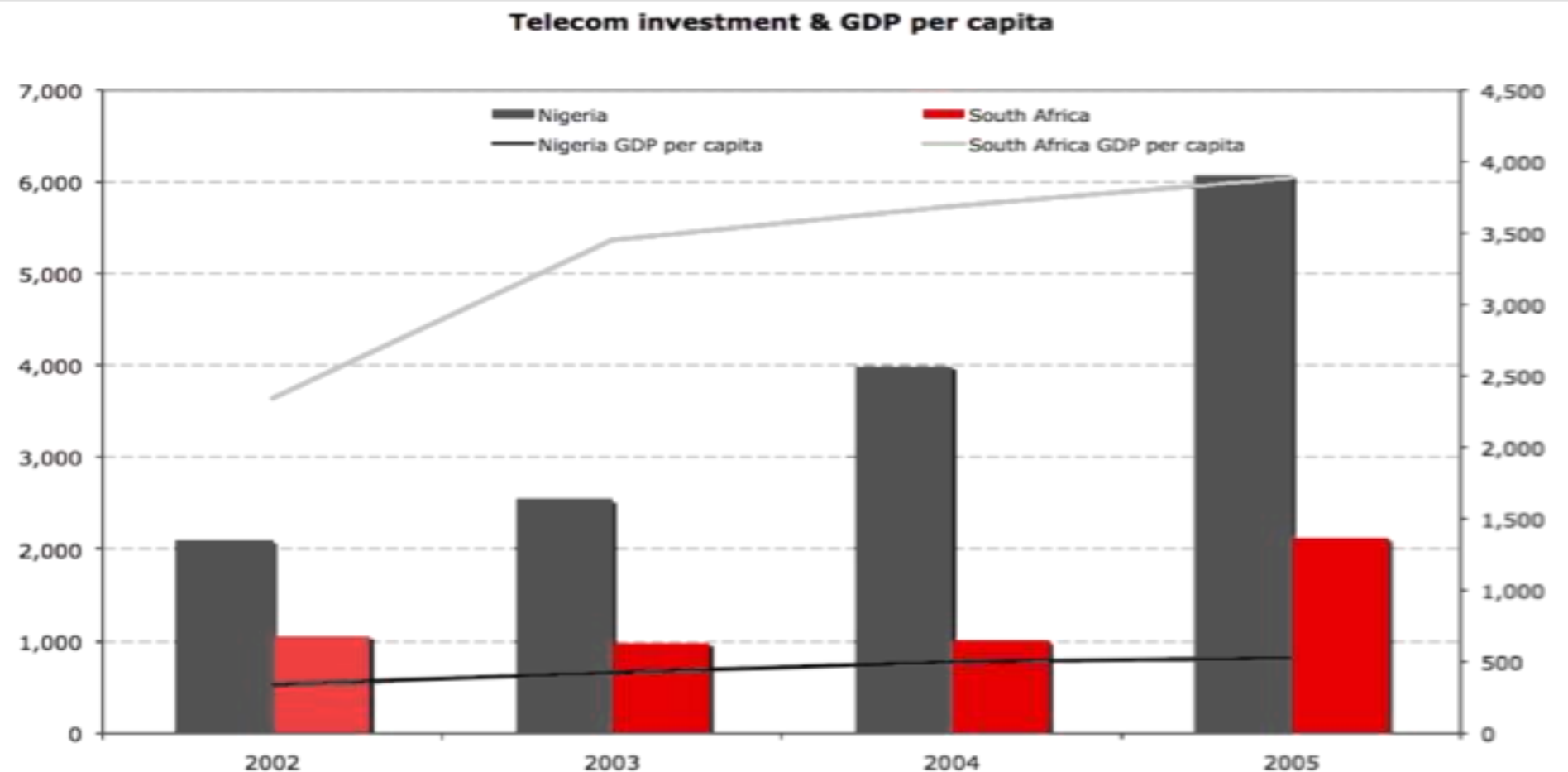
TRE Scores: Average scores across all categories



RIA 2006/2007 Telecommunications Regulatory Environment survey



With negative outcomes for sector investment: FDI in telecom in Nigeria vs. South Africa.





