CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Taking Stock and Looking Ahead:

Digital Divide Assessment
of the City of Cape Town, 2002

Annexes included in a separate document

This report is available online at www.capetown.gov.za/econdev and www.bridges.org/capetown.

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PREFACE: ICT LEADERSHIP IN CAPE TOWN

Cape Town's leaders are committed to making the City a competitive player in the global marketplace as part of an overall strategy for social and economic development. The City has recognised that information and communication technology (ICT) is a powerful tool for transforming the way that people do business, communicate with each other, and access information, and if used effectively it can help Cape Town achieve its goals. At the same time, many local businesses acknowledge the importance of ICT in the "knowledge economy" and they want to use it to expand what they do, become more competitive, and communicate more efficiently.

Several public and private sector initiatives are already underway in Cape Town with the related goals of (1) fostering the budding ICT sector and using ICT as an enabler for broader economic growth, and (2) tackling the problems of the digital divide to ensure that no one is left behind. Perhaps the most notable example is the City of Cape Town's Smart City Strategy, which won the African ICT Achievers Award for e-Government in 2002. The strategy aims to put ICT to work to enable the Government to transform itself, in order to deliver more effective and efficient service to citizens. It also aims to empower citizens to deal more effectively with the growing digital economy. The City envisions "a smart city populated by informed people, connected to the world and each other by the technology of the information age."

A preliminary summary of the findings and recommendations in this report were presented to the City in August 2002 and approved by the Executive Management Team of the City Council on 5 September 2002. As a result, some action is already underway to build on this work, including the establishment of an Internal Smart City Working Group, a proposal for a Digital City Centre, links to the Urban Renewal Programme, review and expansion of the Smart Cape Access Project, internal training for City employees, and much more. And ICT has remained a priority for the City Council through changes of political control during 2002, so efforts will continue during the year ahead.[1] This report will further inform the City's decision-makers as they take their ICT strategies and programmes forward in 2003 and beyond, by helping them gain a better understanding of the current ICT landscape in Cape Town especially as it affects poor communities and small organisations, the role for ICT in local social and economic development, and the way in which the range of current initiatives fit into the City's strategic priorities.

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[1] The political control of the City of Cape Town changed during November 2002. The *Review of Council's Vision, Goals and Priorities, Strategic Direction 2003-2005*, Report number C46/11/12/02, was agreed at the Council meeting of 11 December 2002. For more information see http://www.capetown.gov.za/Council/.

EXECUTIVE SUMMARY[2]

Background on this study

When used effectively, information and communication technology (ICT) offers huge potential to empower people in Cape Town to improve their lives. Yet the reality is that a "digital divide" exists which separates those who can access and use ICT to gain benefits, and those who do not have access to technology or cannot use it for one reason or another. The City of Cape Town is committed to putting ICT to work for social and economic development, and is driving the changes necessary to ensure that ICT is used effectively. However, City leaders need to have a realistic understanding of what ICT can – and cannot – do for Cape Town's communities and organisations, and they must lead effectively and bolster public confidence in the path they take.

In January 2002, the City Council undertook a pioneering assessment of the digital divide in Cape Town, in order to get a picture of where its citizens, communities, and organisations stand in terms of ICT and the potential benefits of ICT use for social and economic development in the City. This report of the findings examines the access to, use of, and need for ICT in Cape Town, with a special focus on the millions of people that live in disadvantaged communities within the greater metropolitan area. This study is intended to help City leaders and administration measure and plan for ICT integration, to focus their efforts from within, and identify areas where external support is required. Further, the study aims to provide benchmarks for comparison and gauging progress. And finally, the study is intended to be one part of a greater process to bring a wide range of stakeholders into the discussion about ICT and development in Cape Town. The City has already started to put ICT to work to achieve broad development goals, in particular through its Smart City strategy.

