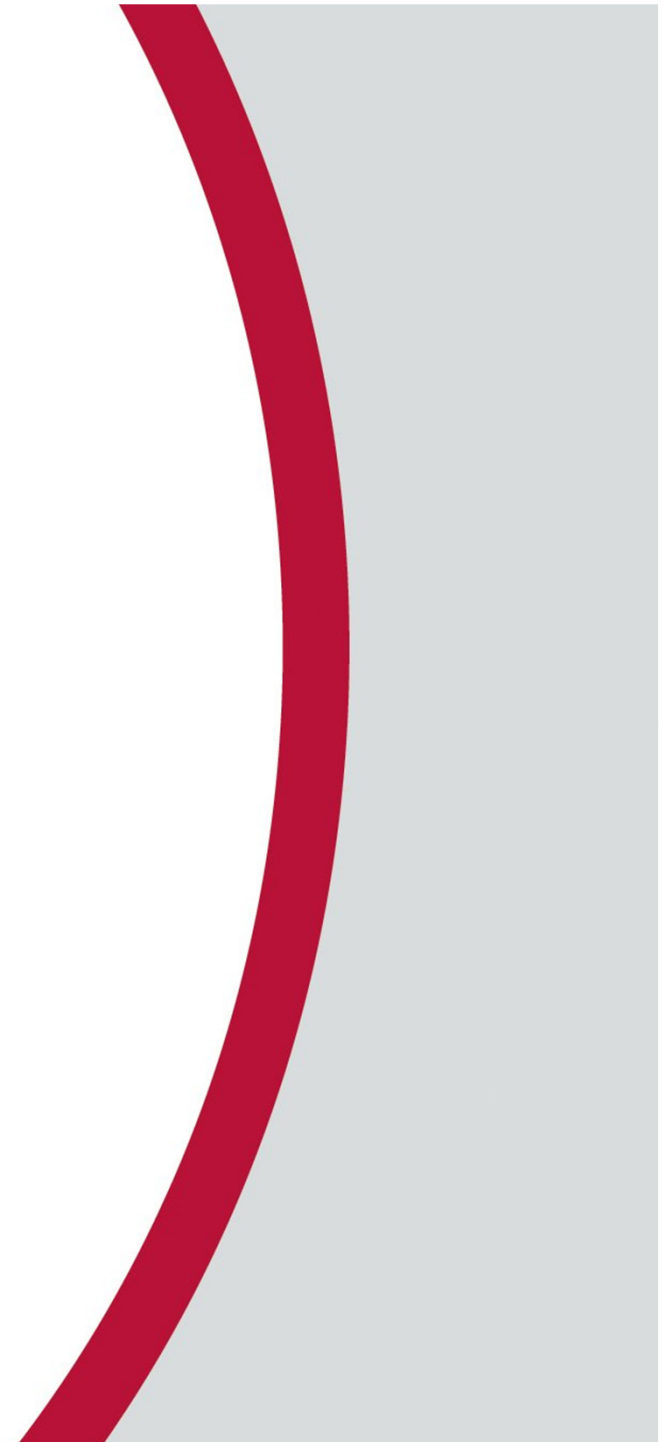


Report for GSMA

Assessment of economic impact of wireless broadband in South Africa

November 2010



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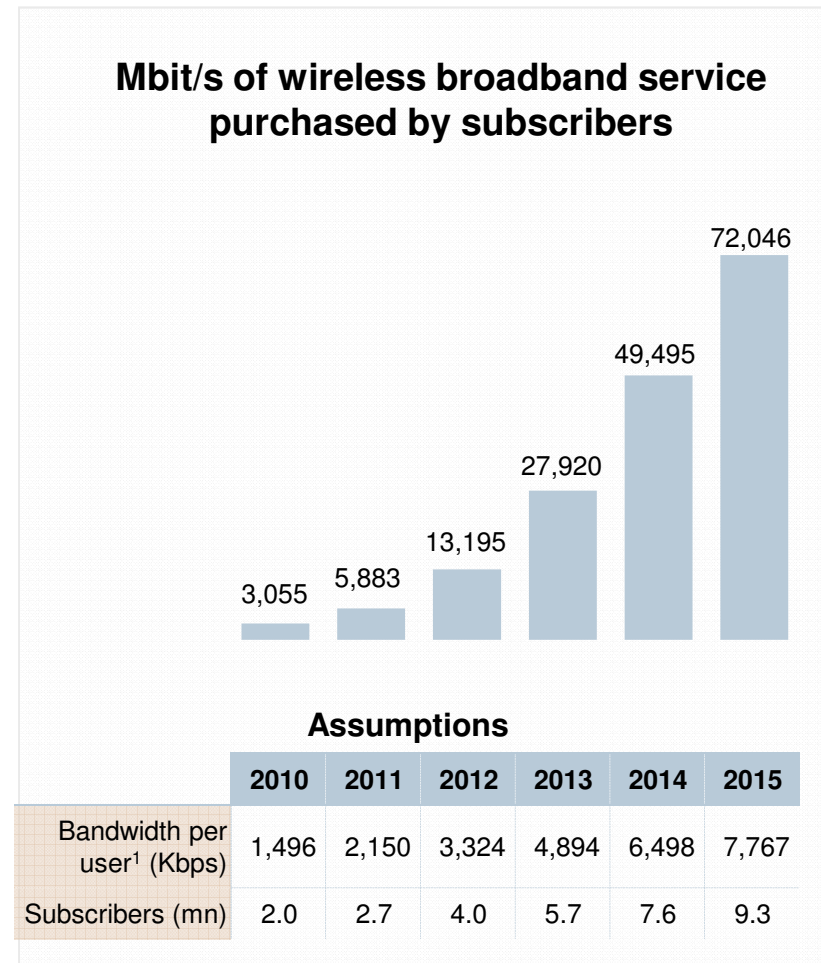
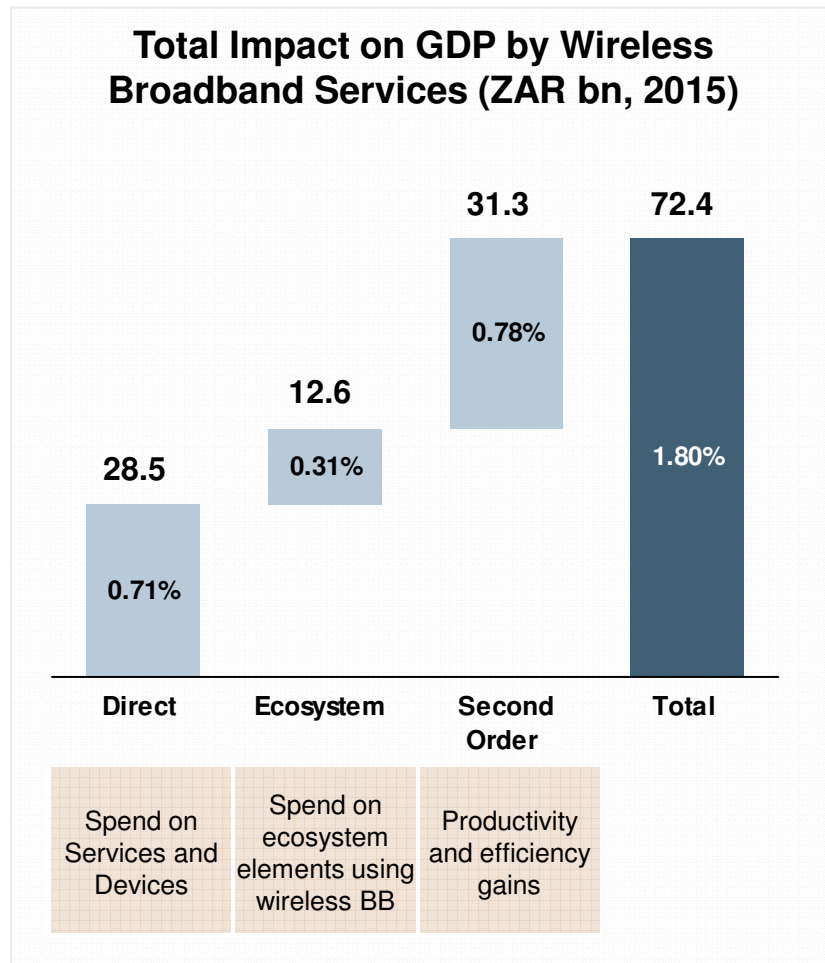
Wireless broadband can bring significant benefits for the South African economy by fuelling growth and job creation

- Key findings: Wireless broadband and related industries could generate 1.8% of GDP (ZAR 72 bn) by 2015 and about 28,000 jobs – plus further jobs outside the industry
- Analysys Mason has prepared this report for GSMA to review the status of the broadband market and assess the direct and indirect economic impact of wireless broadband in South Africa
- Broadband connectivity is being increasingly seen as an integral driver of improved socio-economic performance
- Recent econometric studies have quantified the direct impact on productivity and economic growth suggesting that an increase in broadband penetration of 1% could result in 0.1% productivity gain
- These surveys, however, have emphasised the need to create an ICT ‘ecosystem’ to realise significant and wide-reaching gains
- The mobile data service ecosystem in South Africa is fast-developing, but many applications are awaiting wider wireless broadband access
- The government in July 2010 gazetted the South African National Broadband Policy, identifying aims and assigning roles to various stakeholders
 - ♦ Broadband is defined as “always on, high speed, multimedia capable connection” of at least 256kbit/s download speed
 - ♦ Universal broadband access (15% household penetration, and broadband within 2km of any household) is targeted to be achieved by 2019
 - ♦ A Broadband Inter-Governmental Implementation Committee is to oversee progress
- Although wireless broadband has grown robustly to date, continued growth (and achievement of the targets set out in the policy) will require effort from all stakeholders including government, regulator, operators and end user representatives