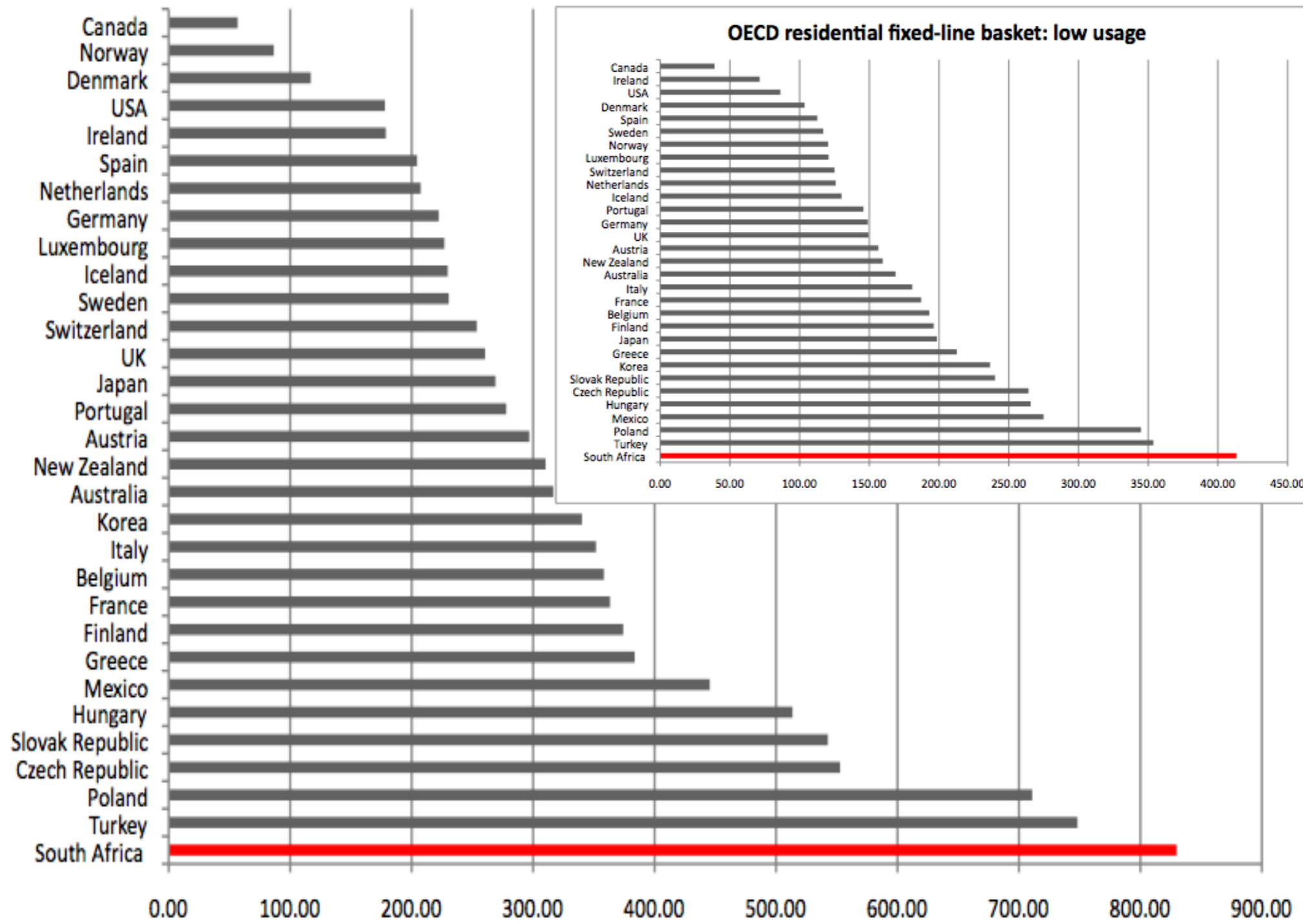
Market performance as policy outcomes

- ❑ Inefficient and expensive – few consumer welfare gains
- ❑ Lack of access to full range of service
- ❑ High cost of services
- ❑ High input cost to business – discouraged BPO
- ❑ Not globally competitive
- ❑ Delayed LLU – no effective competition in local loop
- ❑ Until recently exclusive submarine cable
- ❑ Lagging on global performance indices





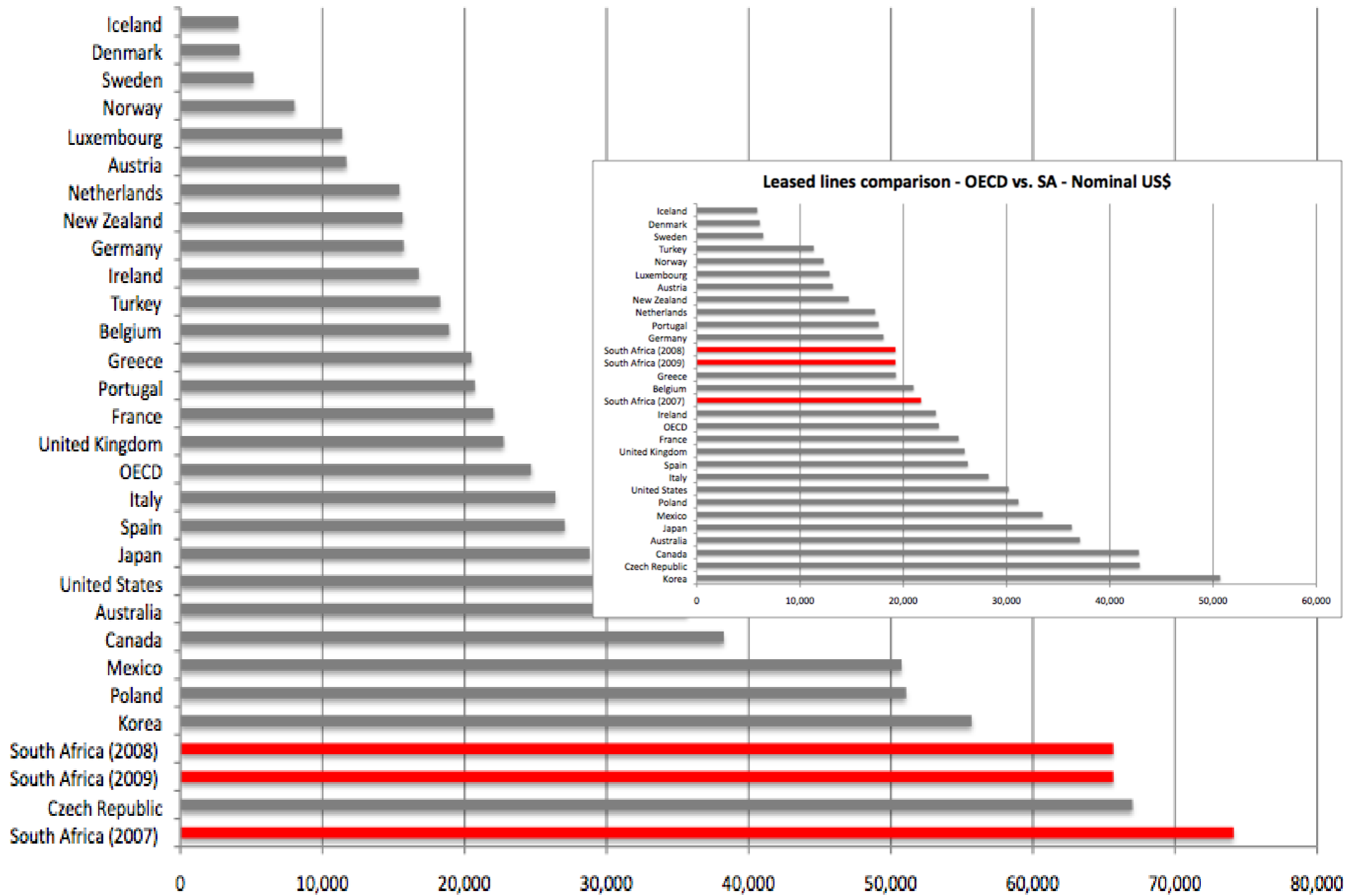
OECD residential fixed-line basket: medium usage



