



**Western Cape
Government**

Economic Development
and Tourism

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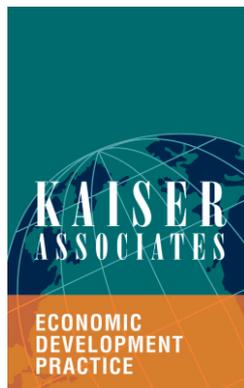
Connected Businesses

Western Cape Broadband Implementation Plan

Western Cape Government
Department of
Economic Development
and Tourism

Western Cape Government
Broadband Implementation Plan
Connected Businesses

The study was conducted on behalf of the
Department of Economic Development and Tourism by:





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REPORT ABSTRACT

The report summarises the final business case for the Western Cape Government (WCG) Department of Economic Development and Tourism (DEDAT) Connecting to the World broadband project let under tender EDT 004/11. This document describes the background to the project, summarises the 'As Is' situation and 'To Be' vision, builds on the findings from the primary research exercise and provides the justification and rationale for executing the Connecting to the World project.

The World Bank defines broadband as, “an interconnected, multi-layered ecosystem of high-capacity communications networks, services, applications and users ... The ecosystem includes the networks that support high-speed data communication and the services these networks provide. It also includes the applications provided by these services and the users who are increasingly creating applications and content. Investments – by the public and private investors and agencies – and user demand expand the reach of high speed networks. These networks increase the availability of high-quality services to both users, and applications providers. Applications access these services to reach users, who respond to the affordability of these services and relevance of the applications. Users then grow in number and sophistication, demanding and driving greater investment in networks, creating the virtuous cycle for broadband.”

1. Project background

Overall programme

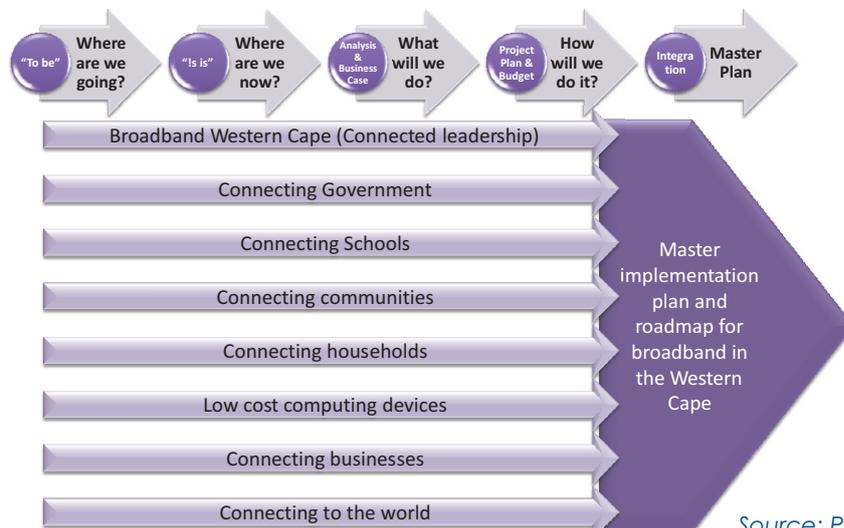
The WCG DEDAT, with the support of the Department of the Premier (DotP), has initiated a process to develop a provincial Broadband Strategy in consultation with a broad range of stakeholders: provincial, national and local government, the wider public sector (State-owned Enterprises and agencies), private investors and the public.

As part of this process, a strategic framework was formulated to establish the parameters and the principles of the initiative within this transversal key priority areas and projects identified which are expected to impact significantly on the broadband landscape in the Western Cape, specifically relating to government service delivery, education and access of citizens, as well as economic development. Figure 1 shows the priority projects and the overall process flow that resulted from this process.



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Figure 1: WCG Priority projects identified



Source: PGWC, 2011

2. Introduction and definitions

As part of the overall provincial telecommunications strategy, there is an opportunity to leverage public infrastructure to increase businesses' access to affordable and high quality broadband.

This document provides a summary of the business case for pilot projects to explore different approaches to connecting local businesses to government telecommunications infrastructure, in order to learn lessons for a provincial rollout. The process of compiling the business case involved reviewing reports, policy and strategy; stakeholder consultation; benchmarking; and obtaining expert input.

In this context, business is taken to include large, medium, small and micro businesses, as well as

freelancers, both formal and informal. A particular focus is given to data-intensive businesses in prioritised sectors.

Rather than defining broadband as a particular data speed, the World Bank has recently used a wider definition, which provides a more up-to-date concept for the role broadband is playing, namely "an interconnected, multilayered ecosystem of high-capacity communications networks, services, applications, and users ... The ecosystem includes the networks that support high-speed data communication and the services these networks provide. It also includes the applications provided by these services and the users who are increasingly creating applications and content. Investments — by public or private investors and agencies—and user demand expand the reach of high-speed networks. These networks increase the



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availability of high-quality services to both users and application providers. Applications access these services to reach users, who respond to the affordability of the services and relevance of the applications. Users then grow in number and sophistication, demanding and driving greater investments in networks, creating the virtuous circle for broadband." Increasingly this ecosystem is co-created, with users having the "ability to consume, create, and share multimedia content in a variety of formats using a growing range of powerful devices".¹

Cloud computing can be defined as computing delivered as a service on demand over the internet from a remote location, whether in the form of infrastructure, platform or software. Cloud computing is also increasingly being understood to incorporate the "internet of people and things" as devices become extended to not just internet-enabled computer and telecommunications devices, but also appliances, homes, vehicles, products, interactive marketing materials, and even, in future, people. In all these iterations, high speed access is the key enabler.

3. Rationale for addressing competitive broadband

There is a clear rationale to support access to quality, competitive broadband services for businesses. This has been shown internationally to strongly contribute to growth, development and competitiveness. The net economic impact is very likely to be positive, supporting growth of hundreds (even thousands) of enterprises for a relatively small investment.