Definitions of key terms used in this presentation

Terms	Definitions
Wireline	Lines of copper / cable / fiber deployed underground or overhead for voice / internet services
Fixed Broadband – Wireline	Data connection (≥ 256 Kbps download or upload speed) over wireline infrastructure
Fixed Broadband – Wireless	Data connection (≥ 256 Kbps download or upload speed) over wireless transmission accessed from a fixed location, primarily using WiMAX 802.16-2004 / 802.16.d / 802.16.e technologies
Wireless Broadband	Data connection (≥ 256 Kbps download or upload speed) over wireless transmission accessed from a mobile device or a data dongle, primarily using WCDMA, HSPA, LTE, CDMA EV-DO, TD-SCDMA and WiMAX 802.16.e technologies
Internet Users	Unique users accessing internet from private / shared / corporate connection
Wireless Broadband Users	Unique users accessing wireless broadband services from private / shared / corporate connection
Consumers	Individuals accessing broadband services from residential premises or SOHO (Small Office, Home Office) & unorganized sector (whose activities / data collection is not regulated under any legal provision) businesses
Enterprises	Includes large businesses and SMEs in the organized sector (for which statistics are available from budget documents or reports, or whose activities or data collection are regulated under a legal provision)
Direct Impact	Consumer and enterprise spend on devices and services for accessing wireless broadband connection
Ecosystem Impact	Revenues generated by the telecom and adjacent industries from value added services / other services enabled by wireless broadband access
Second Order Impact	Increase in economic productivity of the work force as a result of access to wireless broadband services

The wireless broadband industry is well-positioned to support economic growth by contributing 1.8% of GDP in 2015



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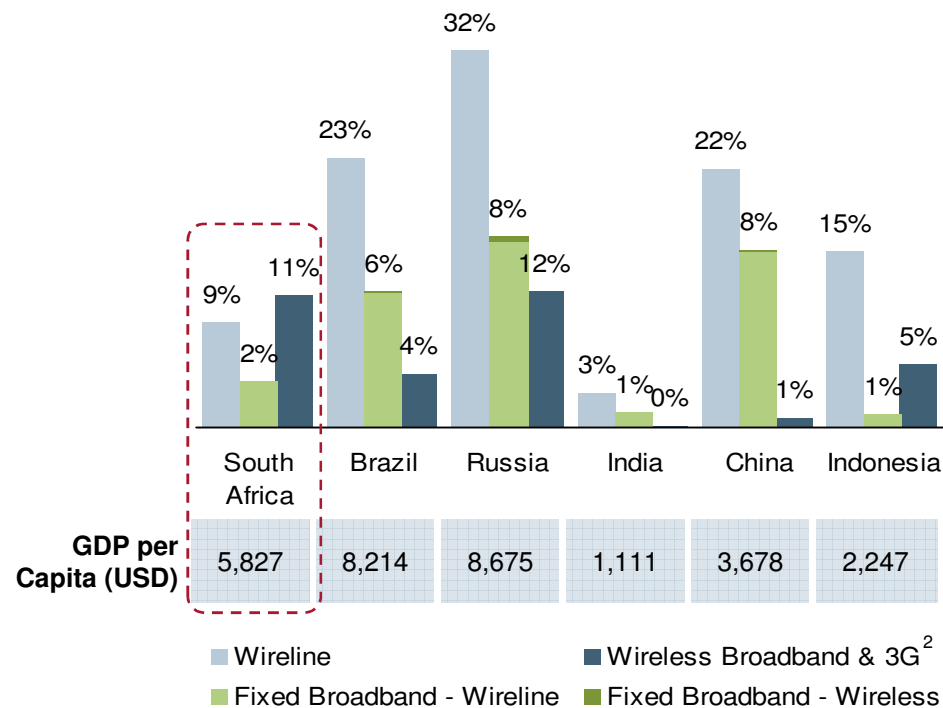
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South Africa lags in fixed BB penetration among BRIC nations due to affordability issues & an under-developed wireline base

BRIC Countries & Indonesia: Broadband and Wireline Penetration by Access Technology (2009)¹



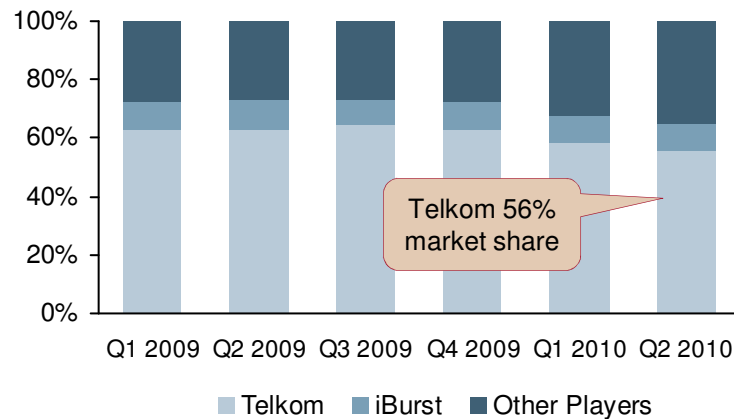
- South Africa has a significantly lower wireline penetration as compared to other emerging countries, implying a weak infrastructure and customer base for wireline based broadband deployment
- Relatively high income inequality (in the bottom 10% of countries) means that many consumers can't afford devices, and broadband is limited to the professional segment and student population and through direct/ shared access
- Nevertheless, a vibrant wireless broadband ecosystem (content, applications, service models and device categories) has developed to support market demand
 - ♦ A growing number of services address lower socioeconomic groups

The South African telecoms market has a range of players, all moving towards broadband and data services

<p>Mobile operators</p>	<ul style="list-style-type: none"> • MTN and Vodacom, launched in 1994, between them hold over 80% of the South African mobile market. They have offered 3G data services since 2005 • Cell C launched in 2001, and has only recently launched wireless broadband, while Telkom's mobile division Heita entered the market in October 2010 • There are a handful of MVNOs in South Africa, notably Virgin Mobile
<p>Fixed retail operators and ISPs</p>	<ul style="list-style-type: none"> • Telkom South Africa lost its monopoly on fixed line services in 2002, although competitor Neotel only launched operations in 2006 following years of disputes • Government retains almost 40% ownership of Telkom • ISPs such as MWEB and iBurst offer service over Telkom's network or using their own spectrum
<p>Wholesale operators</p>	<ul style="list-style-type: none"> • A landmark ruling by the High Court in 2008 meant that hundreds of licensees were granted new rights to self-provide telecoms infrastructure • This has led to a proliferation of metro and long-distance fibre providers • State-owned operators Sentech (with wireless infrastructure) and Broadband Infracore (with fibre assets) have been mandated to offer wholesale services

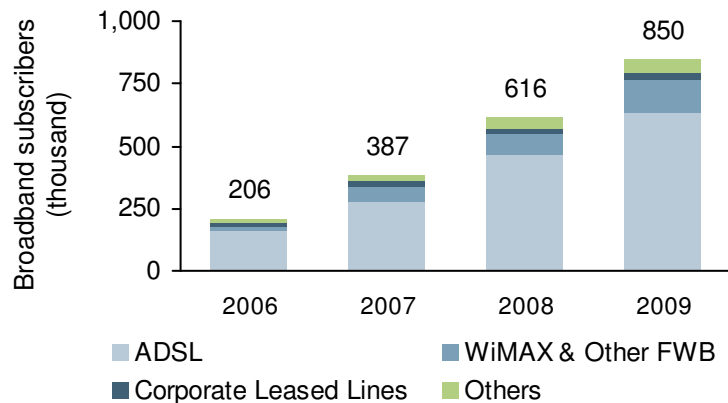
South Africa's fixed broadband market is dominated by Telkom and has struggled to grow significantly

Fixed Broadband Market Share in South Africa, Q1 2009 - Q2 2010



- South Africa has struggled to grow its broadband penetration, despite a thriving economy
 - ♦ lack of adequate infrastructure (including submarine cables) and high access charges appear to be the main causes
 - ♦ there has been a view that Telkom has been unable to optimise the pricing and delivery of broadband over its fixed network

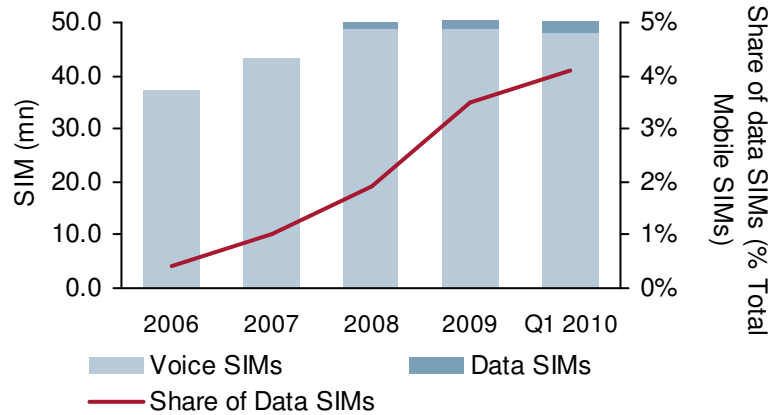
Fixed Broadband Connections by Technology, 2006 – 2009 ('000s)



- Telkom continues to dominate the market
 - ♦ With few licences on offer to date, only iBurst and Neotel have launched WiMAX or fixed wireless services
 - ♦ WiMAX is still an emerging service, with niche offers and only fixed/ nomadic connectivity at the moment
 - ♦ ICASA is currently in the process of defining the rules for a spectrum auction for 2.6GHz and 3.5GHz spectrum, which are suitable for providing wireless and fixed broadband

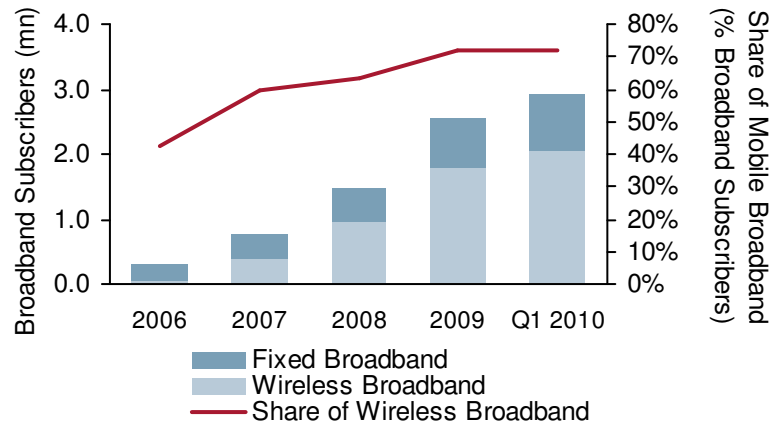
HSPA and LTE will continue to drive growth in the broadband market

Evolution of Data SIMs Versus voice SIMs



- While the number of mobile data SIMs was only around 4% of the SIM base in Q1 2010, the number of data SIMs has grown steadily since 2006:
 - ♦ Data SIMs were launched by mobile operators Vodacom and MTN in 2005 over UMTS (3G) networks
 - ♦ While Cell C has not historically offered data, it has recently launched a broadband service based on UMTS in 900MHz spectrum

