

Policy and Regulatory Issues of Broadband*

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* This paper was originally commissioned in 2001 by the ITU Special Projects Unit www.itu.int/broadband and has been updated for this meeting.

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SA demographics

- 1 127 sq/km divided into nine geographic and political regions.
- population 40.5million speaking 11 official languages (800 million in Africa)
- GDP R837 billion , CAGR 1,7% but GDP per capita declining.
- 2% growth rate in 2002
- Highest gini co-efficient in the world - poorest 20% of households less than 3% of total income, richest 20% account for 65% o total income.
- broadcasting has grown from 0.27% in 1990 to 0.6% of GDP in 1997
- Telecommunications grown dramatically to 4,5% of GDP
- SA spends more on telecommunications as a percentage of GDP than most developed European nations.
- 5% active Internet users (2.5 million) 30 times larger than any other in Africa

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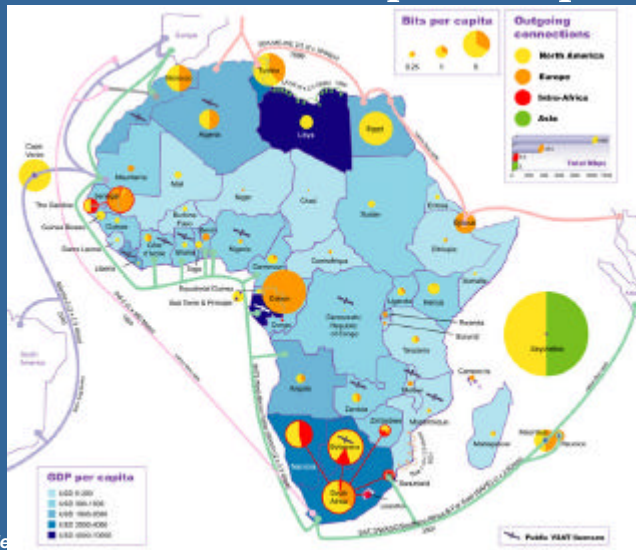
IDRC Acacia Bits Per Capita Map

The Internet: Out of Africa

Bits per capita is a relatively new measure of Internet use.

The coloured circle in each country shows the international bandwidth in bits per capita (BPC) available from mid 2002 from publicly accessible IP networks.

<http://www.idrc.ca/acacia/divide>



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Teledensity

Universal Service and Access figures for South Africa*

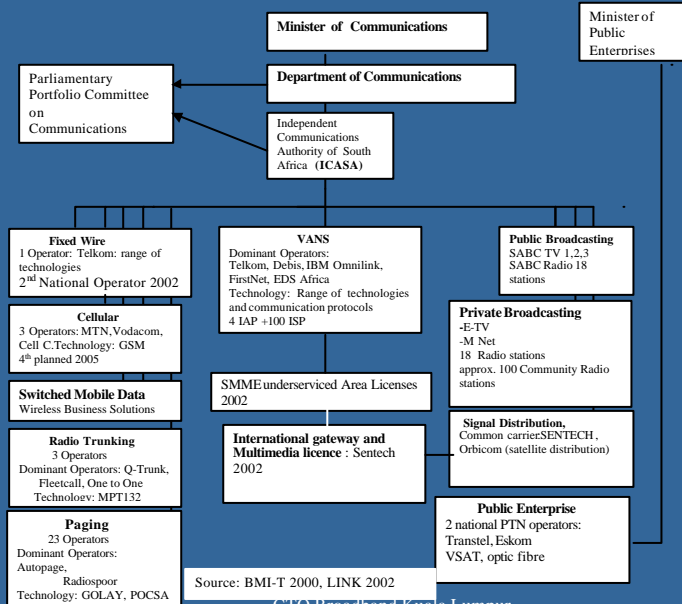
* Access measured as 30 minutes walk from a telephone

Percentage of households with service and access (fixed and cellular combined)		ALL	AFRICAN	WHITE
ALL	Universal service	42	18	82
	Universal access	80	74	93
URBAN	Universal service	64	32	82
	Universal access	94	93	94
NON-URBAN	Universal service	9	5	84
	Universal access	59	56	98