It is widely recognised that access to broadband can have a powerful impact on economic growth. "Broadband allows companies to explore new business opportunities, reach customers and obtain information about market prices. Better access to information makes markets work more efficiently and raises producer incomes".²

In the case of locations aiming to develop their knowledge economies, competitive broadband is not a differentiator, it is a prerequisite for success. Information is by definition the life-blood of knowledge-intensive industries, and broadband is the tool that allows that life-blood to flow, enabling businesses to thrive.

High cost or slow broadband throttles the health and growth prospects of such businesses, and

¹ World Bank (2010) *Building broadband: Strategies and policies for the developing world*, pp. 6, 11

² *Ibid*, pp. 3, 11



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can prevent potential opportunities or certain ways of working. Good quality broadband can also be critical in winning contracts or attracting businesses in the first place. The absence of affordable and high quality broadband also inhibits foreign direct investments. In many sectors, potential clients, partners and investors assess the viability of working with partners in the Western Cape, or locating an office here, based on the ease, speed, cost and reliability with which they will be able to communicate and receive outputs.

Furthermore, international research has shown that the importance of data for business is expected to grow exponentially, with global annual growth rates of data usage estimated at around 40%.³

Different sectors and business types have somewhat different user requirements. The table below provides a stylised categorisation of these user requirements, based on industry input (note that in reality there is overlap between these groupings, based on factors such as stage of development of individual businesses, size and business focus).

Continuum of intensity of data usage	ICT and data requirements to compete internationally		
	Speed	Quality	High volume need varies
Tier 1: Highest intensity Film (animation, production, post production) Some software and gaming	Highest possible international standard, likely >10 Gbps	High security, low contention and low latency	(≈100G - 1Tb per file) depending on deadlines competing for international clients
Tier 2: High intensity BPO Digital broadcasting Information and Communication Technologies (ICT) New media (creative, digital advertising, and marketing) Online education Online music Online publishing Online retail Telemedicine	High, at least 4 Mbps	Low contention and latency	Broadband integral to everyday business delivery e.g. VoIP, purchase downloads, cloud services Consistently available and reliable service imperative for product /service delivery Thousands/tens of thousands of small data transfers Customers based domestically and internationally

³ McKinsey (2011) *Big data: The next frontier for innovation, competition, and productivity*



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Continuum of intensity of data usage		ICT and data requirements to compete internationally		
		Speed	Quality	High volume need varies
 Tier 3: Medium intensity Architecture Biomedical Design Medical devices Tier 4: Low intensity	Medium to high - up to 4 Mbps	High security, low contention and low latency	Regular image and other file transfers (medium size) Research Collaborations between offices, with clients, partners, suppliers (mainly domestic, also international)	
	Medium - at least 512 Kbps	Security, latency and contention important, but price sensitivity also strong	Medium size file transfers (images e.g. > 10M, often through file transfer software VoIP (Voice-over Internet Protocol), web browsing, email, client communication e.g. Skype conference calls / video calls, business services Online marketplace Customers served are a mix of international and domestic	

Businesses in Tier 1 require specialised solutions, those in Tiers 2 and 3 are likely to require fibre-based solutions, and those in Tier 4 could potentially have many of their needs addressed by mobile and wireless solutions, with occasional use of fibre in common use locations.

Many of the above requirements are not currently met in the region. For example, online education and online music currently struggle with bandwidth that is inconsistent, with low speeds and high latency, which makes

delivering language lessons online to more advanced bandwidth countries frustrating to the point where a business will not actively market the courses. Online music and music streaming are hindered by similar challenges with high latency ruining the experience for the user. Smaller companies that fall in this category (Tier 2) pay around R1,000 per month for 10-20GB on a 512kbps line. Higher intensity users in this same category can pay anything from R2,500 per month for a similar amount of bandwidth (10-20GB) on a faster 4Mbps line for a relatively small



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company, up to R250,000 to R500,000 for large companies (sometimes including other IT services and hosting) on 15Mbps or faster lines. Actual speeds achieved are often below expectation.

In Tier 1 industries, such as Film Animation and Post-Production, many companies end up using special services to send very large files when required. It can cost up to R100,000 to send a single file, which currently makes delivery by courier or sending employees by plane to deliver hard drives or disks a more financially appealing method in some cases; however, this creates delays and some data security concerns.

In Tier 4 industries, freelancers and small companies generally spend R300 to R600 per month on a 500MB to 5GB package with relatively slow connections e.g. 512kbps connection (often via ADSL or mobile phone).

A number of companies are using general and specialised cloud services such as Dropbox, Google, SoundCloud, which offers a "freemium" service (lower spec users do not pay for the service, higher spec users pay). Some of the larger companies use proprietary solutions for data storage. Respondents in the study

generally seemed open to using cloud services, depending on their business needs. Software needs also vary across the industries, based on the size of the company. Larger companies and those with specialised needs in the creative industries either use proprietary software or buy commercial software as needed. No respondents were currently renting software, but many said that they would consider this if they could use it as they needed it and if it was cheaper.

These dynamics play out in terms of the share of total costs attributable to Information and Communication Technologies (ICT). There is a wide range of costs, based on both the size of company and the sector, with stakeholder input indicating costs from around 3% to over 40% of total costs, with the highest share being in animation and post-production.

Current telecoms provision in the Western Cape is highly uncompetitive relative to other knowledge-intensive regions. Businesses in the Western Cape experience far lower broadband speeds and face far higher broadband costs than many of their international competitors, impacting on their overall competitiveness and strategic possibilities.