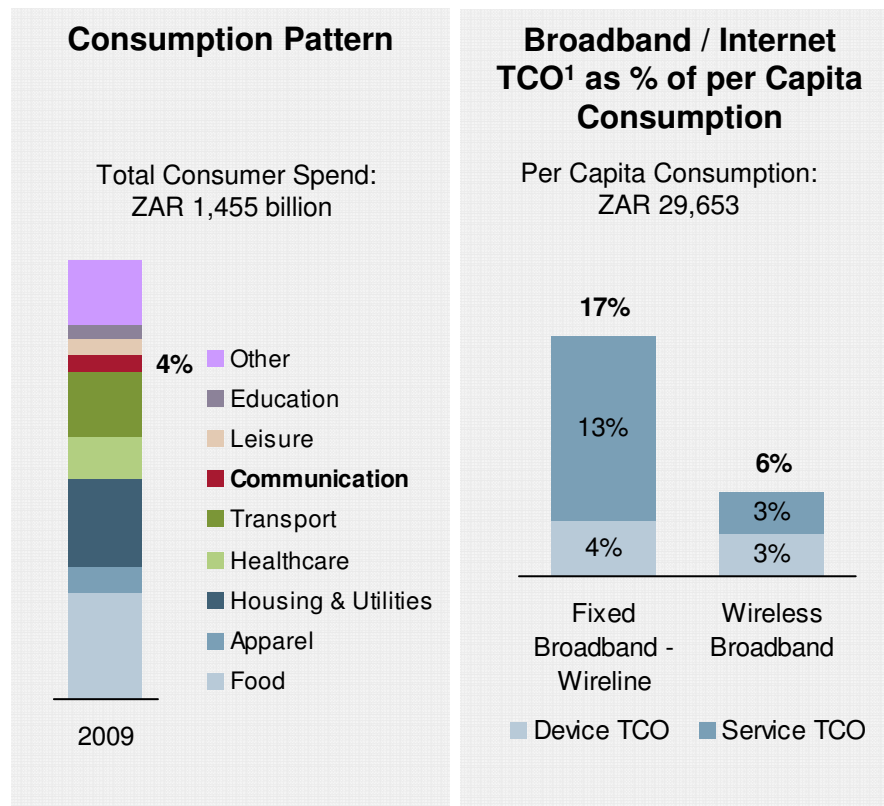
Broadband Market Subscribers



- Despite late appearance in the market, HSPA has dramatically widened broadband access:
 - ♦ Fixed broadband started in 2002, with the launch of ADSL by Telkom, however, growth in fixed broadband has been slow
 - ♦ Wireless broadband has created momentum in the broadband market, despite HSPA only being launched in 2006
 - ♦ In 2009, the broadband market counts 2.5 million subscribers, of which 1.6 million use wireless broadband (97% HSPA, 3% EVDO)

The TCO for fixed broadband services requires a significant percentage of consumer spend on communications

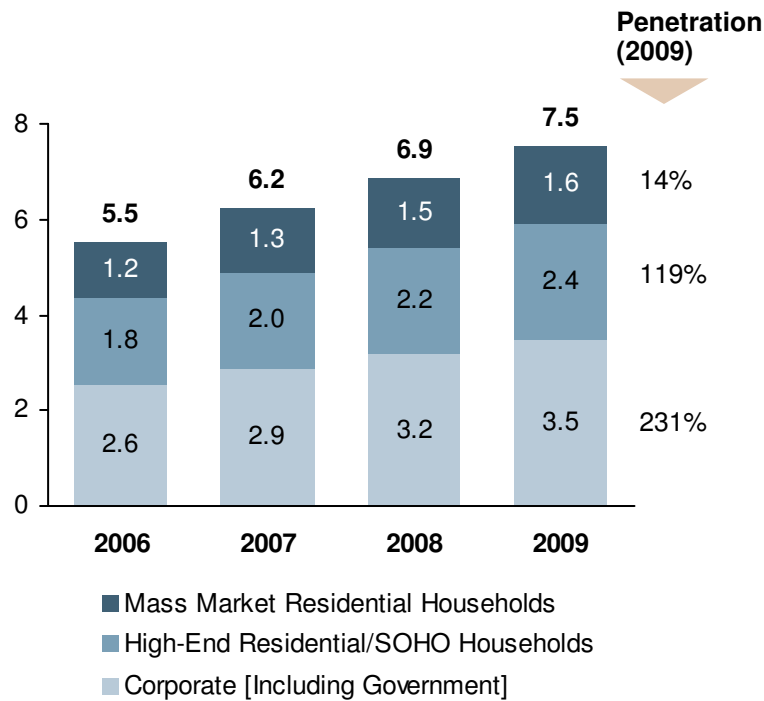
Consumer Spend on Communications & Broadband in South Africa (2009)



- While each South African spent an average ~ ZAR 1,200 in 2009 on communications, the minimum cost of using a fixed broadband connection was ~ ZAR 5,000 while that of wireless broadband connection was ~ ZAR 2,000
- The high TCO is a result of the high device and service pricing as % of consumer wallet
- South African broadband service monthly ARPU is high compared to other emerging countries while the per capita income is comparable
 - ♦ ARPU for wireless broadband was ~ ZAR 385 while that for fixed broadband was ~ ZAR 440 in South Africa
 - ♦ ARPU in China is around ZAR 55, in India ZAR85 and in Russia ZAR 105

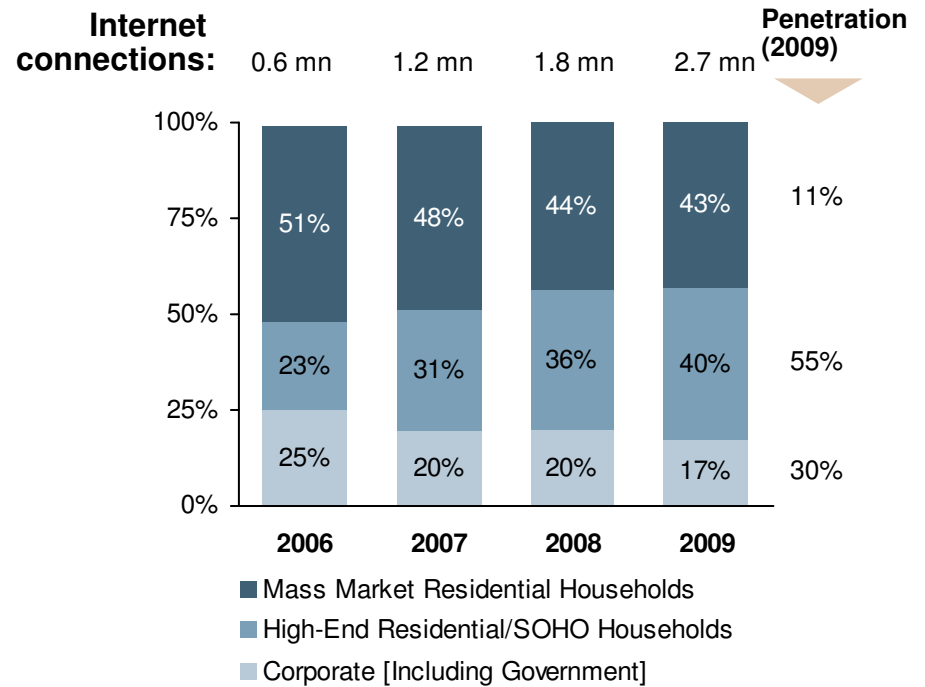
Further, the utility of residential internet is limited among mass market households due to demand side issues

PC Base Split Across Segments (mn)



- Share of mass market residential households is just 22% of total PC base

Internet Connections Mix Across Segments



- Mass market internet penetration is limited by PC base and affordability / utility issues

Deployment of new access lines for fixed broadband services is time consuming and yields unattractive returns

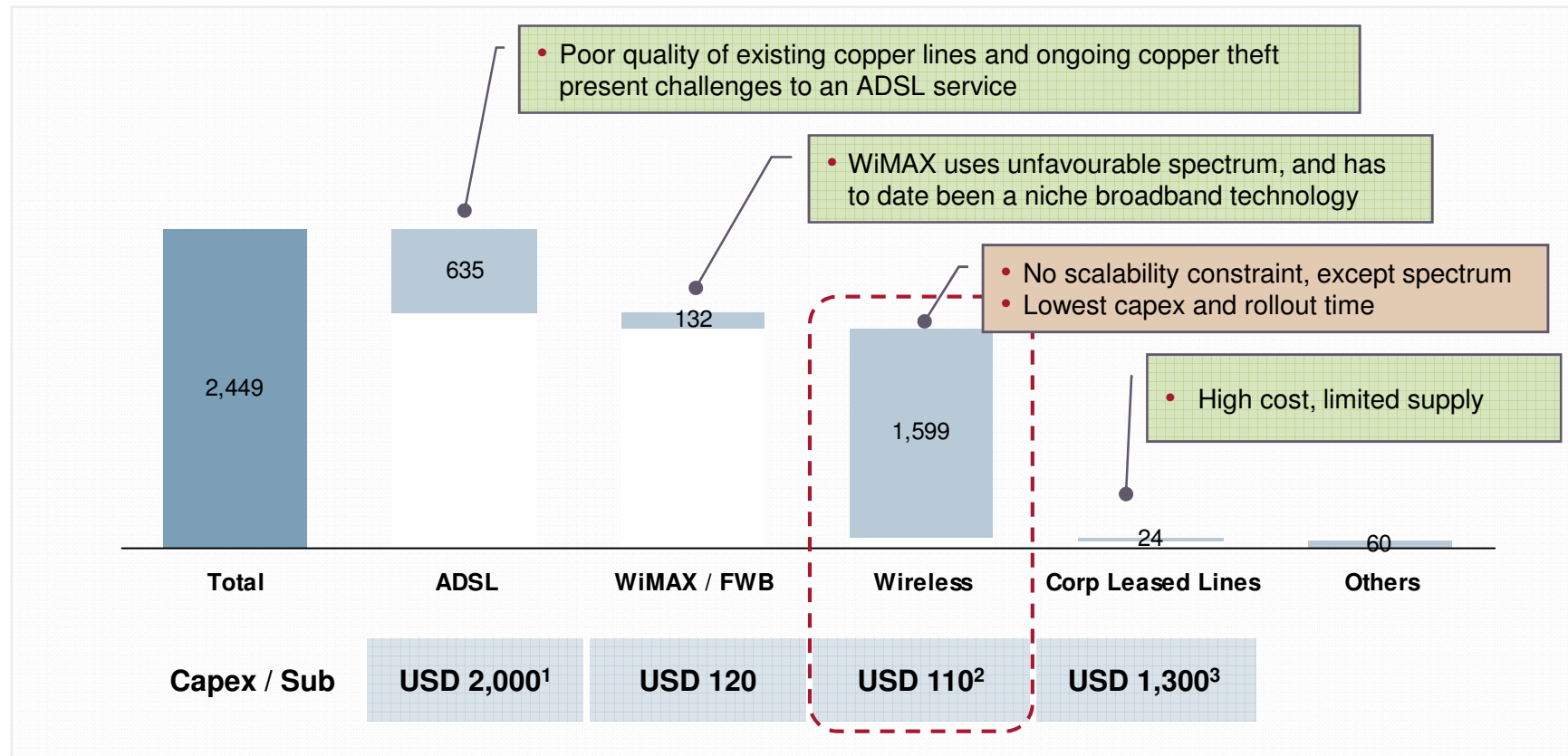
Comparative Evaluation of Deploying Broadband Technologies in South Africa