Source: Peter Benjamin on basis of South African Census October Household Survey 1999. See CommUnity at Projects <http://link.wits.ac.za> Projects

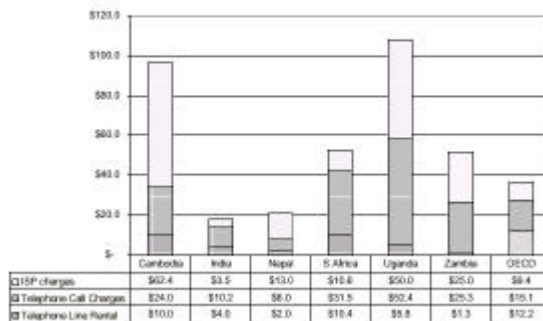
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SA Telecommunications Structure



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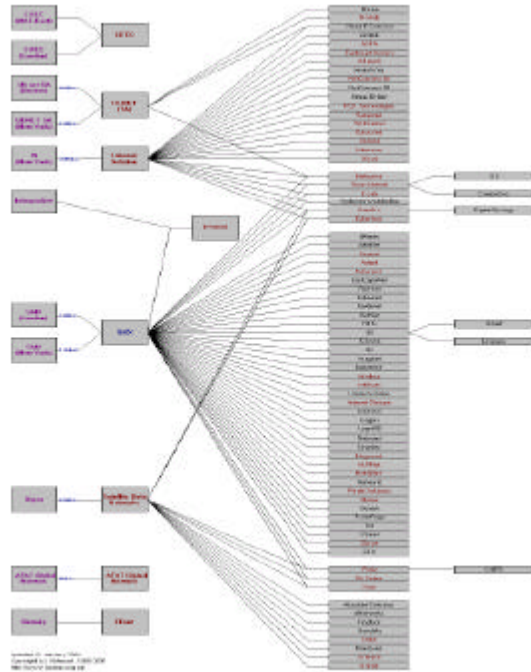
Prices for 20 hours of local use per month (US\$)



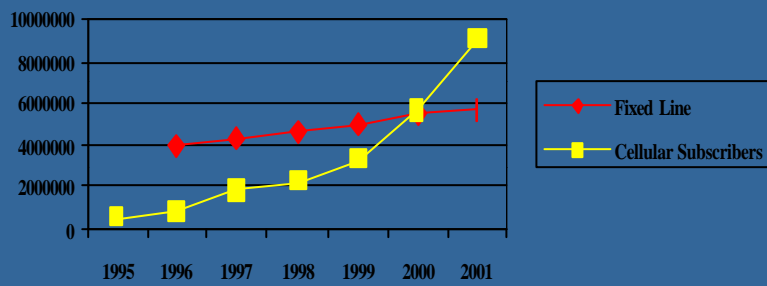
Cost of Internet Access in Developing Countries 2001 at www.antelope.org.uk

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Map of South African ISPs
www.ispa.org.za