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	Download speed		Upload speed		Cost	
	Rank	Mbps	Rank	Mbps	Rank	US\$/Mbps
Average		9.34		3.41		9.84
# countries measured	172		172		64	
Lithuania	1	31.69	2	23.68	3	1.17
S. Korea	2	30.33	1	27.66	n/a	
Seoul		31.13		28.38	1	
Netherlands	7	24.81	21	6.55	15	3.39
US	31	12.16	38	2.86	28	4.99
Australia	49	8.58	84	1.32	46	10.2
Rwanda	68	5.14	27	4.66	n/a	
Argentina	79	4.19	104	1.04	45	9.42
Kenya	80	4.88	46	2.43	n/a	
South Africa	97	2.99	92	1.19	63	39.43

Source: Netindex by Ookla , speed based on speedtest.net, rolling mean over past 30 days as at 14 January 2012, value data based on surveys Nov 2010 to Nov 2011, * = data from published service provider packages

South Africa's high costs and slow download speeds result in reduced competitiveness for businesses, in particular for the highly data-intensive sectors. For example, film and animation data transfer costs in the Western Cape could be as much as R1m per project, on a R10 – R20m project. Industry views are that their competitor locations' data transfer costs are negligible in comparison.

Incremental changes are inadequate if the Western Cape wants to be competitive, given that our broadband costs are currently ten times higher than those in leading knowledge economies. In addition, we are competing with a moving target, and our track record to date is that we are falling further behind. Fellow African

countries such as Ghana, Rwanda, Angola and Kenya are now out-performing South Africa on broadband speeds and also in some cases cost.

The absence of affordable and high speed broadband also inhibits the ability of businesses to tap into the potential benefits offered by cloud computing. These benefits include the following:

- Direct cost saving – less spending on IT hardware and software, maintenance, administration time and less office space required.
- Can be used off multiple devices, therefore facilitating productivity.
- Quick start-up (no need to wait for purchasing and installations).



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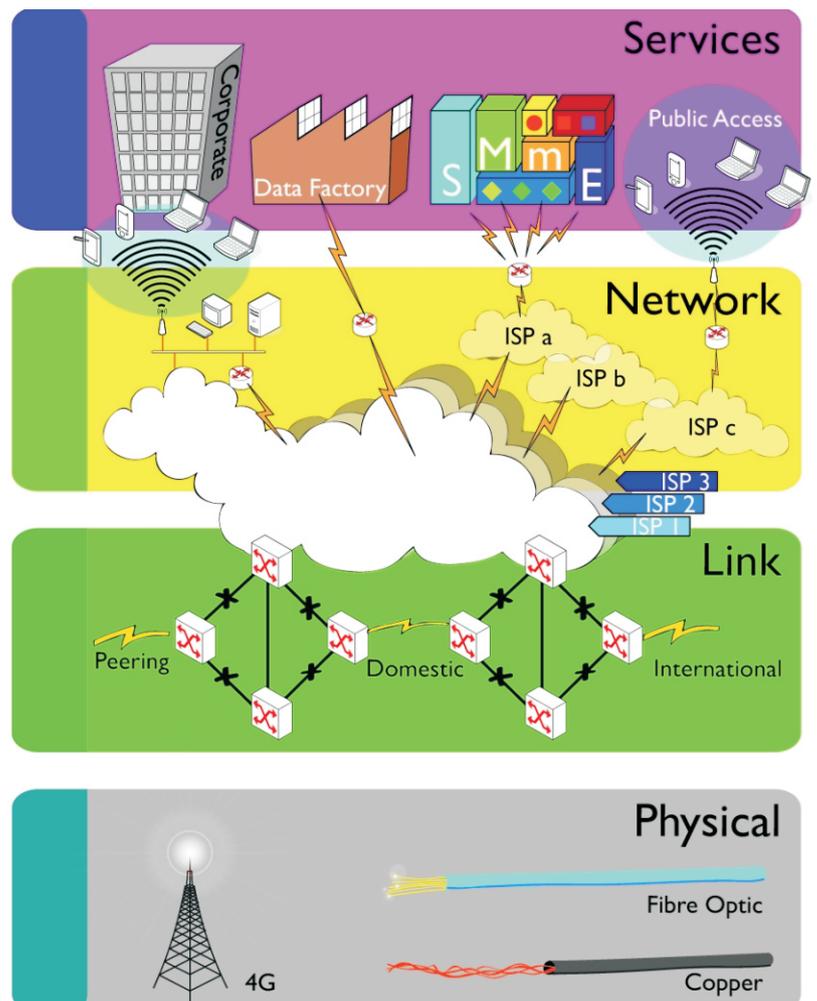
- Quickly scalable services.
- Greater reliability/quality of IT provision (where there is quality broadband).
- Productivity improvements – faster operations and the opportunity to always use the latest technology (technology risk is transferred to the service provider).
- Potential for highly mobile workforce/working environment, and less office space.
- Increased scope for collaboration with partners and clients.
- Greater scope for internationalisation – e.g. file transfers, client interaction.
- New product and service offerings become possible.
- Improved disaster recovery capabilities (as most facilities are not on-site).
- Some argue it is greener, as there is less duplication of equipment and power.

4. Understanding the value chain of broadband service provision

It is important to reflect on the elements that make up broadband provision in order to assess why broadband provision in South Africa is so uncompetitive, and which elements provincial government can and cannot address.

Service provision is built up from various layers, starting with a physical layer (dark fibre), followed by a link layer, a network layer, and service layers.

Various role players contribute to the service provision, including infrastructure providers, broadband companies, first and second tier Internet Service Providers (ISPs) and value-added service providers. In some cases, players are vertically





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integrated, i.e. involved from physical infrastructure right through to end customer services, as is the case with Telkom.

End users may interface with service providers differently depending on their scale and which packages they purchase from service providers (larger users may access wholesale or customised solutions whilst smaller consumers generally have to buy standard “off-the-shelf” packages or bundled products).