Technology	Time to Deploy	Capex per Sub ¹	Services
DSL (FTTN) Existing Line	Low	USD 750	Voice, data
DSL (FTTN) New Line	High	USD 2,000	Voice, data
FTTH	High	USD 2,400	Triple play
FTTB	Medium	USD 1,300	Triple play
WiMAX ²	Low	USD 120	Data
HSPA ²	Low	USD 110	Voice, data

- Deployment of new copper or FTTx lines for offering broadband services to individual homes does not make a viable business case due to the high cost of civil works
- Such investment is only justified for FTTB deployments for MDUs³ and with relatively high ARPU (e.g. including premium TV content)
- Poor quality of existing copper lines and ongoing copper theft present challenges to an ADSL service
- Scalability, maturity of the device ecosystem and added support for voice favour HSPA as the most cost-effective broadband access solution for South Africa

Wireless broadband deployment is more scalable and has a proven ability to reach a wide market

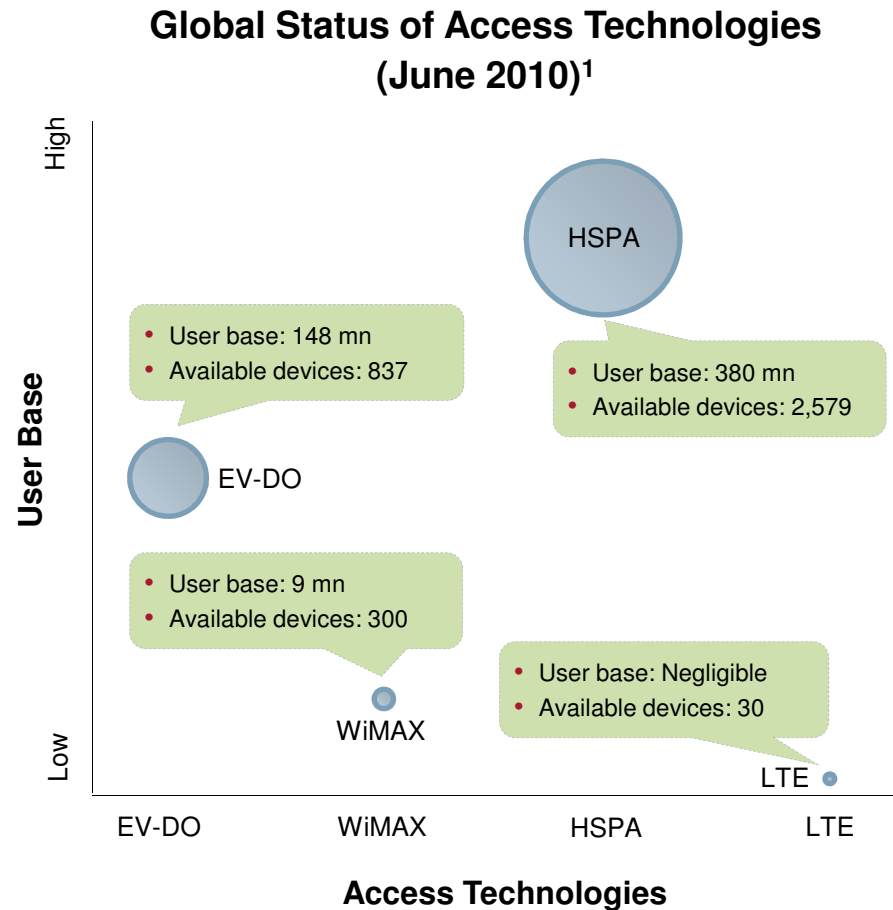
Broadband Lines in South Africa Split by Technology (2009, '000s)



Note: 1. ADSL Capex per sub comprises of cost for FTTN New Copper line while for existing line Capex per sub is USD 750; 2. Wireless Capex per sub includes Capex for HSPA; 3. Capex per sub for FTTB connection

Source: Analysys Mason, AfricaNext, Industry Inputs

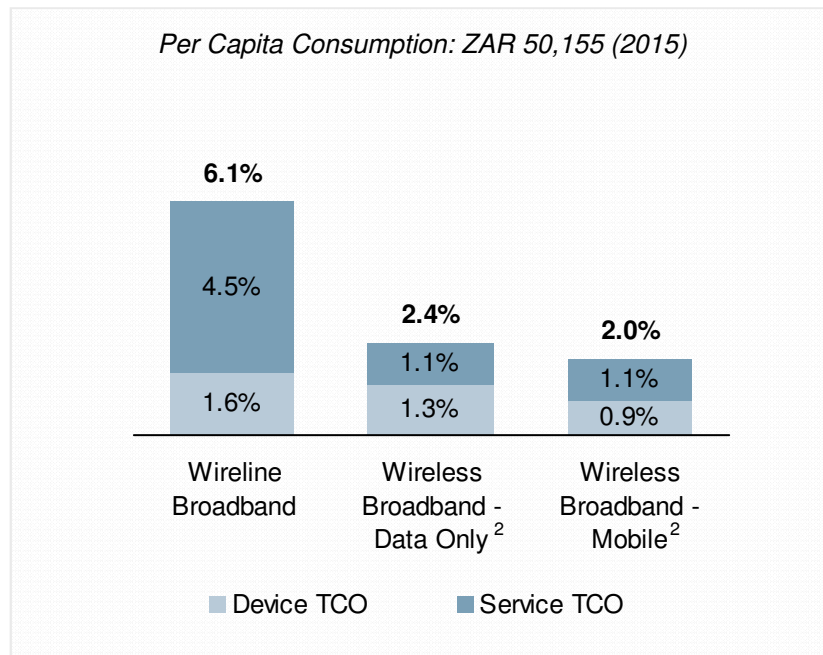
Globally, deployment and user base of wireless technologies indicates strong ecosystem maturity and support for HSPA



- With a much stronger device ecosystem maturity, HSPA will continue to drive scale benefits for the end user in terms of better device options, availability and pricing
- Support for voice and better mobility is a dominant factor that gives HSPA mass market appeal against WiMAX, which will remain a niche broadband technology
- Given past performance and an easy upgrade path, HSPA (and LTE after that) is likely to be the pragmatic choice to achieve the national coverage targets proposed by government

With economies of scale, wireless broadband offering will become more affordable for the mass market

Broadband / Internet TCO¹ as % of per Capita Consumption (2015)



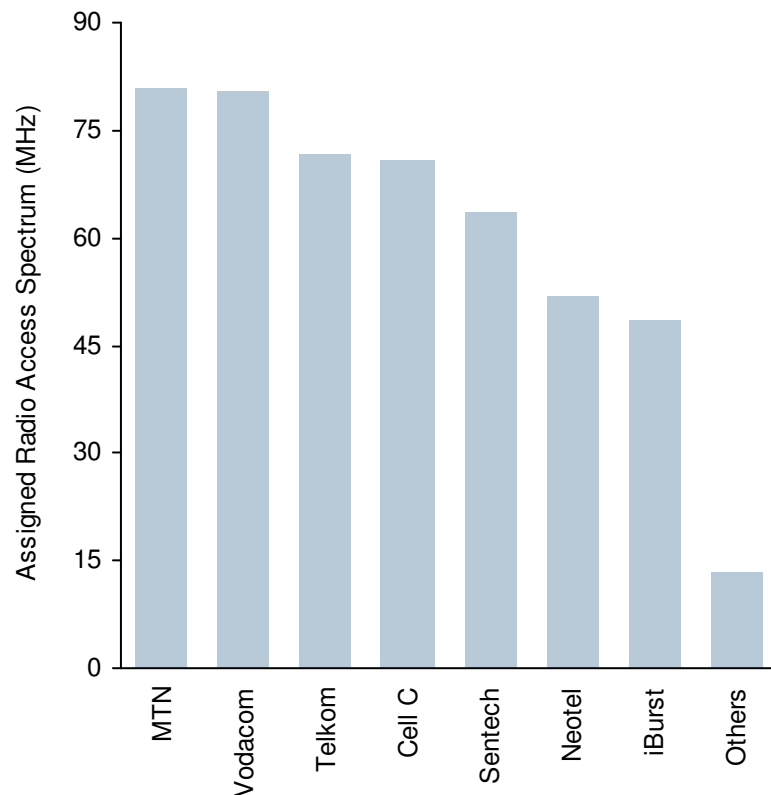
Assumptions for TCO Calculations: Entry Level Device and Service Pricing (ZAR, 2015)

	Wireline Broadband	Wireless BB - Data Only ²	Wireless BB - Mobile ²
Device Type	Desktop	Embedded Netbook	Smartphone
Device Cost (ZAR)	3,000	2,000	1,100
Device Lifetime (years)	5	3	2.5
Set-up Cost (ZAR)	450	-	-
Set-up Lifetime (years)	2	-	-
Monthly Service Charge – Entry Level (ZAR / month)	185	45	45

- Entry level service pricing is expected to reduce significantly for wireless broadband offerings with higher adoption and competition among operators