Source: SA Communications Sector Performance Review, 2009



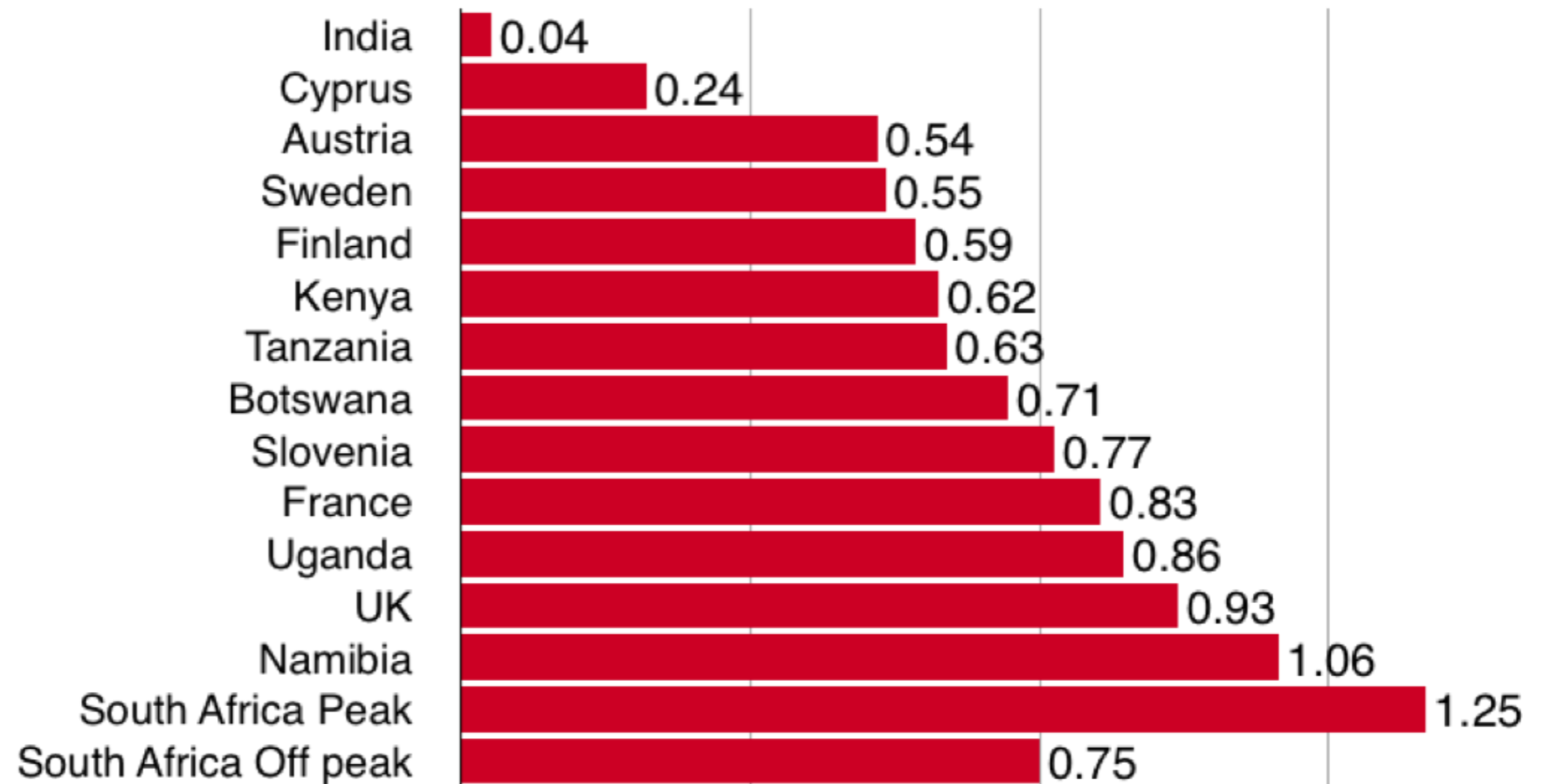
Leased line comparison - South Africa vs. OECD - PPP(US\$)