Some of the reasons why South Africa's broadband provision is currently uncompetitive include:

- Legacy issues of the Telkom monopoly persist, with the competition authorities claiming excessive pricing and abuse of market position by Telkom⁴, along with an ongoing lack of strong competition in telecommunications infrastructure provision (in particular there are limited national network options available; the relatively large geographical size of the country relative to the market size also constrains rapid infrastructure deployment).
- Limited access to international fibre capacity was a constraint in the past, but this on its own is no longer a major reason for higher costs, in particular with the arrival of the West Coast Cable System (WACS) cable.
- National regulatory issues and uncertainty inhibit transformation of the industry, including delays in full unbundling of the local loop.
- The limited number of first tier Internet Service Providers (ISPs) inhibits price competition
 - 1st tier ISPs are characterised by their own international and domestic fixed-capacity backbone; integration with major peering points, including government; typically provide bulk services to retail ISPs and corporate clients; operate high-availability data and switching centres; network management system capable of sophisticated multi-homed configurations; capability to negotiate 99+% Service Level Agreements (SLAs). At present, 1st tier ISPs could be considered to include Internet Solutions, MTN Verizon, Telkom/SAIX and MWeb.
 - Second tier ISPs can resell and provide value-added services, but have little scope to significantly reduce costs.
- Commercial arrangements between players can increase costs e.g. practices of charging for peering⁵ (MWeb initiated a policy of not paying for peering in 2010, which has stimulated some changes in peering charges).
- There is limited collaboration by end

⁴ See <http://www.comptrib.co.za/publications/press-releases/the-competition-commission-and-telkom/>

⁵ Definition of peering at: <http://mybroadband.co.za/news/broadband/16009-we-will-not-pay-you-one-single-cent-for-transit-anymore-mweb-ceo.html>



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consumers to advocate for better deals or exercise shared bargaining power; the case of Tenet in higher education has demonstrated the powerful impact on cost and usage that demand aggregation can have.

Many of these contributing factors are outside of the control of WCG. The intention of the initiative is therefore to work within those areas where the regional government have the scope to contribute, in particular addressing infrastructure and coordination failures.

5. Scale of potential demand

Broadband penetration and data usage have been constrained by current service provision. The industry interviews conducted as part of this project have shown a strong desire for faster and cheaper broadband, which could stimulate significant growth in data usage. The table below provides a rough estimate of the “total market” of enterprises in targeted knowledge-intensive sectors across the Western Cape, based on input from industry associations and support structures.

Industry	Estimated industry size in the Western Cape by number of businesses
Architecture	40-100+ companies, 2,000+ individuals
Biomedical	40-50
Business Process Outsourcing (BPO)	200
Design	450
Digital broadcasting	<5
Fashion design	300-350
Film – Animation and post production	40-50
Film – production companies	200-300
Furniture design	35-50
Handcrafts	2,500 (mix of individuals & companies)
ICT (software, online retail)	1,000+
Gaming	20-30
Medical devices	40-50
Music – online and related	500-1,000 (mix of individuals & companies)
New media (creative, digital advertising & marketing)	40-50
Online education	15-30
Online publishing	40-50
Performing arts	2,500 individuals
Telemedicine	5-10



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Together, these currently make up a market of roughly 8,000 to 10,000 businesses and freelancers. Using very broad estimates of current data usage across these categories, their total annual data consumption could be in the order of 2.5 to 6 Petabytes (or around 2,500 to 6,000 Tb). If one assumes annual enterprise growth rates of 5%, and data usage growth rates equivalent to global forecasts (40% p.a.) this market could grow to 20 to 40 Petabytes within 5 years.

The potential enterprises that could be reached by a pilot would be a sub-set of this total, dependent on factors such as selected locations and businesses' proximity to the fibre.

6. The value proposition

The WCG wants to leverage government's capital investment in passive broadband infrastructure to promote and support economic development in the Western Cape. In order to avoid competing with private sector service providers, they do not intend to offer end-user services. It may also be appropriate for government to address coordination failures, and facilitate industry to develop community networks and aggregate demand where requested.

Details of the role of the Western Cape broadband SPV may need to be refined during initial implementation phases, in consultation

with end users and ISPs. However, current thinking is as follows:

- Package:
 - Fixed line: 10Mbps to 1Gbps, low latency.
 - Wireless: Blanket WiFi coverage across pilot areas.
- Pricing model: For fixed line, based on the similar Metroconnect model in eThekweni, monthly rates for most users should be at least half that offered off other platforms. For wireless, some free services will be available (with some limitations on usage), with other services available from private sector partners at significantly lower costs than currently possible.
- Overall role of broadband SPV vs. ISPs:
 - The SPV/ PPP will play the role of a network service provider which will rent dark fibre from the CoCT (and other providers in instances where the city does not have infrastructure). This network service will then be made available to ISPs and other telecommunications service providers to provide services to end users (citizens or businesses).
 - ISPs will offer end user customer services.

Offer for end users

End users can be offered:

- Faster and higher quality broadband at a significantly cheaper price than current service offerings in the province.
- Participation in a community of knowledge-intensive businesses and freelancers.



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Offer for service providers

The potential value for ISPs is:

- An alternative infrastructure/network platform at a competitive rate, allowing several independent network operators to share the same fibre infrastructure.
- A vastly improved local loop (last mile) alternative to the prevailing ADSL services provided by Telkom's SAIX facilities operated on POTS (Plain Old Telephone Service) copper infrastructure.
- Access to a pool of potential high data requirement users with high growth potential.

More specifically, the value offered could include the following:

- Retail ISPs will be able to launch next generation services not previously possible.
- Wholesale ISPs will be able to leverage their buying power for domestic and international transit capacity on the exponential growth in demand for capacity.
- Specialised businesses can kick start demand by utilising very high-capacity communications facilities not previously available locally.

More widely, as part of the open access approach, the following is offered:

- Wireless service providers can leverage the high-speed backbone to improve services to mobile consumers (e.g. Public Wi-Fi hotspots, wireless mesh coverage).
- Owners of commercial buildings can provide

high-value pre-installed network facilities ready to activate on occupation.

- 4G license holders can launch next generation mobile data services, e.g. HDTV, TV on Demand, video conferencing and high availability and capacity cloud services.