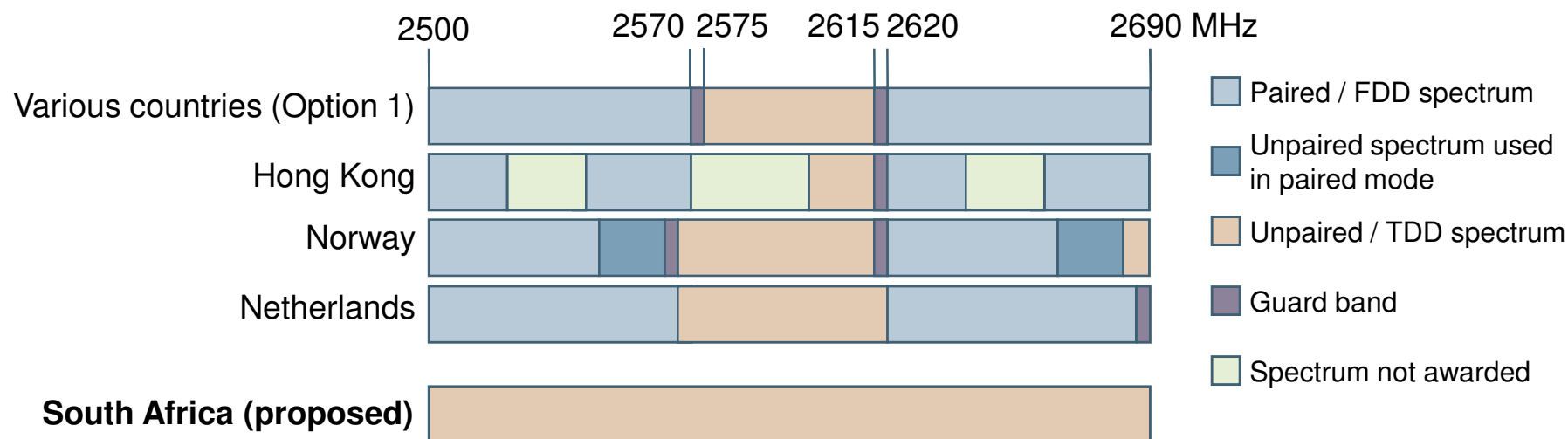
ICASA has ensured spectrum is available, but its first spectrum auction has not proceeded smoothly

Radio Access Spectrum Assigned to South African Telcos (MHz)



- Lack of access to spectrum has not in the past been a hindrance to market development in South Africa
- However the regulator ICASA's first attempted spectrum auction (of 2.6GHz and 3.5GHz spectrum) has gone awry:
 - ♦ Initially scheduled for June 2010, a storm of protest led to postponement of the auction, likely until early 2011
- Due to the increasing importance and economic significance of spectrum, operators will increasingly require from ICASA:
 - ♦ **clarity** over future spectrum release plans
 - ♦ assurance that spectrum awards will follow **international best practice**

Adopting the same band plan as other countries will allow South Africa to benefit from scale, as happened with GSM



- The European Conference of Postal and Telecommunications Administrations (CEPT) has suggested three options for arranging the 2.6GHz band, and most countries are following (or proposing to follow) Option 1 – including many European countries, as well as (to date) Brazil, Singapore and Australia
- ICASA in July 2009 indicated it favoured Option 3, with no constraints on usage
- Not choosing Option 1 means that South African mobile broadband users would not benefit from the multitude of devices that will be available to countries that harmonise on Option 1 – and the country could potentially miss out on a boom similar to that based on GSM for mobile telephony

The Department of Communications finalised a broadband policy in July 2010

- The government has declared a vision of universal access to broadband by 2019
 - ♦ Broadband is defined as at least 256kbit/s, and universal means available within 2km of any person and at least 15% household penetration
- A Broadband Inter-Governmental Implementation Committee will develop an implementation plan and coordinate execution
- Other public sector participants:
 - ♦ Universal services agency (USAASA) to develop options for reaching under-served areas (ICASA has already issued “under-served area licences”)
 - ♦ State enterprises to supply infrastructure
 - ♦ Government to stimulate demand

Benefits of Broadband

- Economic development and growth
 - ♦ Stimulating growth of SMME’s and cooperatives
 - ♦ Increasing employment
 - ♦ Reducing the cost of communication
 - ♦ Improving marketability and encouraging investment
- Social benefits
 - ♦ Improved quality of education
 - ♦ Improved quality of health services
 - ♦ Improved quality of government services
 - ♦ Reduced carbon emissions

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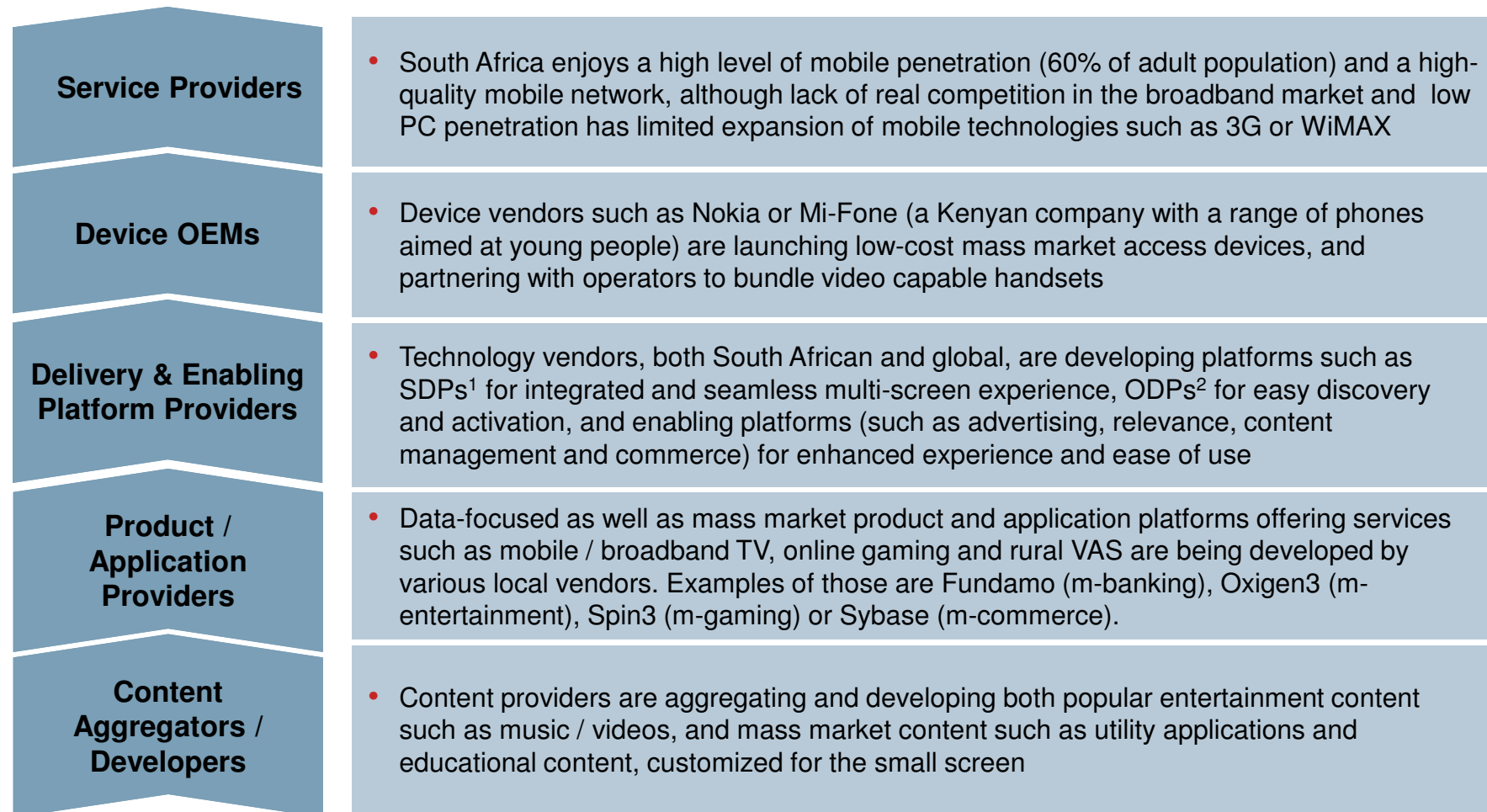
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Socioeconomic impact of wireless broadband

Roadmap for industry and policymakers

South Africa's ecosystem of mobile service providers is vibrant



Mobile applications growth is being led by social media and is diversifying into utility and business applications

- Mobile applications such as social media are gaining traction
 - IM provider MXit, backed by Naspers, is expanding internationally as well as diversifying into m-learning and advertising, and encouraging third party applications by going open-source
 - Mobile applications developer, CellBook enabled e-book downloads on mobile through tie-ups with some of the largest publishers including New Holland Publishers, who distributed more than 2,000 books through this medium in the first week of launch
- Mobile and internet business services are being developed to empower farmers in rural areas
 - In cooperation with Vodacom and Alcatel, Manobi provides rural farmers in South Africa with real-time market information

MXit Lifestyle

- MXit has based its huge success on a free instant messaging application. It has:
 - ♦ a highly active userbase of over 19 million
 - ♦ 20 million log-ons per day
 - ♦ over 250 million messages per day and around 35 000 per second at peak times
- It is available on computers, and old and new mobile phones
- MXit has subsequently expanded into new markets:
 - ♦ m-money with a pre-paid virtual currency (Moola) that can be used to acquire music, play games, get wallpapers, etc.
 - ♦ Health services with MXit Cares, which includes debt, depression and HIV/AIDS counselling
 - ♦ MXit Music, allowing musicians to expose their work to the community
 - ♦ Additional entertainment services, such as games – chess, dating game, etc), tones, etc.