This study compiled information from a range of sources, and collected direct input from communities, government agencies, academic institutions, businesses, community organisations, and others. The aim was not to ascertain the precise status of ICT across the entire population of Cape Town. Instead, the study took a wide-angle view of the issues, and focused on a sample of communities and organisations to paint a mosaic of the overall ICT landscape in Cape Town. The assessment had four main objectives: (1) to gauge Real Access to ICT; (2) to assess the needs of Cape Town's people and organisations for future ICT services; (3) to identify opportunities to improve access to ICT, use ICT to have a real and beneficial impact on Cape Town, and help fulfil the City Council's strategies for social and economic development; and (4) to identify constraints that will hinder improvement.

Overview of ICT status in South Africa, the Western Cape, and Cape Town

Compared to other countries, South Africa is in the middle tier of ICT development with a relatively large and growing population that has access to ICT, but many issues hinder further growth and the beneficial impact of ICT. Like most other countries, South Africa has a large internal digital divide, which limits access to ICT and its effect on people's lives. Most ICT-related policies fall under the jurisdiction of the National and Provincial Governments, and the City's course of action will be shaped – but not determined – by their actions in this area. National and Provincial Governments are embracing technology and have recently enacted important policies and initiatives related to ICT. South Africa's ICT policy framework is currently undergoing rapid change as the National Government seeks to harness ICT for growth and grapples with new social issues raised by technology. Overall, this policy process has been consultative and forward thinking. In terms of policy, the Provincial Government may have legislative and executive powers concurrently with the national sphere of government over, among other things, education, agriculture, economic development, welfare, tourism, trade and investment promotion. These powers can be exercised to the extent that provinces have the administrative capacity to assume effective responsibilities.

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[2] The following acronyms (which are written out at the appropriate places in the main report) are used for the purposes of this executive summary: community based organisation (CBO); information and communications technology (ICT); non-governmental organisation (NGO); personal computer (PC); and small, micro and medium-sized enterprises (SMMEs).

While there is a portion of the Western Cape population that is highly literate and financially stable, the majority of people below the poverty line do not have a fixed or mobile telephone, or access to a computer, email, or the Internet. Since the majority of low-income inhabitants in the Western Cape cannot afford to pay for basic services such as water, electricity, and sanitation, it follows that ICT services are out of reach as well. Only 11% of the national ICT sector is in the Western Cape. The Western Cape and Gauteng Provinces have the greatest availability of school infrastructure compared to other provinces, and the Western Cape has the highest high school pass rate in South Africa at 80%. Five prominent tertiary institutions in the Western Cape supply trained personnel for the ICT industry.

During recent years, the City Government has embarked on a number of ICT-related programmes designed to improve its own internal processes and increase the availability of ICT to citizens and businesses in the area it serves, notably: the Smart City Strategy, Smart Cape Access Project, the Ukuntinga ERP project, Business Support Services, and the Library Business Corner initiative.

Overview of the status of Real Access in Cape Town's communities and organisations[3]

Factor in Real Access to ICT	Communities	Organisations and businesses
Physical access to technology *Is technology available and physically accessible?*	Communities have low access to PCs overall, and Internet use is also very low. Although Telkom has met its national rollout obligations during its five-year exclusivity period, the trend of increasing access to fixed line telephones is being reversed by rates of disconnection as high as 50-70%. Respondents reported greater access to cellular telephones than to fixed line telephones. Public access to connected computers is increasingly available in schools and libraries. Community access points are rare and cover only a small portion of the population. Although libraries, post offices, telecentres, and Internet Cafes have shown promise in giving people access to ICT, they have not yet managed to do so to large sectors of the community. Even where computers are available for public use in a local community centre, the majority of respondents were not aware that they have local, public access to computers.	Most organisations have basic access to PCs, faxes, and telephones. However, some CBOs and SMMEs do not have PC access. Some organisations that lack ICT see public access as an option. Although NGOs often have access to ICT, their effective use of the technology is severely limited by the lack of access among their clients and other organisations that they work with. Local Government is one of the main users and owners of ICT. Approximately two-thirds of the organisations interviewed have access to the Internet. Cape Town's three universities are all currently in the process of expanding their computer resources for use by staff and students alike.
Affordability *Is technology affordable for people to use?*	Overall, fixed line and cellular telephones, computer hardware, and Internet access are simply too expensive for most people in Cape Town's poor communities to use regularly. Charges for fixed line telephones are based on non-competitive pricing structures set by Telkom, the incumbent telecommunications provider. Telkom's new prepaid service offers promise to help people afford basic telephony.	Overall, organisations feel that the benefits of ICT outweigh the costs. Although the SMMEs surveyed acknowledge the importance of ICT and the fact that it would give them a competitive edge to their businesses, most reported that high costs prevent them from buying equipment, training their staff, and paying telephone bills associated with Internet use.