7. Recommended approach

Proposed 'To Be' targets

Short-term (by 2014):

- Specific targeted industries/ buildings in the pilot areas in the metropolitan area connected via "fibre to the premises" technologies with 10Mbps to 100Mbps services available.
- Services on these networks offered at significantly below general market pricing (details of the pricing target will be finalised once business models have been agreed with ISPs).

Medium term (by 2020):

- Businesses and freelancers in every town and village have access to affordable broadband infrastructure.
- Businesses and freelancers in the metropolitan area have access to affordable broadband infrastructure at network speeds in excess of 100Mbps.
- [Whilst not directly within the control of the initiative, targets should ideally also measure competitiveness of broadband access with international comparator locations in terms of speed, cost and quality (as this is the



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ultimate objective of the Connecting Business Initiative), aiming to have all these factors rank among the top 20 countries.^{6]}

Long term (by 2030):

- Every business and freelancer in every town and village has access to internationally competitive broadband infrastructure in terms of speed and quality.
- [Ideally, targets should also measure that every business and freelancer has access to broadband services that rank within the top 20 countries in terms of speed, cost and quality, in terms of an agreed index].

Approach to implementation

In order to achieve the above targets, the short-to medium term project scope (3 to 5 years) is to use pilots to experiment with different approaches, understand practical implementation issues, and to demonstrate the economic impact more clearly.

Elements of the approach will include:

- Open access to fibre (or a managed network) within a specified distance of publicly owned fibre and a switching centre (to be agreed between WCG and the CoCT)
- Additional once-off support for companies in priority knowledge-

intensive sectors to overcome barriers related to installation or set-up costs.

- Wireless in selected locations.
- Support for self-organised industry grouping to develop community networks and cloud services.

The principle of the approach is collaboration with industry players, end users and service providers. The pilot and subsequent implementation will therefore need to be flexible to respond to lessons learned, rapidly changing conditions and user needs.

In the longer-term, depending on the findings of the pilot/s, wider rollout of business access to the planned public sector fibre network could take place, in particular the network planned to connect government across the province (see the "Connecting Government" project for further details).

A special-purpose vehicle will be established in partnership with the private sector to operate, maintain, expand and lease the passive fibre-optic communications network, initially within the Cape Town metropolis, but anticipated to be expanded to the rest of the province.

⁶ The most appropriate index to use will be determined by the Programme Office. One example of an index that measures cost, speed and quality is the Ookla Netindex; however, it measures at the household rather than the business level.



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This proposed network will be open to all qualified network service providers on equal terms. Qualification could be based on having ECS/ECNS licenses and Autonomous Network status.

Prioritised knowledge-intensive sectors such as animation, film, gaming, design, music, BPO, software, gaming, online retail, online education and telemedicine will benefit from additional installation support.

The following minimum criteria are proposed:

- Member of a relevant SPV/association OR providing a service to SPV/association members e.g. incubation, acceleration, flexible space, marketing.
- Located within 300m of city fibre, and potentially also or within an agreed distance of a switching centre (subject to agreement between the CoCT and Province).
- Able to demonstrate evidence of business operations for at least one year, with current average monthly data usage exceeding a certain volume e.g. 20G.
- Willing to share information on data usage and company (growth, employment, service offerings).

Additional criteria may be added for particular sectors to demonstrate that businesses qualify as knowledge-intensive, e.g. within BPO the emphasis may be placed on companies

requiring more advanced skills, e.g. legal process outsourcing, data research and analysis, certain financial services offerings.

Access to international bandwidth at a lower rate due to demand aggregation by provincial government will depend on whether a workable model can be found that does not compete inappropriately with private providers.

For very high requirement users, such as animation, film and post-production infrastructure, access is unlikely to be enough to address their very high data costs, in particular in terms of international data transfers. Aggregation of demand and development of community networks and cloud services may bring these industries closer to globally competitive data and IT costs. However, this will require close collaboration by industry players. The proposed approach is therefore that industries could come forward with proposals on how they could collaboratively reduce their IT cost (incorporating both large and small, established and emerging industry players, as well as their key suppliers); government could help facilitate this, and potentially contribute towards initial costs, but will not provide on-going subsidies.

In all cases (including the general open access to fibre), it is recommended that services are branded and traceable, both to enable



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tracking of their pricing, data usage and impact compared to services offered off different infrastructure platforms, and to provide marketing exposure e.g. the wireless service could link to Cape Town World Design Capital 2014 or the Fringe Initiative.

Cloud services

There is limited private sector interest in government involvement in cloud services, as the main constraint to access is broadband and there are multiple existing service providers to choose from. This is also a rapidly changing and highly specialized landscape, less suited for public sector involvement where a technology solution is unlikely to induce greater cooperation.

For that reason, the recommended approach is initially advocacy and information sharing around cloud services (in particular specialist

Software as a Service in creative industries) to encourage alignment of services and uptake in target knowledge-intensive industries. This can be reviewed as the broadband component of the pilot is rolled out, with scope, if industry players develop proposals, to support development of industry community or hybrid clouds, as well as supporting innovative local cloud service providers.

Proposed pilot locations

It is proposed that there are up to 3 “clustered” pilot locations, and potentially a non-geographically specified pilot, depending on whether this is possible within a business model agreed between CoCT and Province.

Pilot 1: Fringe Precinct

Proposed priority sectors: Design, IT, new media, music, software, gaming and publishing, architecture, fashion and handcrafts primarily

Pilot 1:
Fringe Precinct





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The Fringe precinct is centrally located relative to the CBD, Cape Town station transport hub, District Six Redevelopment and Cape Peninsula University of Technology.

There are around 100 buildings in the Fringe, with significant potential for growth in creative and ICT activity in the area, not only through increased tenanting, but also through use of the various support systems that are and will in future be based in the area, including sector support bodies, incubators, freelancer flexible spaces, networking and meeting venues. This hub function has the potential to serve thousands of freelancers and enterprises – for example the current membership base of relevant sector bodies is around 5,000. This wider entrepreneurial and sector support could provide a package of support for growth and competitiveness.