Source: SA Communications Sector Performance Review, 2009

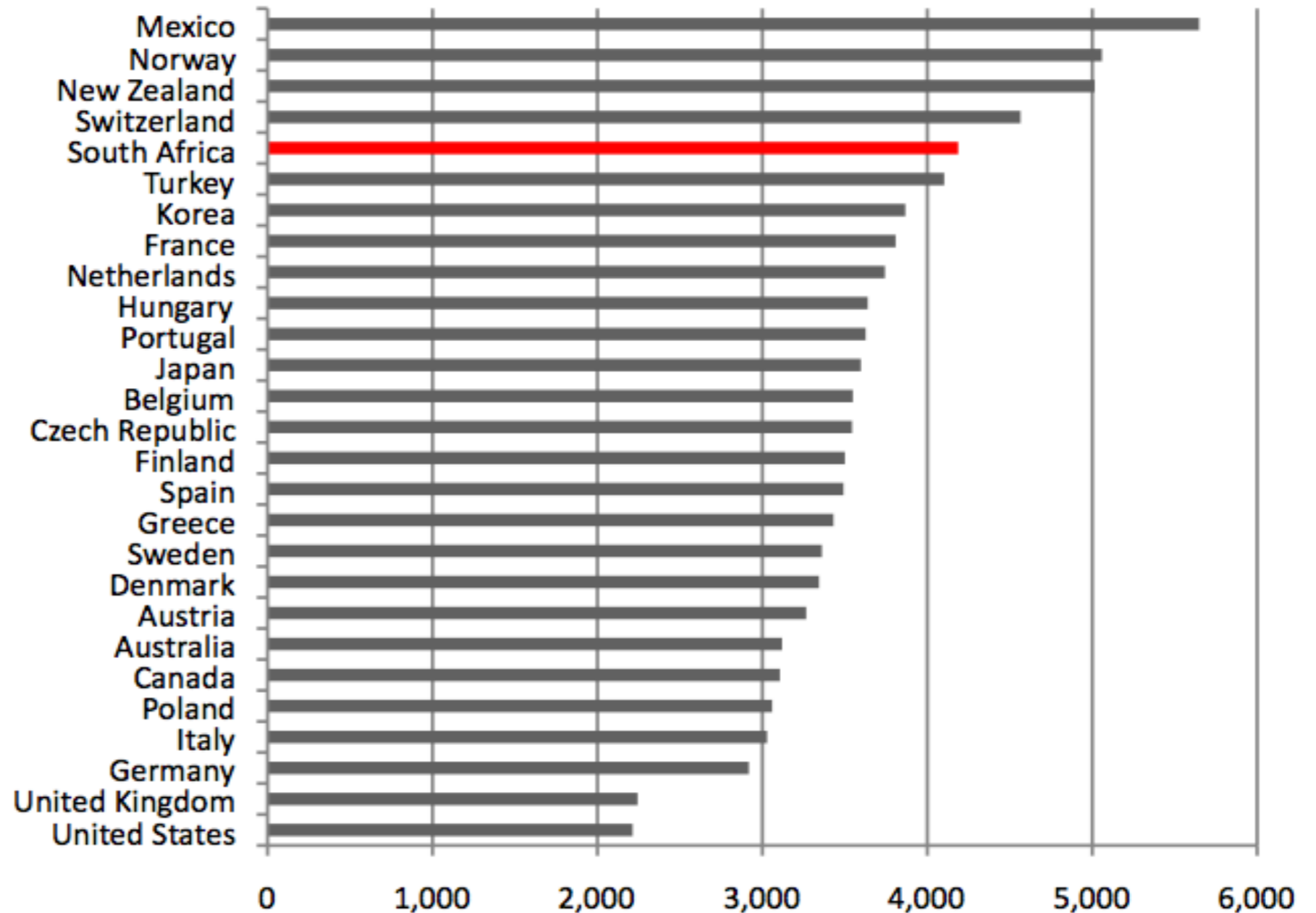


Termination Rates April 2009 MTR N\$





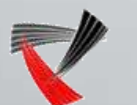
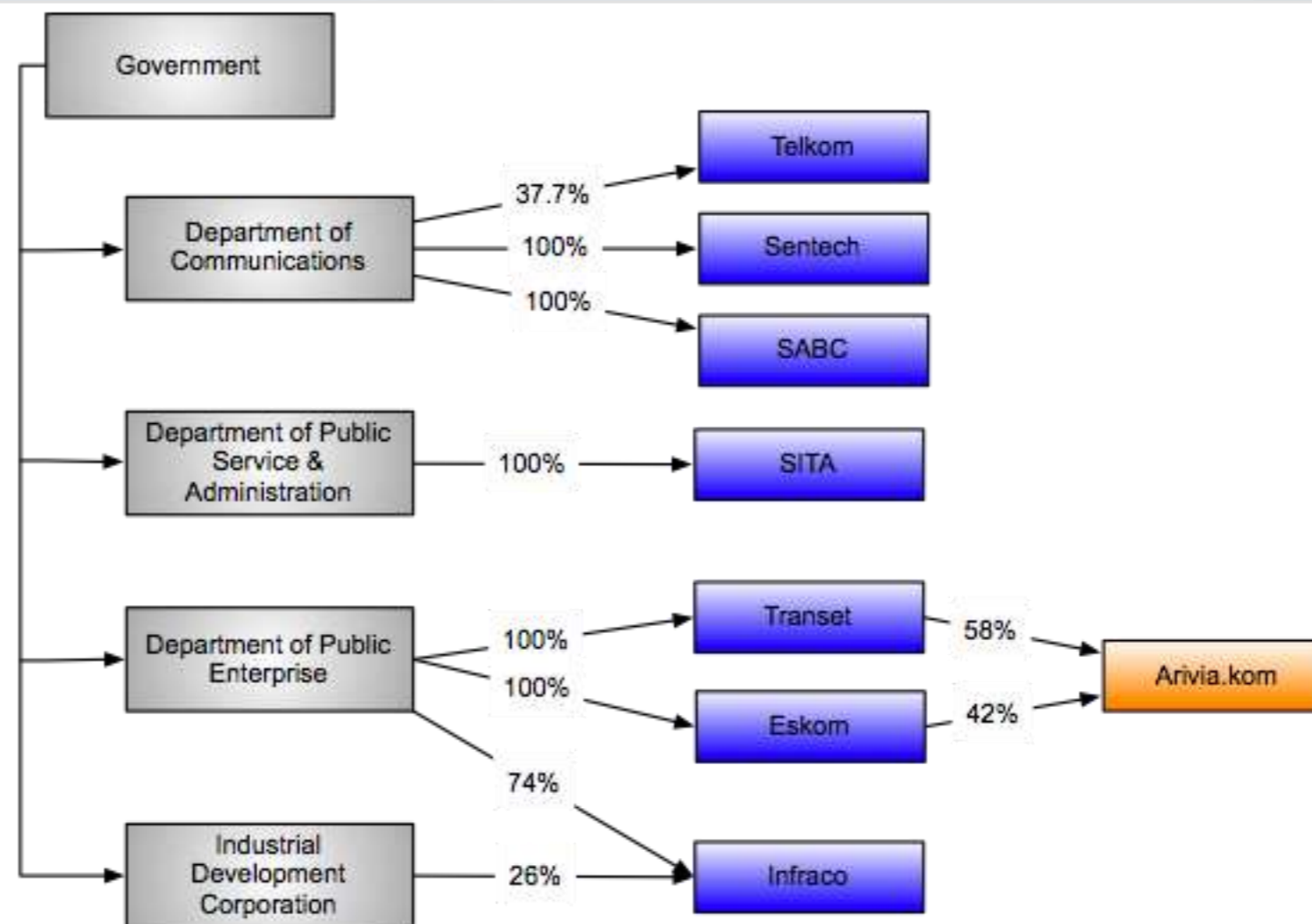
OECD HHI Scores 2008



Source: RIA SA Communications Sector Performance Review 2009



In context of development state, state's response creation state broadband company, concentrating state ownership in sector... with companies generally underperforming