High mobile penetration and legal gambling has encouraged the growth of m-gaming and m-content

- M-content and online content have been slow to take off, due to slow growth of multimedia-capable broadband access
- A small number of content and entertainment solution providers have appeared in the market
 - International brands Spotify and iTunes have to date not been officially supported in South Africa, but Nokia's Ovi Store and eXactmobile are popular local alternatives
 - MXit Music lets users preview and purchase music using MXit internal currency, the Moola
 - Vodacom's MusicStation offers unlimited access to more than 1 million tracks from Universal, Sony, BMG, EMI, Warner Music as well as independent labels
 - YouTube launched a .co.za local version of their media website in May 2010, although content continues to be hosted overseas

Zoopy

- Launched in 2007, Zoopy offers an online social media community where users upload and share videos, photos and audio
- Vodacom acquired a 40% stake in Zoopy in June 2008, increasing that to 75% in February 2009
- In late 2008 Zoopy added a mobile offering, which gives users the freedom to choose the video quality and download size to suit their tariff plan
- Zoopy TV features semi-professionally produced material, mostly from the company itself
- The social and multimedia aspects of the site and the focus on local content set it apart from international video-hosting websites

M-commerce has lagged behind other mobile services, but has the potential to match the growth in online commerce

- Initially confined largely to mobile top-ups, mobile commerce offerings have diversified in recent years
- Increasing interest for m-commerce is spurring the development frameworks from providers such as Sybase
 - ♦ More advanced handsets and improved 3G coverage are expected to drive growth of m-commerce
- Popular South African e-commerce sites all have mobile presence:
 - ♦ Classified sales website bidorbuy.co.za and junkmail.co.za (which have both recently been among the top ten most popular websites in South Africa) offer mobile alerts and tailored mobile sites
 - ♦ Popular e-commerce site kalahari.net also offers mobile access, including purchases using credit cards or “mimoney”

“Collaboration at Rural”

- The Collaboration at Rural (C@R) project, funded by the European Union and run by SAP and CSIR, aimed to offer an eProcurement system to rural traders
- C@R concluded at the end of 2009 but has been replaced by Rustica, which aims to continue to study how ICT can contribute to socio-economic development
- The first version of a simplified mobile eProcurement system has been rolled out to small traders in rural areas in Mpumalanga
- The system enhances the selling power of rural suppliers and the buying power of traders, by cutting down on travel and the risks of physical procurement
- A “mobile wallet” system will support cashless trades

WIZZIT initiated a burgeoning m-banking market which bricks-and-mortar banks are now joining

- South Africa has relatively high adoption of banking services – around 46% – compared with the rest of Africa (e.g. 15% for Kenya)
 - ♦ The launch in 2004 of a low cost “Mzansi” bank account, offered by all major retail banks, contributed to this high penetration
 - ♦ Mobile banking can support this and other government efforts (e.g. post office banking)
- Mobile banking has been adopted both by physical banks and start-up companies:
 - ♦ Physical banks have found a way to offer additional services for their existing clients
 - ♦ The mobile operators have also launched m-banking, with Vodacom M-PESA, MTN MobileMoney and Cell C Flash
- Sybase, Clickatell and Fundamo are the principal providers of m-banking platforms
- After WIZZIT, many banks (FNB, Standard Bank, Nedbank) and start-ups (MXit, mimoney) launched m-banking services

WIZZIT

- WIZZIT offers payment mechanisms to unbanked and under-banked population and is the flagship of the m-banking trend
- Launched in November 2004, WIZZIT was one of the first players in the m-banking field
- It aimed to provide a low-cost transaction-oriented bank account, that can be controlled from a cell phone
- Transactions can only be performed using a 3G enabled terminal
- WIZZIT’s marketing emphasises its social aspects, e.g. employment of young previously unemployed people, benefits for low income users
- The service is intended to be easy to use. For instance, an agent is sent to an applicant’s home to open their account

Affordable and ubiquitous broadband is vital for the education sector and improving employability of the workforce

- South Africa's education system still faces severe challenges in combating the legacy of apartheid
 - ♦ Most schools remain under-resourced, under-supplied, and over-crowded, with shortage of qualified teachers
 - ♦ There is a severe employable skills shortage: ~ 80% people enter the job market armed with only Grade 12 or lower qualifications
- A number of ICT-based education and training programs have been launched
 - Initiatives such as EduNet and 'e-rate' had limited impact since few schools could afford internet connections and struggled to get access to discounted ADSL service
 - Initiatives such as e-Schools' Network, Gauteng Online and Khanya Project provide schools with ICT solutions & expertise to enhance teaching & collaboration capabilities
 - The Bridges to the Future Initiative develops community learning and technology centres by utilizing ICT as enabler both to deliver resources and to monitor progress

e-Schools' Network

- The e-Schools' Network, a non-profit organization was founded in 1993 with the aim of harnessing ICT to enhance the quality of education in South Africa
- e-Schools' Network offers a unique email service, SchoolMail, which works on any operating platform, creates a mailbox for each learner and educator in a school
- Its network has grown to over 1,700 schools across the country, and provides connectivity and communication solutions as well as consultancy and training support service in educational technology
- e-Schools' Network runs an educational conference which creates a platform for educators to showcase their unique approach to curriculum integrated ICTs and to share these insights with their fellow educators

Wireless broadband will immensely benefit the healthcare sector and help realize South Africa's potential in telemedicine

- There is an urgent need for capacity development in e/m-Health at all levels
 - Many health workers do not have any computer training during their basic training and those from rural schools may never have used a computer
 - In the State sector, there are average 24 doctors per 100,000 people, with three of the Provinces having fewer than 20, the minimum number required to offer a basic public health service according to WHO
- South Africa has both the potential and the need to build on its existing medical informatics and telemedicine experience through wireless broadband
 - Aiding implementation of the National Health Information Systems and improving the level of medical informatics and telemedicine with better technical support & connectivity for health workers, especially in the rural areas

KwaZulu-Natal Tele-Health Project

- The aim of this project is to establish a telemedicine service to deliver healthcare to rural populations in KwaZulu-Natal, by linking hospitals to specialists based at a hub at the Nelson Mandela School of Medicine in Durban
- Clinical service, including teleconsultation and telepsychiatry, is being planned to be delivered via videoconferencing
- The project also aims to establish sustainable broadband access to rural healthcare centers
 - The project is evaluating solutions, especially based on 3G, for meeting the clinical demands in terms of bandwidth in the most cost-effective manner

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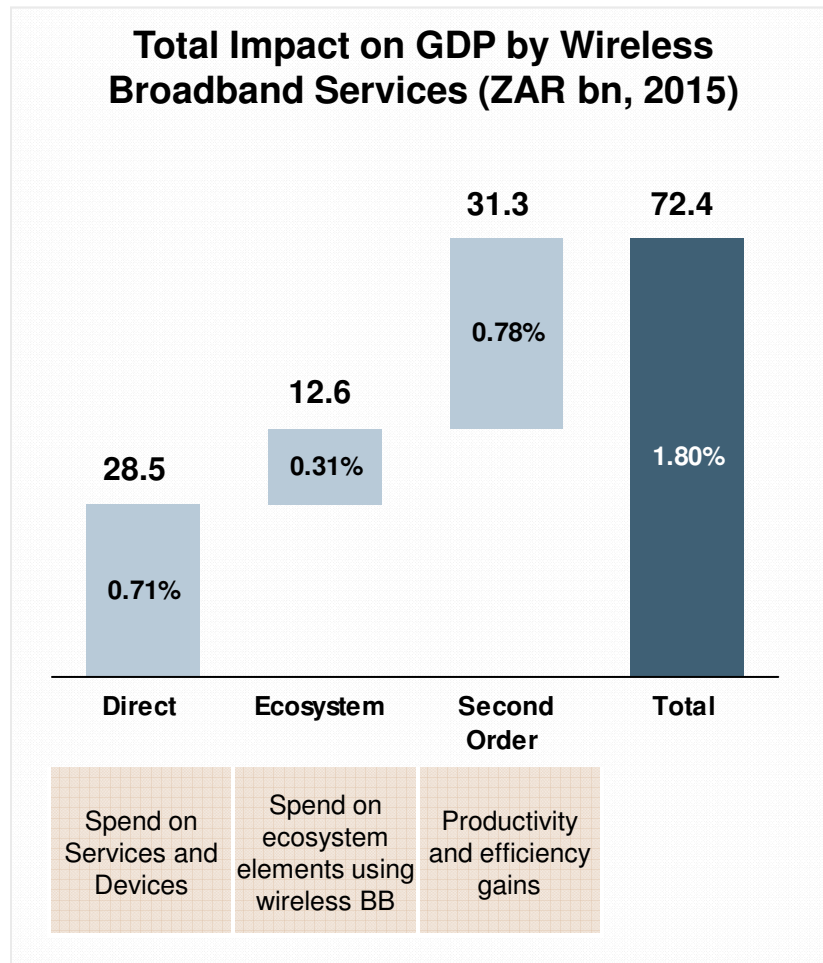
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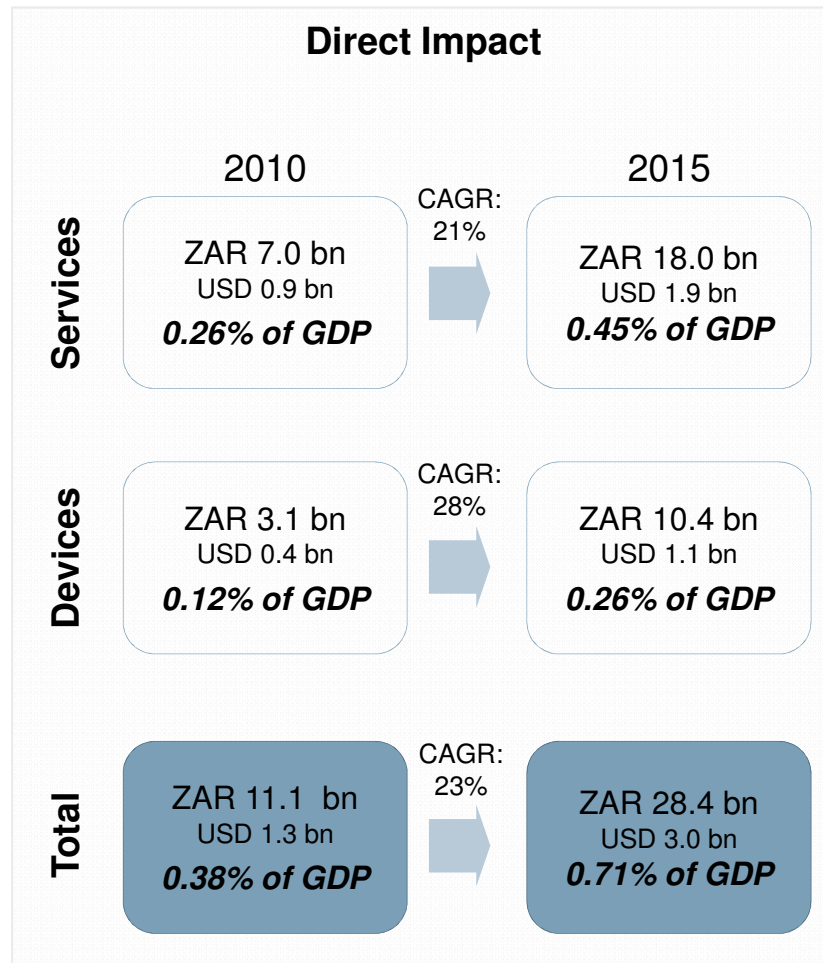
Wireless broadband and related industries could generate about 28,000 new jobs and 1.8% of GDP by 2015



- A thriving wireless broadband industry can support job creation both within the industry and in the ecosystem
- These two mechanisms could support the creation of over 5,000 jobs each year, resulting in 28,000 new jobs by 2015
 - ◆ This ignores second order job creation, resulting from opportunities created in other sectors
 - ◆ In Philippines it has been estimated that every new ICT job results in 2-3 new jobs in other industries
- Some directly created jobs can offer people with few formal skills a livelihood, particularly as service distribution extends to poorer and more rural areas

“Especially in the rural context, [broadband] will give [SMMEs] access to more suppliers and more competitive inputs thus increasing their bargaining power with suppliers and the competitiveness of their product.”