The area does offer a suitable location for some of the target sectors (in particular design and freelancer and small enterprise driven creative industries). However, industry input from film, animation and IT has raised concerns about issues such as likely inflation in property prices, congestion (film industry) and parking availability in the precinct.

The area already has public sector broadband in place (Cape Town's fibre network runs on both Buitenkant Street and Tennant). It should also be noted that the District Six Redevelopment process is proposing laying of Fibre to the Home (FTTH) across District Six, which in their planning is considered to include the Fringe area. A request to re-allocate budget for the rollout is expected in the short-term, and coordination with this initiative is therefore required.

Pilot 2: Cape Health Technologies Park

Proposed priority sectors: Health, biomedicine and biomedical devices.

The Cape Health Technologies Park planned for the Ndabeni area is expected to build on the existing base of activity (Biovac, research hospitals, public research institutions, etc.) to generate significant innovation activity around health, biotechnical, biomedical, medical devices etc. All of these sectors are data-intensive users. The hub is likely to stimulate additional clustering in the area.

The CoCT's fibre is expected to reach the area by the end of 2012/2013.



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Pilot 2:
Cape Health
Technologies Park



Pilot 3: Khayelitsha business nodes

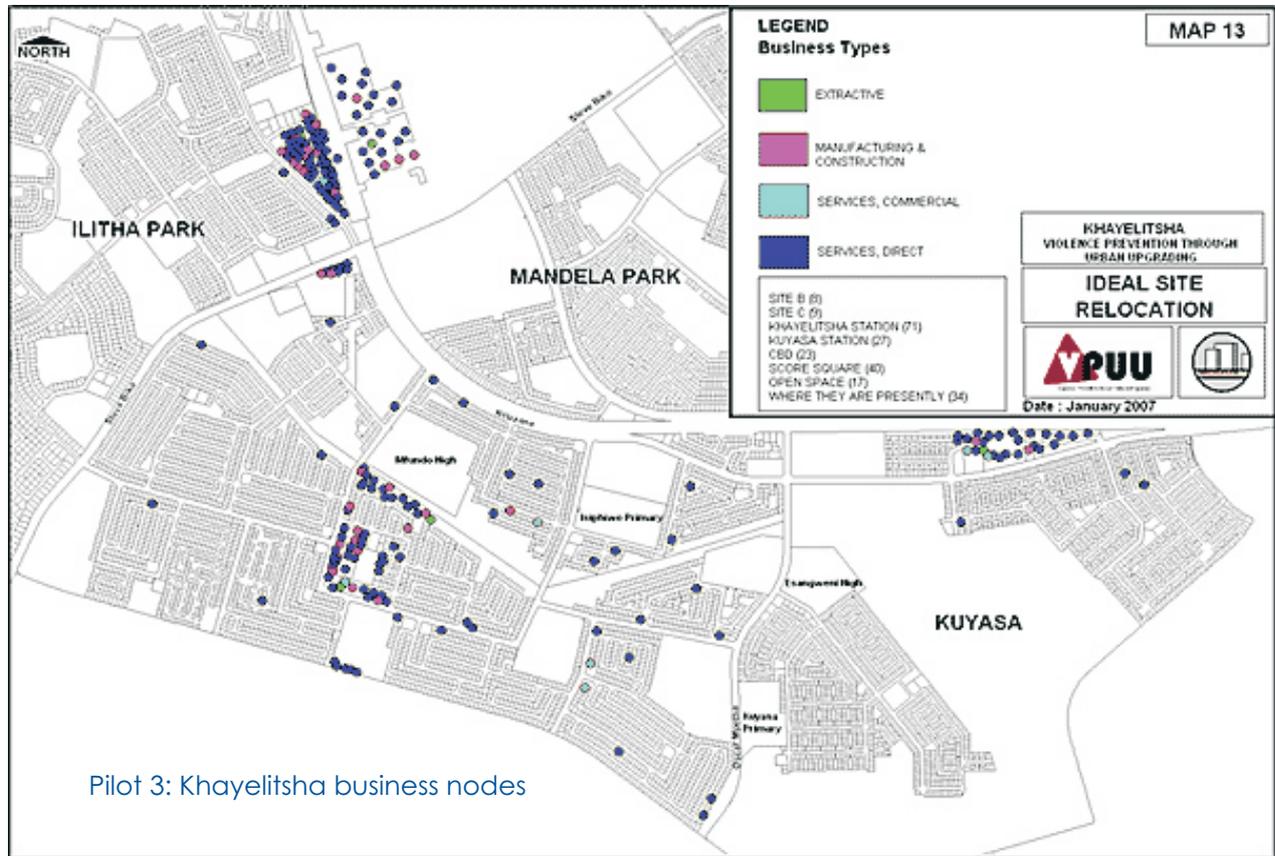
Proposed priority sectors: Open to all sectors

Pilot 3 could build on the extensive work completed to date through the Violence Prevention and Urban Upgrade (VPUU) programme in areas within Khayelitsha (including Harare, Mandela Park and Kuyasa, as illustrated in the map opposite). VPUU efforts

have included surveying of enterprises, identification of opportunities, developing of business premises, improving the urban fabric and safety of the area, as well as Local Economic Development efforts by other stakeholders in the area.



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Potential broadband hub locations could include Harare Square, and station surrounds in Khayelitsha. The need for this pilot would need to be tested further, depending on the approach to proposed wireless mesh provision in the area.

The CoCT's fibre is expected to reach the area by the end of 2012 or during 2013.

Possible Pilot 4: General access

Potential priority sectors: animation, software, gaming, on-line retail, post-production, e-education, BPO niches and telemedicine.

Depending on technical solutions and business models, it may also be possible to have a more general pilot on any locations within 300m of public fibre (or within a certain distance of a switching centre). It is therefore likely that this pilot would take place later than Pilots 1 and 2, once business models had been tested.