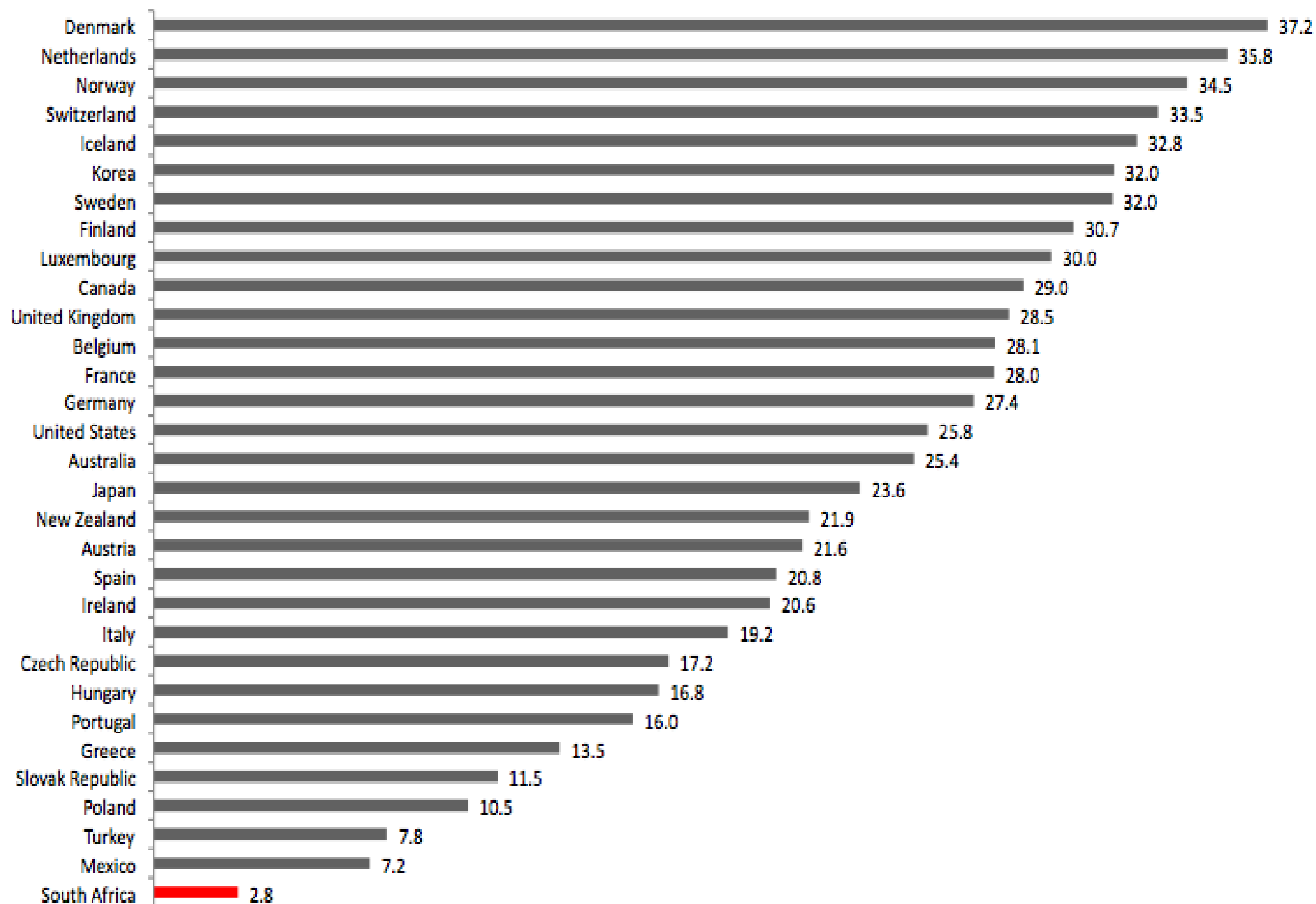


Phase 1 broadband strategy part of 'managed liberalisation'

- **Monopoly incumbent privatised 1997 – 2003**
 - Optimisation of state assets – conflict of interests
 - With threat of competition Telkom introduce delayed ADSL services
 - Fibre optic backbone – investment of roughly 20% of revenues on NGN
- **Second Network Operator (Neotel)**
 - Compulsory set aside bidding/licensing partners – Power/Transport communication network – Esitel and Transnet
 - Neotel – 2008 R250 million (\$25m) in fixed wireless technology (six million people in its coverage area in major urban areas)
 - R 4.4 billion as part of total financing of R7.5 billion (restructured)



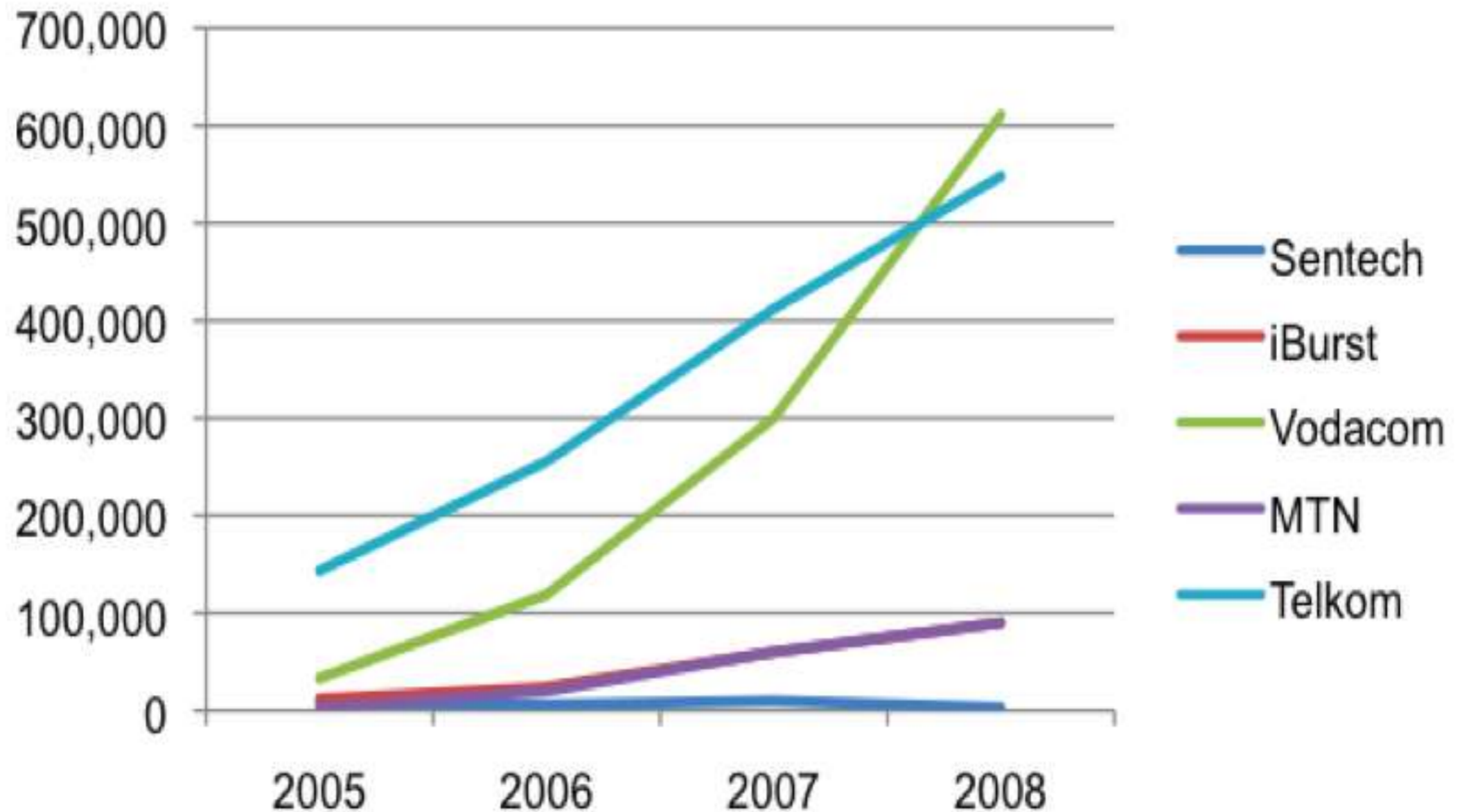
Broadband subscribers per 100 inhabitants, 2008