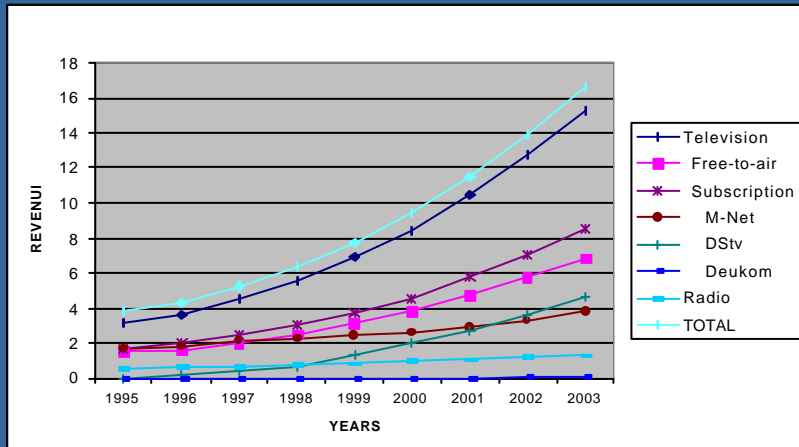


Fixed vs. mobile telephony



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TOTAL BROADCASTING MARKET



Source IBA 1999

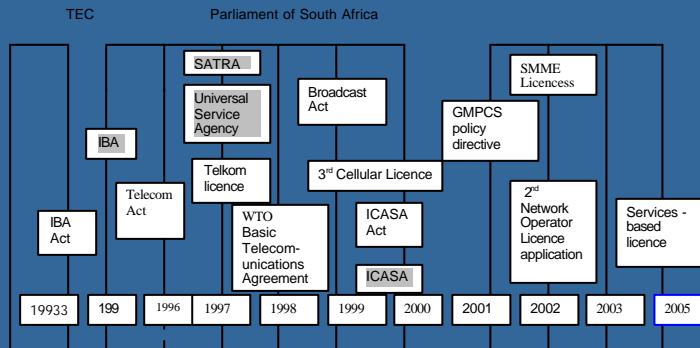
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New policy directives

- Duopoly in PSTN in 2002
- Set aside for electricity and transport parastals
- Prohibition on VOIP extended for VANS
- 10 of 30 SMME underserviced area mini-PSTN licences
- Third Generation (3G) and 1800 MHz Radio Frequency Spectrum for PSTNs, Mobile operators.
- Universal access levy extended to .5% levy on all licensees

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Timeline of the key events in Telecommunications sector



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What is broadband?

- Differing views among respondents from speed (above 200kbps) to packet switching to a scenario incorporating different technologies carrying data from any platform.
- Government's view: broadband is understood to be the ability to provide a multiplicity of services, whether data, voice or video, at any speed, which is likely to be a major determinant of cost.

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Public policy on broadband

- Recognition of the importance of a high-speed broadband technology to advance the communications infrastructure of the country.
- can realise government objectives of providing high bandwidth access to all people for voice, data and video services.
- Broad based Internet access and ICT usage culture among the populace are two of the prerequisites for widespread e-commerce adoption.
- consideration of a broadband satellite network connecting all schools, colleges, technikons and universities in the country (e-rate).

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Current status

- Only existing fixed broadband infrastructure in South Africa consists of the fibre optic backbone of the national telecommunications network.
- Telkom intends to extend this broadband network through regional and primary access rings
- Other parastatals such as Transnet and Eskom have deployed fibre across the power grid and rail network in South Africa.
- ADSL has been piloted on the copper based access network of the incumbent and will be offered commercially later this year.
- Digital DTH satellite network operating across Africa.
- Undersea cable - SAT 1, 2,3

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DSL dilemma

- Capital outlays high
- ISDN investment not yet recovered and slow take up due to high cost
- Replacing or reconditioning the copper infrastructure at current prices may not be feasible outside of main centres.
- Overtaken by alternative technologies - wireless or satellite?
- On line nature of DSL perceived as reducing revenues from international, national and local calls.

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DSL cont.

- Long distances of local loops, which impact on effective bandwidth.
- High cost of backbone bandwidth
- Copper quality
- Introduction prompted more by threat of competition than by market expansion/demand

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New Market Structure

- Second National Operator (SNO) 2002
- Use Telkom facilities on resale basis for two years on commercial agreement.
- Enhance network for incumbents by deeming Telkom and SNO, in addition to three mobile cellular licensees, holders of 1800 MHz and 3 G spectrum.
- Forecloses any direct access by third parties to valuable high data capacity bandwidth.
- SMME Underserviced area licensees, VOIP like PSTNs

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- ## SNO
- FSN based on fibre optic backbone
 - leveraging existing infrastructure to benefit from time to market
 - NGN includes:
 - self-healing ring configuration establishes long distance connections between main commercial centres
 - metro network typologies to cover key sites
 - existing PTN exploited
 - routes optimised for DWDM optical technology and SDH equipment, supporting ATM and/or high capacity IP connection
 - Access network: copper - XDSL, fibre - ATM and SDH, wireless -MMDS and LMDS
 - Integrated network management system for switching and routing offering flexibility to introduce new products quickly and cost effectively

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Current legislation and regulations

- Currently telecom and broadcasting legislation silent on broadband specifically.
- New telecommunication legislation grants multimedia licence.
- Convergence legislation being prepared
- Digital Broadcasting Advisory Body examining feasibility and timing for the introduction of DTT and DAB.