8. The result

The Western Cape Broadband Programme Connecting Business initiative has the potential to play a positive catalyst role with numerous benefits, including:

- Reducing barriers to and cost of doing business.



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- Lower broadband costs for end users.
- Enabling growth and investment in targeted categories of knowledge and communications-intensive businesses.
- Establishing collaborative communities with complementary business activities enabled by next generation communications capabilities.
- More productive, competitive and knowledge-intensive businesses that will employ more people (up to 30% improvement in cost competitiveness in the most data-dependent sectors such as animation).
- ISP competition based on services rather than ownership of infrastructure.
- Enabling internet service providers to launch next generation consumer products not previously possible due to communications limitations.

The pilot phase could directly support at least 400 enterprises, but this number could climb to as much as 4,000 to 5,000 enterprises taking into account the potential for more than one enterprise per fibre link, and the impact of support spaces and wireless provision. The initiative could also have a powerful marketing impact for the City of Cape Town and the Western Cape as business destinations of choice.

If rolled out across the province, the initiative could support up to an estimated 10,000 businesses and freelancers.

9. Implementation planning

Budget requirements

Total budget requirements are estimated at R26m. This budget includes an allocation for overall programme management, infrastructure access (enabling access to fibre and possibly network management), as well as wireless services in the Fringe (installation and data usage).

In the case of the Fringe precinct, alternative funding streams may be available through the District Six redevelopment (for fibre to the building), or potentially through the Cape Town World Design Capital process for the wireless provision. Private sector investment will be leveraged in the form of involvement by the ISPs.

As the intention is to maximise the socio-economic impact for end users, it would be inappropriate in this project to try to maximise direct financial returns for the public sector. However, revenues will accrue to government through line rental fees or royalties – initially to the city for the pilots when using the City of Cape Town backbone, but ultimately to the SPV if utilising the planned provincial fibre backbone (as discussed in the “Connected Government” project).



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Consultations

Consultations required prior to rollout of the pilots will include the following:

- City of Cape Town (to agree an approach to fibre access for the pilots).
- Sector SPVs, industry associations and companies in target knowledge-intensive sectors – to refine the estimates of demand and requirements, and further assess interest levels.
- Other support entities e.g. incubators and accelerators, including understanding their potential role in meeting bandwidth demand of freelancers and smaller enterprises.
- ISPs, potentially through both a formal Request For Information (RFI) and open consultations to understand the most appropriate roles of Province, CoCT and ISPs, pricing and service delivery models, and how ISPs propose to optimise the socio-economic impact of the initiative.
- Other initiatives related to pilot areas e.g. District Six Redevelopment, stakeholders of the planned Health Park, Khayelitsha VPUU.
- Property owners in the pilot areas.

This consultation would need to take place during the first three months of the project and, in the case of pilots that fall within later phases, would need to be “refreshed” on an annual basis.

Phasing

Phasing of the pilots will depend in part on rollout of the city's fibre, as well as implementation of other initiatives. The chart below provides an estimate of potential phasing.



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			2012			2013				2014				2015			
			Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
1 Stakeholder and supplier consultation																	
1.1.		Advocacy to secure budget															
1.2.		Agreement with City of Cape Town around approach to open access and contracts with service providers															
1.3.		Consult sector SPVs, industry associations and companies on approach and interest levels															
1.4.		Consult ISPs (e.g. through RFI and open forums) around details of business model, approach to pricing and quality, information sharing etc.															
1.5.		Advocacy with software service providers to provide specialist software as a service (cloud computing)															
1.6.		Depending on industry interest, review possibilities of community cloud - servers/infrastructure, platform, data processing, software (and industry fibre/connectivity network)															
2 Management, auditing, evaluation contract across all pilots & open access																	
2.1.		Finalise brief/s for SPV and programme management likely integrated into wider W. Cape broadband programme management)															
2.2.		Issue tender/s															
2.3.		Evaluate tenders, appoint preferred bidder															
2.4.		Service provider to establish systems to manage implementation - infrastructure or network management, contracting with ISPs, end user contact management, monitoring & evaluation															
2.5.		Processing and auditing of applications/contracts															
2.6.		Reporting to PGWC &/ Telco SPV on uptake, usage etc															
3 Fringe pilot																	
3.1.		Wireless provision															
3.1.1.		Finalise any required approvals															
3.1.2.		Finalise and approve ToR for wireless installation & operation															
3.1.3.		Issue tender															
3.1.4.		Evaluate tenders															
3.1.5.		Infrastructure & service rollout															
3.1.6.		Ongoing performance assessment															
3.2.		Fibre access rollout															
3.2.1.		Make trial participation offer through SPVs/industry associations															
3.2.2.		Process and audit applications (see management, auditing workstream)															
3.2.3.		Gather baseline information from users															
3.2.4.		Installation															
3.2.5.		Ongoing reporting on usage, cost etc.															
4 Cape Health Park pilot																	
4.1.1.		Make trial participation offer through SPVs/industry associations															
4.1.2.		Process and audit applications (see management, auditing workstream)															
4.1.3.		Gather baseline information from users															
4.1.4.		Installation															
4.1.5.		Ongoing reporting on usage, cost etc.															