Source: SA ICT Sector Performance Review, 2009

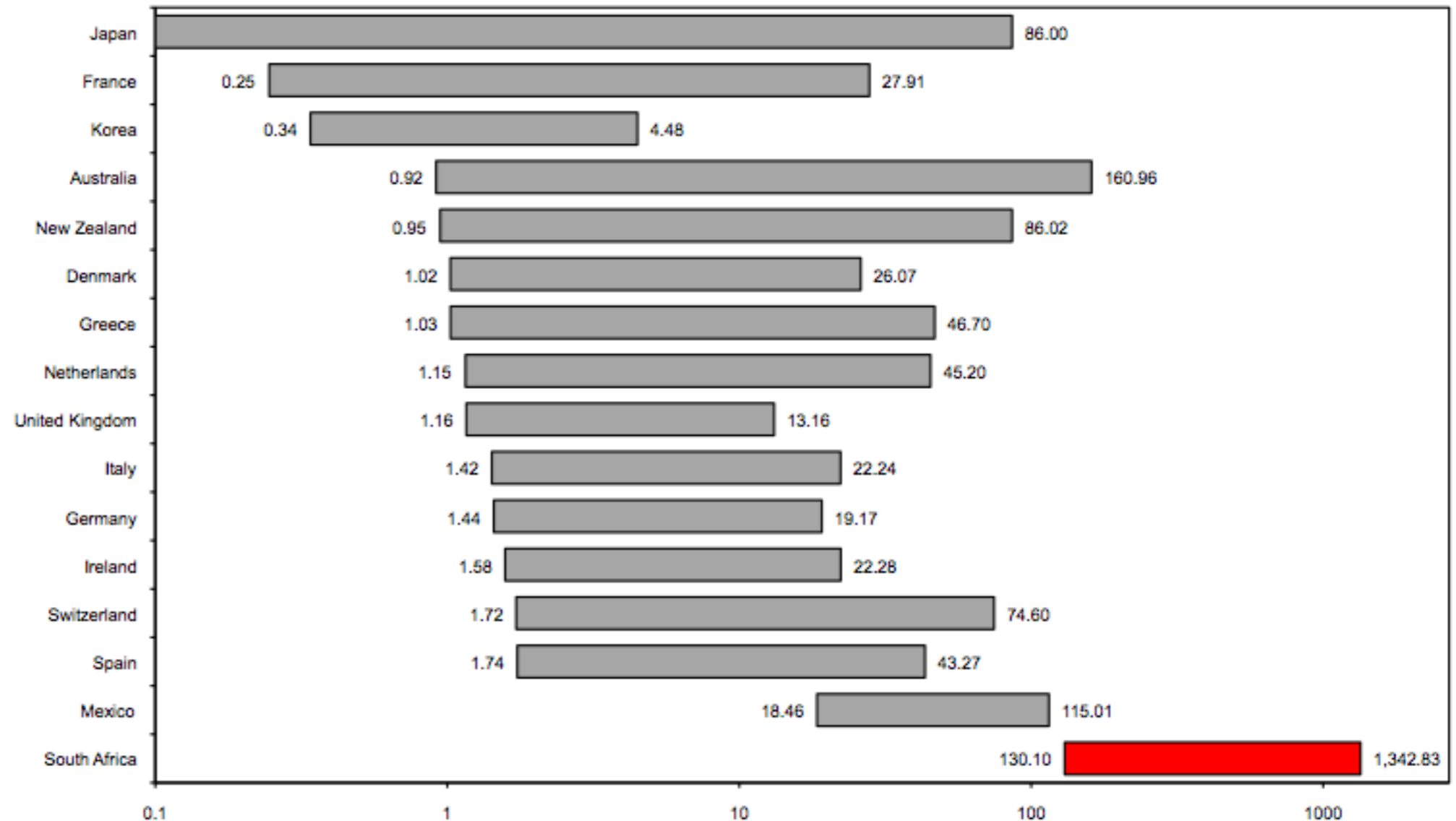


DSL and Wireless Broadband Subscribers 2005-2008





Range of OECD broadband (Sep 2008) and SA ADSL prices (Aug 2009) per megabits per second of advertised speed, in USD PPP



US\$ per megabit, logarithmic scale

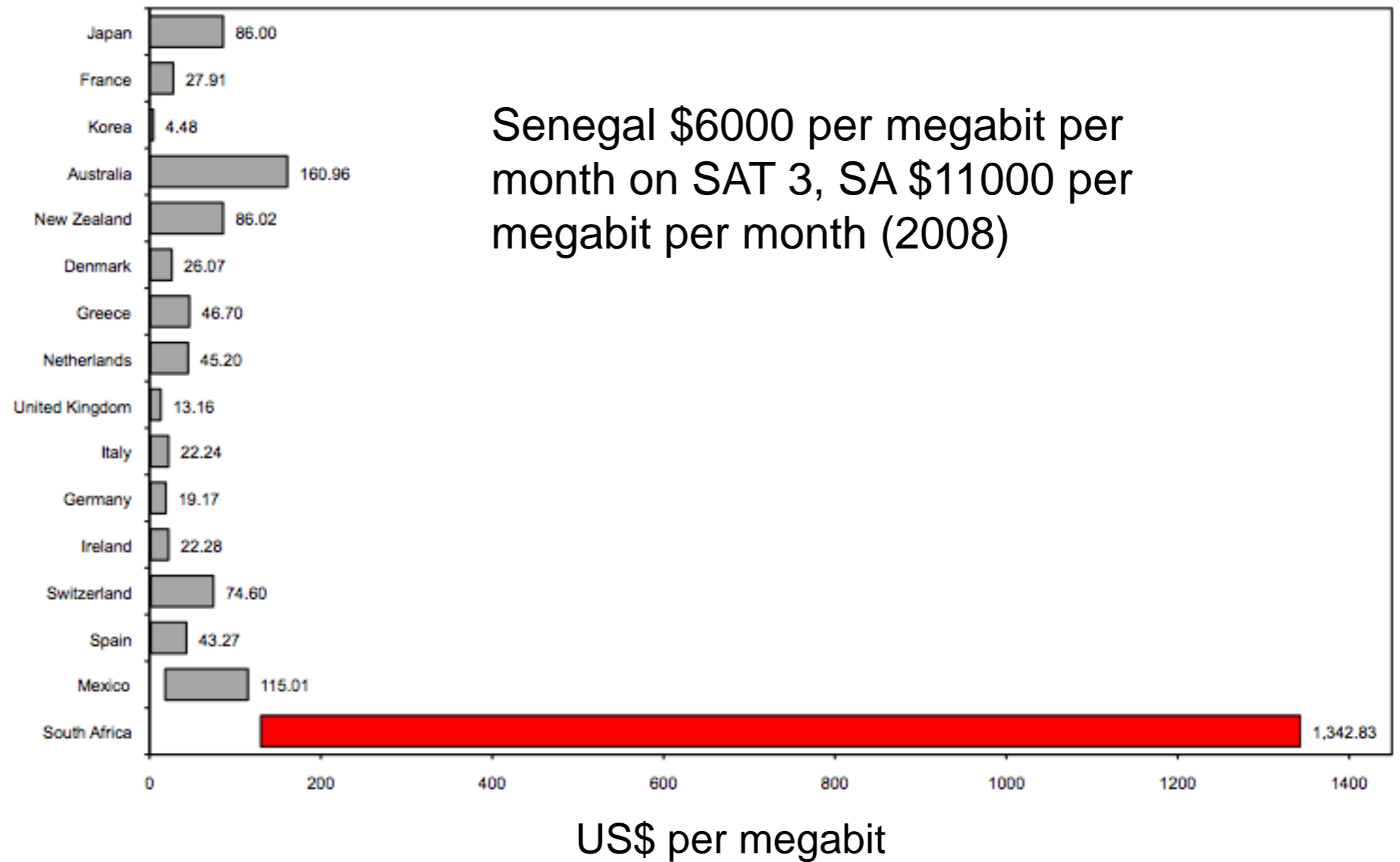
Data from OECD Communications Outlook, SA pricing data from Hellkom.co.za