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Multimedia & Carrier of carrier licence

- Multimedia licence for state owned broadcast signal distributor which has extensive analogue terrestrial network and satellite network
- Sentech also granted carrier of carrier licence to carry international traffic via an international telecom gateway facility.

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Multimedia licence

- Refers to the provision of interactive telecommunications services comprising representation, transmission and distribution of various types of media in a synchronised and integrated manner over multiple infrastructure platforms or a telecommunications service that integrates and synchronises various forms of media to communicate information or content in an interactive format that includes internet through television, PPV, VOD, electronic transactions, text, data graphics, animation audio and visual content but excludes mobile cellular telecommunications and PSTS.

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Public concerns

- Multimedia licence creates precedence for regulation of services that have previously been unregulated including content provision, online banking and commerce services.
- Telkom argued that together with international gateway licence Sentech effectively becomes TNO.
- If telecommunications licence cannot use existing broadcasting infrastructure to deliver multimedia services
- Unfair competition with other signal distributors.

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Digital Broadcasting

- Not sufficient demand for spectrum, market fragile?
- Equipment expensive - economies of scale globally not sufficient yet for local market take up?
- DAB overtaken by other technologies?
- Interactivity?

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Supply-led or demand driven?

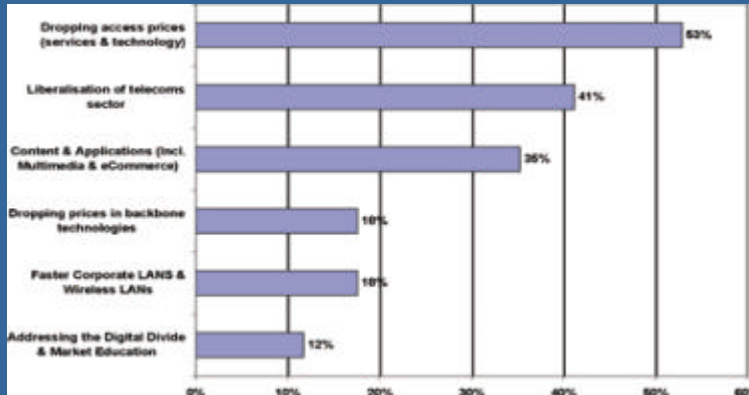
- All broadband will initially need to be supplier driven
- Early adopters: Business and high-end residential.
- Key factor: - pricing
 - applications and content
- Services for black, young South African if market is to grow.

- *Source: Ernst Young South Africa : Future Insight 2002*

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Broadband Drivers

What trends will drive or facilitate broadband deployment in South Africa?



Source: Ernst Young South Africa Future Insights 2002

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Platforms

- Mobile wireless :
 - GPRS - always on drive take up?
 - 3G 3-5 years?
 - 4G leapfrog?
- Fixed wireless: -LMDS
-MMDS
- Satellite: - IP
- MPEG2

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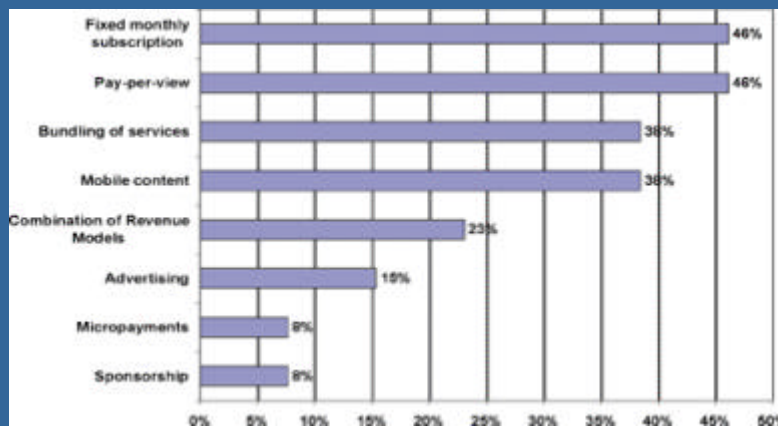
Revenue Models

- Subscription
- Broadband connectivity and digital content
- Interactive television

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Revenue Models

What revenue models are likely to succeed in the converging online content, media and network landscape?