Wireless broadband will have a direct revenue impact of ZAR 28 bn (0.7% of GDP) in 2015

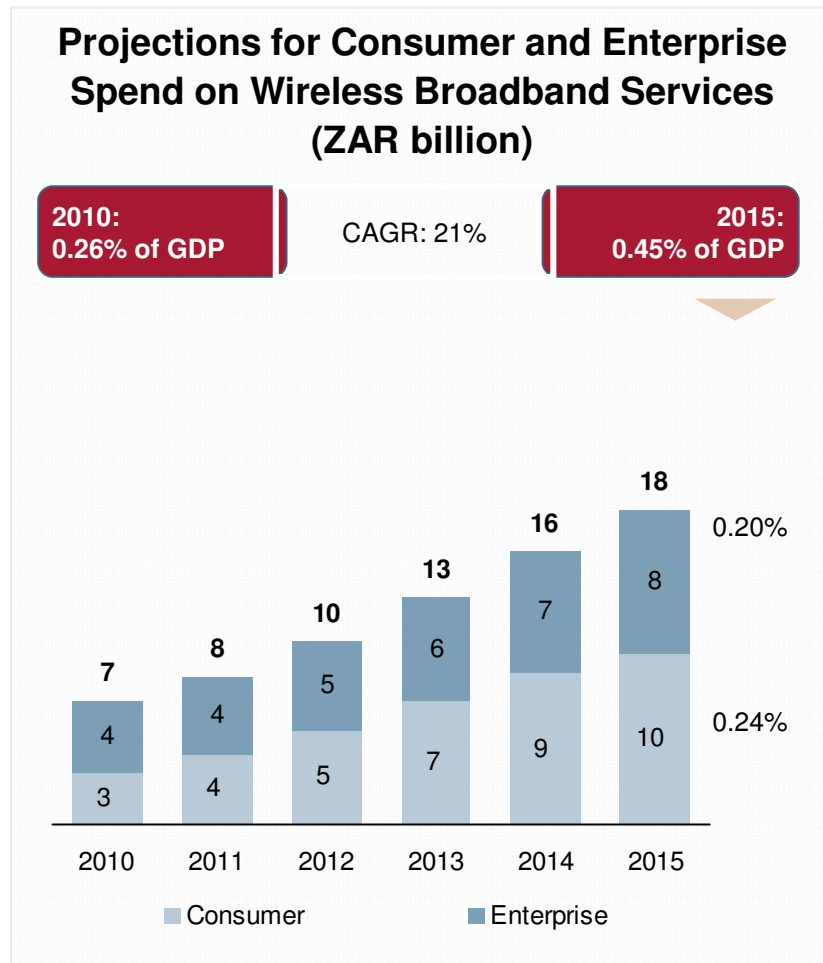


Key Metrics – Direct Impact of Wireless Broadband Penetration

Parameter	2010	2015
Wireless Broadband Users (million)	2.0	9.3
Penetration of Population	4.2%	19.2%
ARPU (ZAR)	321	178
% HHs with Wireless BB connection¹	11%	35%
% businesses with Wireless BB Connection¹	8%	45%

The growth in wireless services spend will be driven by increase in consumer base & service adoption by enterprises

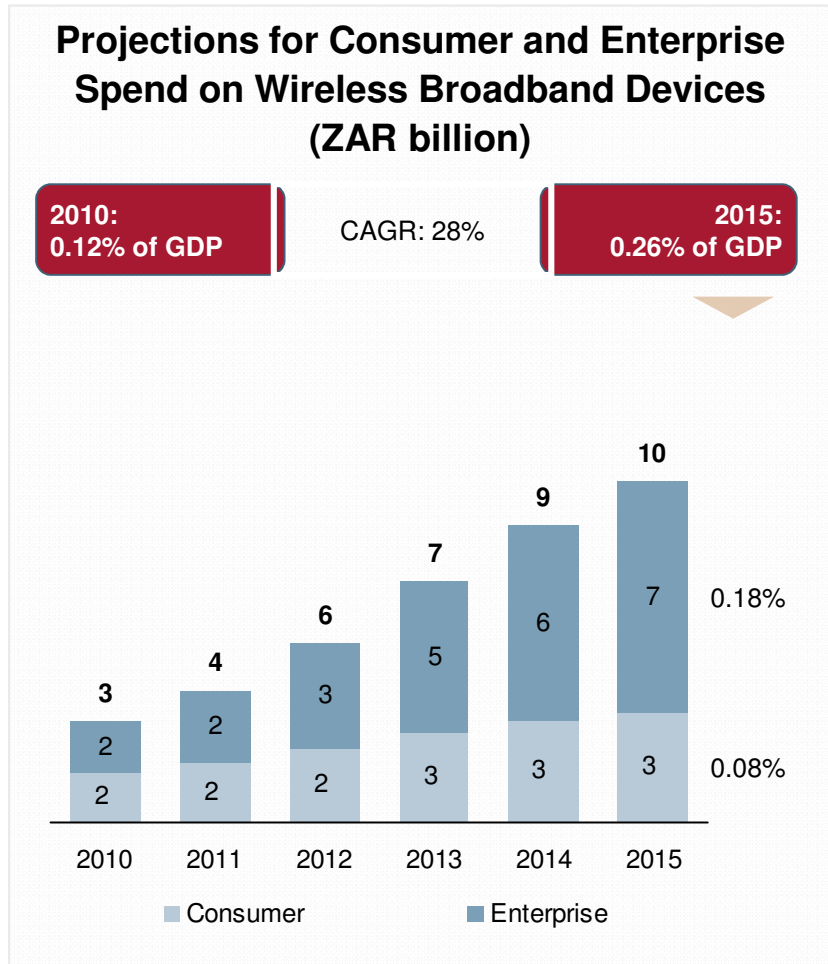
1 Services



- Global industry trends show the growing importance of non-voice services including content and entertainment, financial services and advertising
- Consumer broadband spend is expected to exceed enterprise spend by 2012, with increasing take-up of individual subscriptions at home or on a personal mobile device

The market for wireless devices will be driven by consumer-centric devices and will see local vendors expanding globally

2 Devices



- Global trends in mobile handsets, tablets and eBooks suggest increasing use of wireless for online content consumption
- Consumer demand is expected to focus on lower cost devices (smartphones and netbooks) rather than specialized devices such as e-readers and tablets
- Enterprises will increasingly equip staff with laptops and customized devices such as tablets, to support increased productivity in the workplace

Increasing penetration of wireless broadband will have a significant impact on the broadband ecosystem revenues

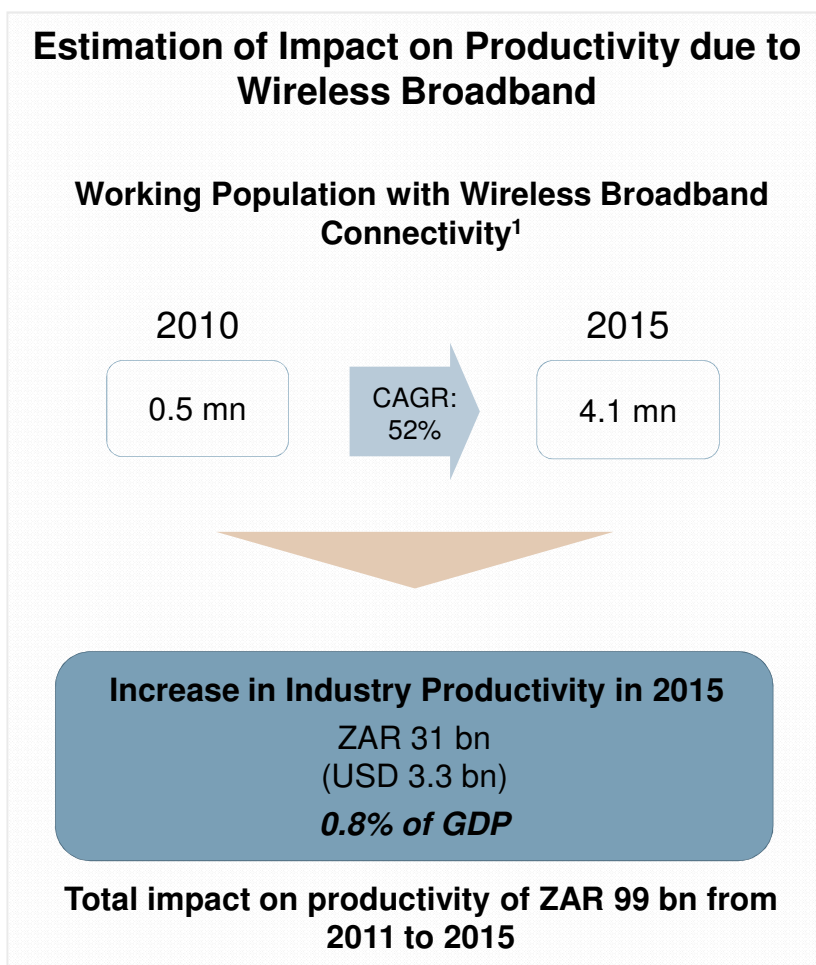
Ecosystem Impact

Wireless BB Ecosystem	Description ¹	Drivers in South Africa	Wireless BB Revenue (ZAR bn)
1 Consumer / Retail	<ul style="list-style-type: none"> Includes: <ul style="list-style-type: none"> M-Commerce M-Entertainment <ul style="list-style-type: none"> M-content M-gaming M-app M-Advertising 	<ul style="list-style-type: none"> Larger reach of mobile medium compared to PC / laptops is the key driver for growth of retail consumption on mobile in South Africa Availability of devices such as smartphones and touchscreen phones at affordable price point 	<p>2010: 0.9 2015: 5.1 CAGR: 40%</p> <p>Legend: m-Advertising, m-Entertainment, m-Commerce</p>
2 Financial Service	<ul style="list-style-type: none"> Consists of M-Banking and remittances using wireless BB 	<ul style="list-style-type: none"> Increasing the range and convenience of services available to existing customers of “bricks and mortar” banks Offering more convenient or cost-effective services to the unbanked and underbanked (including rural communities) Literacy of unbanked and underbanked people 	<p>2010: 0.1 2015: 0.6 CAGR: 48%</p> <p>Legend: m-Banking</p>
3 Social Services	<ul style="list-style-type: none"> Includes services such as learning, healthcare and governance accessed on wireless mode 	<ul style="list-style-type: none"> Tech enabled social service market in South Africa is currently very underpenetrated with no strong player Emerging innovations (both local and international) in both hardware and software to drive adoption Easy access to time consuming processes such as passport form submission, vehicle licensing 	<p>2010: 0.2 2015: 4.6 CAGR: 87%</p> <p>Legend: m-Learning, m-Health, m-Government</p>
4 Corporate / Verticals	<ul style="list-style-type: none"> Use of wireless BB for farming, utilities such as M2M and for enterprise solutions 	<ul style="list-style-type: none"> Enterprise spending priorities shifting from cost optimization to supporting business growth Increasing field force automation and adoption of electronic communications services by non-traditional industries 	<p>2010: 0.8 2015: 2.4 CAGR: 26%</p> <p>Legend: m-Farming, m-Enterprise, m-Utilities</p>