Source: RIA Communications Sector Performance Review 2009





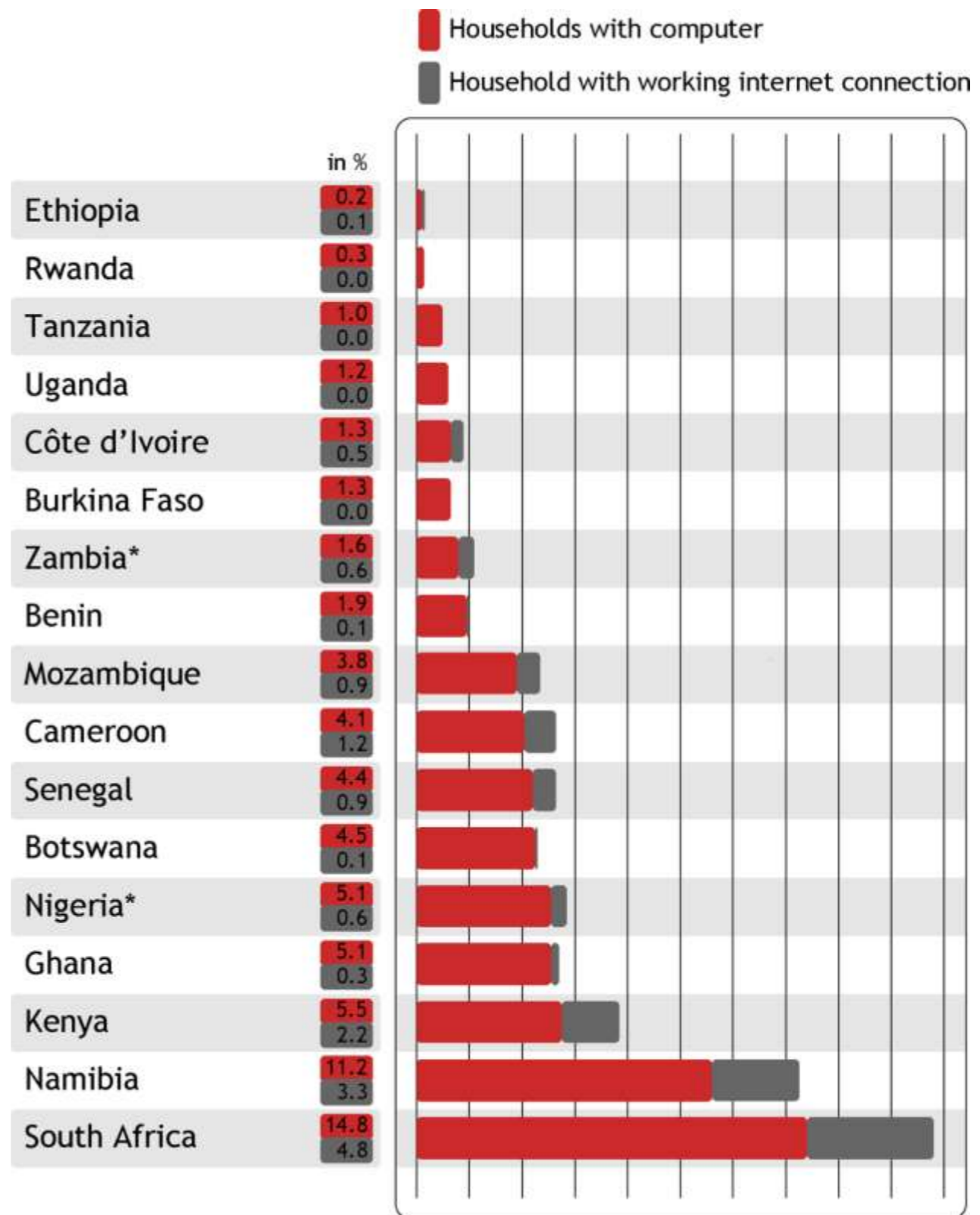
Range of OECD broadband (Sep 2008) and SA ADSL prices (Aug 2009) per megabits per second of advertised speed, in USD PPP



Source: SA Sector Performance Review 2009 from OECD Communications Outlook, SA pricing data from Hellkom.co.za