[3] For the purposes of this report, "organisation" refers to all of the kinds of organisations and businesses involved in this study – including academic institutions, government agencies, non-governmental organisations, community-based organisations, businesses, and others – unless specified.

Factor in Real Access to ICT	Communities	Organisations and businesses
	Low-cost prepaid phone cards have helped put cellular telephones within the reach of more people, if only to make the telephone available for receiving calls.	Even larger businesses and major NGOs indicated that Internet access costs are a major constraint to increased ICT use.
		The threat of theft is another problem that affects all of Cape Town's organisations, but especially SMMEs and CBOs located in economically depressed areas. The high cost of installing security adds another factor to an ICT purchase.
		The cost of training was cited as a reason why organisations cannot develop the capacity needed to start using ICT. Many organisations call for government-subsidised training courses.
Appropriate technology *Is the technology that is available appropriate to local needs and conditions? What is the appropriate technology according to how people need and want to put technology to use?*	The majority of people in Cape Town's disadvantaged communities lack electricity or a secure location to keep a computer in their home; so personally owned PCs are unlikely to be the most appropriate technology for them. However, that does not mean that they cannot participate in the information society. In light of current technology developments, more appropriate ICT options in the future will include handheld computers and public access points, and more effective use of cellular telephones, television, and radio, including for Internet access. There are numerous initiatives and organisations involved in promoting the use of open source software and "thin client" technology in the computer laboratories of schools and community centres.	There are many organisations in Cape Town that use ICT in new and innovative ways to meet specific needs, which could be replicated.
Capacity and training Do people understand how to use technology and its potential uses?	Overall, professional level training seems to be linked to employment, but basic ICT skills are far less in demand and there is a glut of unemployed people with low-end ICT skills. Low overall access to ICT among the unemployed means that trained people lose their skills because they cannot practice them. Cape Town has at least 120 private ICT training programmes. However, most of these programmes are in Bellville and the central city, with a severe lack of training centres in outlying and isolated areas. Most training programmes that serve township communities are locally organised, informal, and of unverifiable quality. There is a need for accreditation for ICT training programmes.	Many of the organisations surveyed have provided training to their staff members. Larger businesses and major NGOs tend to train their staff to higher levels of computer use than do SMMEs or CBOs. Overall, there is a lack of high-level ICT skills in Cape Town. The greatest demand among the City's businesses is for high-level technology skills, professionals, and teachers. There is also a need for learning environments in the workplace, so that employees have the opportunity to practice their ICT skills regularly so that they are comfortable and effective in using the technology. In terms of capacity to imagine the possibilities for how they could use technology to improve what they do, Cape Town's organisations have shown vision.