○ CAGR

Wireless broadband will have an industry productivity impact of ZAR 31 bn (0.8% of GDP) in 2015

2nd Order Impact

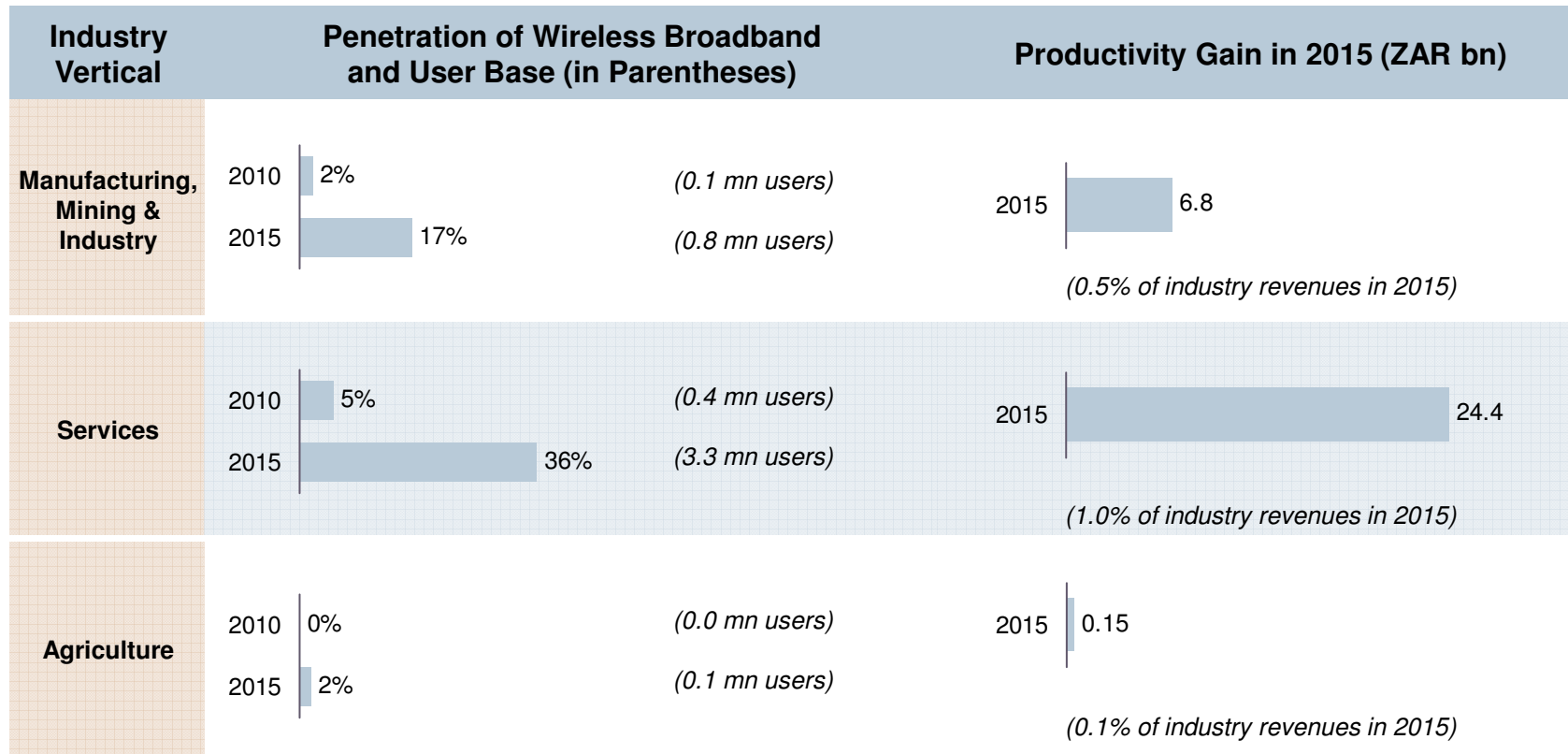


Industry-wise Impact on Productivity due to Wireless Broadband (2015)

Industry Vertical	Industry Contribution to GDP in 2015	Share of Increase in Productivity in 2015
Manufacturing, Mining & Industry	33%	22%
Services	63%	77%
Agriculture	4%	1%
Total	ZAR 4,020 bn	ZAR 31 bn

The service industry will benefit the most from wireless broadband services

2nd Order Impact



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Introduction

Overview of broadband services in South Africa

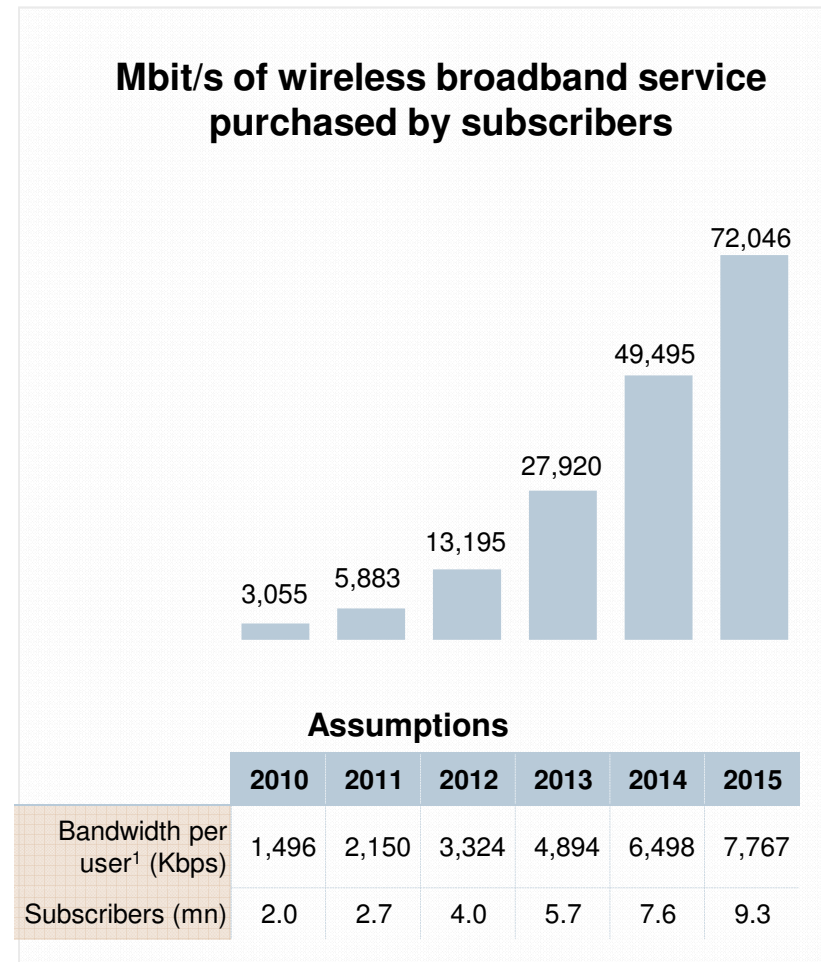
Wireless broadband value chain

Socioeconomic impact of wireless broadband

Roadmap for industry and policymakers

Industry is well-positioned to widen access and use of wireless broadband, but challenges remain

- The ICT sector (including operators as well as application providers) is well-poised to supply broadband services to South African consumers and businesses
- Increasing affordability presents new challenges to operators to keep up with demand
- The key challenges facing stakeholders in increasing access to and affordability of broadband are:
 - ♦ **Ensuring that spectrum is allocated responsibly.** In the last 15 years spectrum has become critical to economic growth, and poor decisions can deter investors and jeopardise expansion.
 - ♦ **Reducing barriers to deployment of wireless broadband.** Insufficient microwave spectrum for backhaul, onerous administrative demands and additional taxes all add to the cost of broadband to end users.
 - ♦ **Supporting demand among consumers and businesses.** Increasing the range of services available online and improving the affordability of devices will lead to greater takeup.



The challenges can be addressed through contributions from all stakeholders

Challenge	Policy Aim	Comments
Ensuring that spectrum is allocated responsibly	Ensure spectrum policy reflects international best practice	<ul style="list-style-type: none"> Spectrum policy (including band plans, pricing, usage, transfer) should be transparent, fair and consistent – and harmonised with international spectrum practice This should include Digital Dividend spectrum
	Develop a spectrum release plan	
Reducing barriers to deployment of wireless broadband	Streamline and accelerate procedures for access to microwave spectrum	<ul style="list-style-type: none"> ICASA should be encouraged to speed up the process of accessing spectrum for backhaul
	Harmonise rules for impact assessment and planning permissions for infrastructure deployment	<ul style="list-style-type: none"> Central and local government should harmonise the rules for getting permission for new sites or fibre deployment, which currently vary between municipalities
	Minimise the tax burden on operators supplying broadband services and on user equipment	<ul style="list-style-type: none"> Stakeholders should consider which taxes and duties may be inflating costs, and government evaluate whether the revenue generated from these outweighs the benefits of increased affordability
Supporting demand among consumers and businesses	Encourage the development of useful online services – including public sector (e-government) services	<ul style="list-style-type: none"> The SANBP commits government to increase its use of broadband and delivery of e-government, and industry should be incentivised
	Coordinate efforts to introduce low-cost devices (PCs, netbooks, smartphones)	<ul style="list-style-type: none"> The SANBP calls for more public access points; a complementary initiative would be to ensure that affordable devices are available to all

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