Demand side challenges

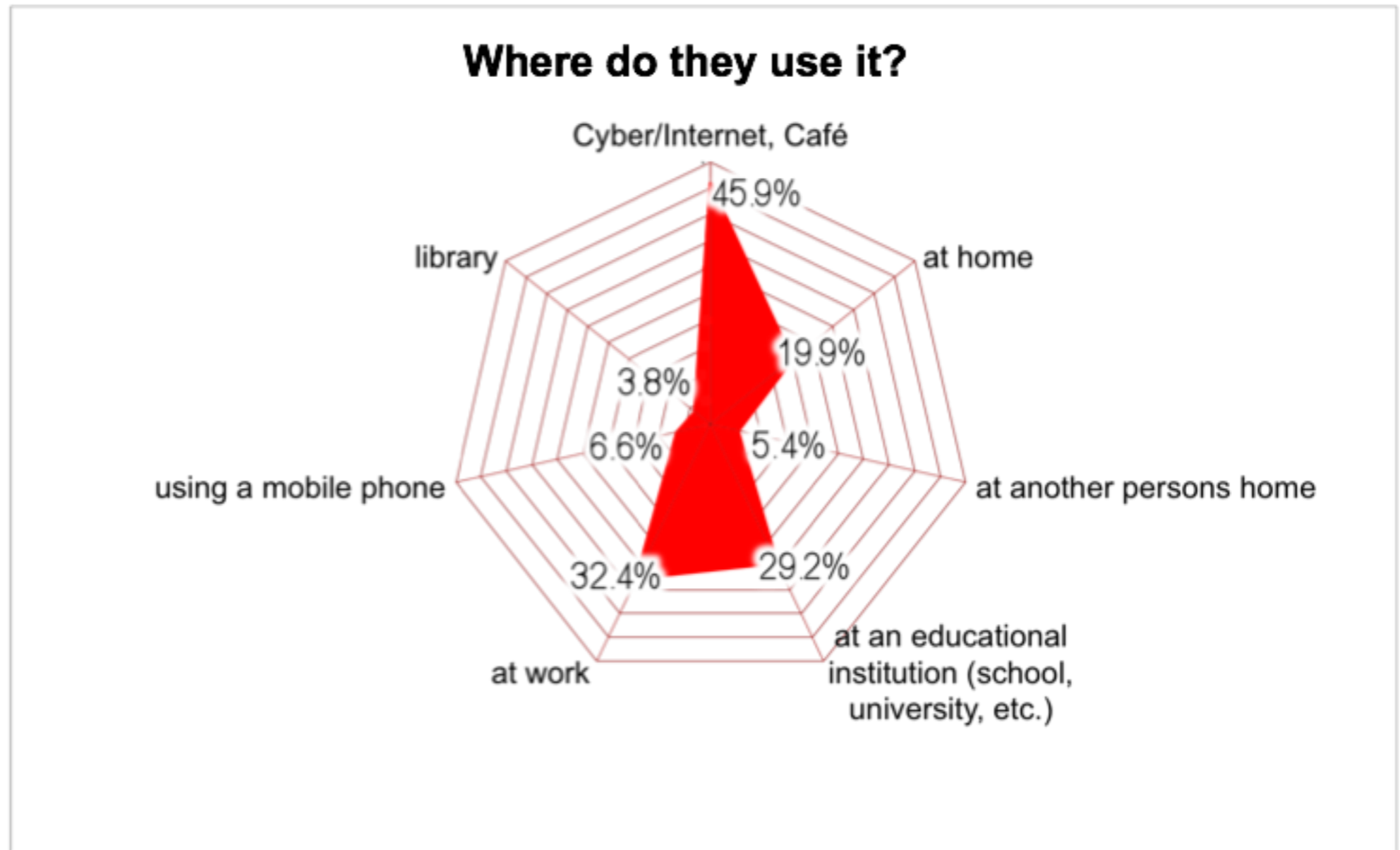


Source: RIA (2007/8) Household and Individual Access and Usage Survey

Internet usage in South Africa



50% know what the internet is, but only 5% use it



Source: RIA South African 2007/8 ICT Household and Individual User Survey



Phase 2 broadband – state owned broadband company

- ❖ Minister of Public Enterprises Alec Erwin : Markets in Africa not deep enough for foreign investment. Untested
- ❖ Head of Competition Tribunal David Lewis: it is not that markets in South Africa not working, but we have not created working markets.
- ❖ Broadband Infraco Act 33 of 2007, but only licensed in October 2009.
- ❖ Infraco describes itself as “state led intervention to rapidly normalise telecoms market efficiency by commoditising only those part of infrastructure that impeded private sector development and innovation in telecom services and content offerings.” (Infraco Annual Report 2008).
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Incorporation of power and transport communications networks into new state owned broadband company...

- ❑ Broadband Infraco Act 33 of 2007, but only licensed in October 2009.
- ❑ Infraco describes itself as “state led intervention to rapidly normalise telecoms market efficiency by commoditising only those part of infrastructure that impeded private sector development and innovation in telecom services and content offerings.” (Infraco Annual Report 2008).
- ❑ Practically the intervention has two components.
 - ❑ national long distance fibre optic network, building on the original fibre optics assets deployed by the power utility Eskom’s power transmission lines and the railway infrastructure of Transnet.
 - ❑ the international marine cable network between South African and the United Kingdom, in competition with the club consortium monopoly cable, SAT 3.





South African telecom reform characterised by two seemingly unco-ordinated policies - one of 'managed liberalisation' led by Department of Communications and that of a public utility broadband network led by the Department of Public Enterprises

- Power and transport networks stripped from final equity ownership and placed into state owned broadband company Infraco
- Neotel given exclusive three year access rights to Infraco network
- But absence of state co-ordination on policy and licencing extensive delays
- In absence of promised high quality, low cost network - MTN, Vodacom and Neotel built out network
- Slowness to market has undermined business strategy





Network investment and development...

- ❑ Private funders withdrew - IDC (state funding agency) 26%(R353million) and state 74% (2008 R377 million – total equity funding contribution of R1 004m). R650m loan DBSA.
- ❑ Total investment R1.4billion (\$140 million) R140m (\$14m equity) R650m (\$65m debt).
- ❑ Transnet and Eskom 6000km extended to 11765 km – regional links
- ❑ R90m (12% equity) committed to 3.84 terabit p/s West African Cable Submarine (WACS) – with other SA, African and Portuguese operators
- ❑ Four year agreement with Neotel to provide backbone to their metropolitan network – R53m contribution to revenues.
- ❑ Costed as utility - ROR





Policy and regulatory issues arising

- ❖ Lack of state policy and regulatory co-ordination (managed liberalisation in sector with infrastructure development as part of developmental state).
- ❖ Clash of public utility and competition/sector regulation cultures
- ❖ Concentration of state ownership in sector and potential conflict of interest
- ❖ Open Access to backbone unclear, terms of entry
- ❖ Concerns that ROR pricing may be anti-competitive, low cost of capital
- ❖ Concerns that it has squeezed out private investment – delays meant private investment returned by co- build by MTN, Vodacom, Neotel
- ❖ Co-ordination of rights of way, access to spectrum





New broadband policy – October 2009

- Fails to address what the bottlenecks and restrictions within sector itself
- Fails to consider what is preventing the development of the market
- No reference to regulatory framework, issues of co-ordination of rights of way, spectrum management, that have plagued first phase roll out.
- No clear separation of services and infrastructure to create greater clarity market pricing and access to infrastructure.
- No clarity on open access: Faster market development, local champions, enable rapid deployment in poorer areas, opportunities for innovation, SME
- No direction on infrastructure sharing / functional separation/ structural separation
- No opportunity for maximizing public and private finance in infrastructure , new investment models , cheaper bandwidth
- No location in macro-economic recovery stimulation, job creation, linkages between broadband penetration and increases in GDP./demand side





Key factors for success

- State co-ordination and demand side stimulation
- Institutional arrangements – clear role separation
- Institutional capacity and technical capabilities
- Enable provincial or municipal initiatives on open access basis
- Market entry, open access network including LLU/ bitstream
- Open access to carrier network
- Interconnection/spectrum/ numbers
- Co-ordinate rights of way / spectrum access