Factor in Real Access to ICT	Communities	Organisations and businesses
Locally relevant content *Is there locally relevant content available, especially in terms of language?*	Although there are many efforts that generate information and content that is relevant to people in Cape Town, very little of it is disseminated electronically. Local Government information and forms made available as online resources offer promise as an incentive for Cape Town citizens to use ICT. Many community access points have noted the lack of locally relevant content as one of the key factors that limits the Internet use in the communities where they operate. Making information available in local languages would also be beneficial, but remains a secondary consideration. The predominance of English in online content may limit widespread interest in and use of the Internet among non-English speaking populations. High levels of illiteracy are probably a greater hindrance. Initiatives are starting to emerge in South Africa that will foster the development of local language content in electronic formats, especially in the education area.	There is a lack of up-to-date information about the City and its services. In particular, businesses want more information about the City's tendering process and policies for black empowerment. More and better online entrepreneurship support is needed.
Trust in technology *Do people have confidence in and understand the implications of the technology they use?*	The majority of respondents feel that Internet transactions are very safe. However, given that most have never used a computer, the level of trust reported could be misleading. It may be reflective of the fact that people do not understand the security and privacy issues at stake.	The organisations surveyed have confidence in ICT and are ready to use computers and the Internet for paying accounts and making purchases.
Integration into daily life *Is technology use a burden to people's lives or does it integrate into daily routines?*	Those who use PCs find them to be very useful, and easy to use.	There is a small segment of well-resourced, often larger, businesses that use ICT as an integrated part of their work. The same can be said of the major NGOs, albeit to a lesser degree. However, small businesses and CBOs struggle to integrate ICT seamlessly into their operations, because of equipment failure, lack of technical knowledge, and theft.
Socio-cultural factors *Are people limited in their use of technology based on gender, race, or other socio-cultural factors?*	Respondent computer users are disproportionably higher income, educated, and "Coloured".[4] (There were not significant enough numbers of "White" respondents in this study to reveal the bias toward the "White" population that is shown in other studies of ICT demographics in South Africa.)	ICT access and use in organisations echoes the patterns seen in the greater population, with clear divisions across racial lines. While the percentage of black-owned businesses is increasing, it still does not appear to reflect the population ratio, especially in the ICT sector.

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[4] Note to international readers: Socio-economic data in South Africa often is still analysed using the racial classification system drawn up by the Apartheid regime: hence, the population is divided among African, White, Coloured (of mixed race) and Indian (of Asian decent) people. In recent times this racial classification is used to monitor to what extent racial divides drawn by the Apartheid regime has been exacerbated or diminished. The National Economic Development and Labour Council (NedLac), explains the use of racial classification in its *Report on Social and Economic Developments in South Africa to the 1997 Summit* as follows: "In this report we refer to different races: Africans, Indians, Coloureds and Whites. Although the Nedlac constituencies reject racism and racial classification, we acknowledge that a proper discussion of equality in South Africa cannot ignore the impact of Apartheid policies. For this reason we use racial terms to describe differences in living standards." For more information see http://www.nedlac.org.za/docs/reports/socialreps/1997/intro.html.