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Acronyms

ALC	Adult Learning Centre	DCAS	Department of Cultural Affairs and Sport
ABET	Adult Basic Education and Training	DEDAT	Department of Economic Development and Tourism
ADSL	Asymmetrical Digital Subscriber Line	DFA	Dark Fibre Africa
ALC	Adult Learning Centre	DGITO	Departmental Government Information Officer
APP	Annual Performance Plan	DHQ	District Headquarters
AP SWAN	Andhra Pradesh State Wide Area Network	DOC	Department of Communications
ARRA	American Reinvestment and Recovery Act	DOH	Department of Health
BCR	Benefit Cost Ratio	DOPW&T	Department of Public Works and Transport
BOT	Build, Operate and Transfer	DoT&PW	Department of Transport and Public Works
BPO	Broadband Project Office	DotP	Department of the Premier
C-ECS	Class Electronic Communications Services	DPE	Department of Public Enterprise
CAGR	Compound Annual Growth Rate	EASSy	EASSy is a 10,000km submarine fibre-optic cable system deployed along the east and south coast of Africa to service the voice, data, video and internet needs of the region.
CAPEX	Capital Expenditure	ECA	Electronic Communications Act
CBD	Central Business District	ECNS	Electronic Communication Network Services
CCTV	Closed Circuit Television	ECS	Electronic Communications Services
CEI	Centre for e-Innovation	EIA	Environmental Impact Assessment
CHIPAC	Telkom's Customer-Half IP Access Circuit	EPWP	Expanded Public Works Programme
CIO	Chief Information Officer	ExMO	Exchange Management Operator
CINX	Cape Town Internet Exchange	ExMOA	Exchange Management Open Access
CLC	Community Learning Centre		
CoCT	City of Cape Town		
COTS	Commercial off-the-shelf		
CPE	Common Platform Enumeration		
CSC	Common Services Centre		
CTICC	Cape Town International Convention Centre		
DBSA	Development Bank of Southern Africa		



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Acronyms

FET	Further Education and Training	IRR	International Rate of Return
FTTH	Fibre to the Home	IRU	Indefeasible Right of Use
FTTH	Fibre to the Premises	IS&T	Information Services and Technology
GB	Gigabytes = 1000 Megabytes	ISAD	Information Society and Development
GB/s	Gigabytes per second	ISM	Industrial, Scientific Medical
GCIS	Government Communication Information Systems	ISP	Internet Service Provider
GDP	Gross Domestic Product	ISRD	Integrated Sustainable Rural Development
GEN3	Generation 3	IT	Information Technology
Ghz	Gigahertz	ITU	International Telecommunication Union
GIS	Geographic Information Services	Kbs	Kilobytes
GSi	Government Secure Intranet	Kbps	Kilobytes per second
HEI	Higher Education Institution	LAN	Local Area Network
HSPA	High Speed Packet Access	LBS	Location Based Services
I-ECS	Individual Electronic Communications Services	LCD	Liquid Crystal Display
ICASA	Independent Communications Authority of South Africa	LLU	Local Loop Unbundling
ICT	Information and Communication Technologies	LSM	Living Standards Measure
IDA	Infocomm Development Authority	LTE	Long Term Evolution
IDC	International Development Collaborative	MB	Megabytes = 1 000 kilobytes
IEC	Independent Electoral Commission	Mb/s	Megabytes per second
INR	International normalized ratio	MFMA	Municipal Finance Management Act
IP	internet provider or internet protocol	MFN	Multi-frequency Network
IPStream	IPStream is the most highly-used wholesale broadband Internet service	MHQ	Mandal Headquarters
		MIU	Mobile Internet Unit
		MOF	Microsoft operations framework
		MOF	Ministry of Finance
		MoU	Memorandum of Understanding
		MPLS	Multi-protocol Label Switching
		MS	Microsoft



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Acronyms

MTEF	Medium term expenditure framework	PNC ISAD	Presidential National Commission on Information Society and Development
NBN	Nationwide Broadband Network	POGW	Optical Ground Wire
NBWM	National Broadband Wireless Network	POP	Point of Presence
NGO	Non-governmental Organisation	POTS	Plain Old Telephone Service
NHS	National Health Service	PPP	Public Private Partnership
NPO	Non-profit Organisation	PSO	Provincial Strategic Objective
NOC	Network Operation Centre	PTN	Private Telecommunications Network
NRI	Network Readiness Index	QOS	Quality of Service
NPV	Net Present Value	SEACOM	SEACOM is a privately owned and operated pan-African ICT enabler that is driving the development of the African internet. SEACOM's vision has been built on the backbone of open-access and equitable principles.
NU	Network User	SAIX	South African Internet Exchange
OECD	Organisation for Economic Co-operation and Development	SANReN	South African National Research Network
OPEX	Operation Expenditure	SAPS	South African Police Service
OPGW	Optical ground wire	SASSA	South African Social Security Agency
P-ECNS	Private Electronic Communications Networks	SDA	State Designated Agency
PC	Personal Computers	SDH	Synchronous Digital Hierarchy
PCMCIA	Personal Computer Memory Card International Association	SES	Strategic Economic Solution
PDA	Personal Digital Assistant	SHQ	State Headquarters
RENs	Research Education Networks	SITA	State IT Agency
RFI	Request for information	SLA	Service Level Agreement
RFID	Radio-frequency identification	SMEs	Small and Medium Enterprises
RLCP	Rural Libraries Connectivity Project	SOE	State-owned Enterprise
PGWC	Provincial Government of the Western Cape		
PIA	Public ICT Access		
PNC	Presidential National Commission		



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Acronyms

SPV	Special Purpose Vehicle
STM	Synchronous Transport Module
SWAN	State Wide Area Network
TA	Transaction Advisor
TB	Terabytes = 1 000 Gigabytes
Tb/s	Terabits per second,
TENET	Tertiary Education & Research Network
UPS	Uninterrupted Power Supply
US	United States of America
USAASA	Universal Service and Access Agency of South Africa
USB	Universal Serial Bus
VAN	Value Added Network
VLE	Village Level Entrepreneur
VoIP	Voice-over Internet Protocol
VOWLAN	Voice-over Wireless Local Area Network
VPN	Virtual Private Network
VSAT	Very Small Aperture Terminal
VPUU	Violence Prevention and Urban Upgrades
WACS	West Coast Cable System
WAN	Wide Area Network
WCED	Western Cape Education Department
WCG	Western Cape Government
WiFi	Wireless networking technology
WISP	Wireless Internet Service Provider
WMN	Wireless Mesh Network



CONNECTED BUSINESSES



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