Source: Ernst Young South Africa Future Insights 2002

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Beneficiaries

- Telkom first to market, but SNO unencumbered by legacy infrastructure.
- ISP benefit from competing broadband providers and from providing higher level services.
- Content providers - variety of competing platforms.

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Competition

- Without effective liberalisation no take-off.
- traditional key areas of competition still need to be got right:
 - Universal service and access financing
 - Tariff control
 - Prohibitions on cross-subsidy and discrimination
 - Accounting separation
 - Interconnection

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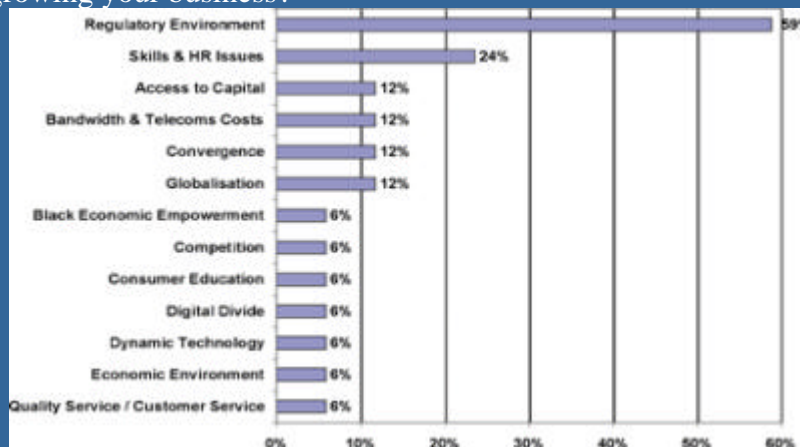
Competition enablers/disablers

- Enablers
 - Carrier pre selection 2003
 - Number portability 2005
- Disablers
 - No unbundling of local loop
 - All PSTN and international gateway significant state ownership
 - VOIP restrictions

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Challenges to broadband business

What do you see as the biggest inhibitors and challenges to growing your business?



Source: Ernst Young South Africa Future Insights 2002

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Regulatory implications

- New regulatory frameworks needed to deal with convergence but content and carriage require different regulatory approaches.
- Equivalent treatment of equivalent services, regardless of the delivery medium and as far as possible a technological neutrality
- In multimedia environment whole new and more flexible regulatory approach
- Merged regulator likely to be more effective but spread of skills required.

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Regulatory implications cont.

- more challenging than the physical integration of these historically distinct agencies is the development of new all-encompassing regulatory approach
- greater flexibility and imagination in regulation if the benefits of the new technologies are to ensure equity in service provision, yet not stifle innovation and investment.
- vital to ensure that within the merged entity there exists a sufficient body of operational expertise for all relevant service types and should not be seen to favour one service type above another.

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Old vs. new paradigm

- Infrastructure regulation based on premise of some scarce resources
- Content regulation on protection of certain values - difficult to apply in practice in Internet context
- Cross-media ownership regulation to avoid concentration tends to be taken over by anti-trust regulation.
- Service regulation targeted at universal access remains an important issue in ensuring that no infrastructure owner is able to exclude access by the customer to other service providers.

- Tracing and combating of cyber-crime in all its forms
- Commercial issues around e-commerce, such as non-repudiation of a transaction, dispute resolution, jurisdiction rules, taxation, authentication, electronic signatures, etc
- Facilitating self regulation eg. ISP content.

*Source: Anders Henten (2002)
Regulation in a Liberal International
and Converging Communications
Market*

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Conclusions

- SA dual economy - social needs vs. competition global market
- Broadband will need to be supplier driven.
- Competition vs. market fragmentation
- Liberalisation drives broadband rollout
- No effective regulation, particularly access pricing, no broadband

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