Factor in Real Access to ICT	Communities	Organisations and businesses
	Differences based on gender were shown to be minimal.	
Sustainability and the local economic environment *Is there a local economic environment favourable to technology use? Is technology part of local economic development? If not, what is needed to make it a part?*	Irrespective of how affordable the technology is and whether the required training is performed, if the local economic situation is poor – with high unemployment and poverty levels – access to technology will continue to remain out of the reach of ordinary citizens. Unemployment was a critical recurring theme in the community meetings. The vast majority of respondents want ICT access and training because they hope it will increase their chances of finding a job, or obtaining a better job. Among the communities studied, income relates directly to computer use.	Cape Town's ICT industry primarily serves South African businesses, with only a few companies that have become internationally competitive. Insiders view Cape Town's distance from the country's main business centre in Gauteng, and its small local market as major weaknesses for the ICT sector.
Macro-economic environment *Is technology use limited by the macro economic environment, for example, in terms of transparency, deregulation, investment, and labour issues?*	Overall, people are aware of the key macro-economic issues that affect them, notably privatisation; however, public opinion focused on negative implications such as work retrenchment. Most people in the communities studied do not understand the potential benefits of privatisation in terms of general economic growth and related employment opportunities.	The ICT companies located within the Bandwidth Barn are the organisations most aware of macro-economic issues that hamper access to ICT. The main macro-economic issues raised are related to telecommunications environment, high telecommunications and Internet access costs, and substandard or restrictive telecommunications services. Community organisations find themselves in a difficult situation when it comes to lobbying for the liberalisation of the telecommunication sector: on the one hand increased liberalisation is expected to mean cheaper phone calls and Internet access, on the other hand it could lead to the retrenchment of lower end staff (often the clients of CBOs) when the telecom companies downsize to become more cost-effective.
Legal and regulatory framework *Do laws and regulations limit technology use and what changes are needed to create an environment that fosters its use?*	Overall, people are unaware of how legal and regulatory matters related to ICT impact on their lives. There is a need for citizens to be informed of the implications of laws and regulations in this area. Furthermore, stakeholders want to be consulted and engaged in policy processes to ensure that their views are taken into consideration.	Three issues emerged during this assessment as primary ICT policy concerns among Cape Town organisations: the need for an ICT training certification authority; the need for regulation of Internet Portal Companies, and the need for an e-rate for community organisations.
Public support and political will *Is there political will for Government to do what is needed to enable the integration of technology throughout society? Is there public support for Government ICT policy?*	The majority of respondents feel that the City should be responsible for improving public access to ICT. Contributions from the Provincial and National Government are also cited as important, reflecting the widespread perception that the public sector has a role to play in driving ICT development.	The organisations interviewed believe that the public sector should take a leading role in improving ICT use: local, Provincial, and National. The vast majority of organisations are interested in working with the City to improve ICT access and use in Cape Town.

Common themes that emerged from the study

Community meetings

♥ # **Need for ICT services:** Three issues were mentioned repeatedly: basic access, training, and jobs. People are most enthusiastic about ICT where it can help with basic services and employment. Awareness about ICT programmes is low overall. Low-to-middle income communities see computers as a simple necessity for the future of their children, especially to get jobs and information. Some indicated a desire for computers only because they have a vague belief that computers "are a good thing". Online government information is a low priority for most people, well after basic ICT access, training, and jobs. Low-to-middle income communities noted that community access to ICT would help "take the kids off the streets". In low-income communities ICT is seen as an issue for young and middle-aged people to be concerned about, but not the elderly. Refurbished or second-hand computers are welcome, as long as they are functional.

♥ # **Potential opportunities and solutions:** There is considerable non-specific enthusiasm for computer technology, and a general feeling that the communities are being left out of the information society and that it is important to bridge the digital divide. Community members are ready and willing to conduct their own training programmes, if they are given the means to do so. Overall, schools and libraries are seen as the best possible venues for community ICT access. Evening access to ICT, linked to online access to government services, was repeatedly identified as a way to help alleviate the problem of government services closing early. Each community has its own unique set of community structures that can be engaged to mobilise the residents.

♥ # **Potential constraints to improving ICT access:** People are concerned that ICT access points based in schools and libraries would not be open after hours for the public or would not have the necessary staffing. Security is a concern. Community organisations want to communicate with the City, but feel that the City "is not listening" and that online access to officials will not help. In low-income communities, widespread poverty and unemployment mean that most people cannot afford to pay for computer use or training. While community members in low-income communities repeatedly requested training as a means to obtain jobs, many other respondents have been trained but were unsuccessful at finding jobs. Overall there is a mismatch between training available and job opportunities. Geographical isolation is a key form of exclusion from ICT. Overall, elderly people feel left out and do not understand how ICT applies to them. Issues related to ICT access for disabled persons or equal access for women did not arise in the meetings.

Organisations

♥ # **Need for ICT services:** CBOs and SMMEs usually have the least access to ICT. Local Government is seen to be responsible for providing ICT access to citizens. CBOs and NGOs want to be better equipped to play the role of information broker related to the City's policies and procedures. There is a need for a clearinghouse of ICT and digital divide initiatives in Cape Town. Businesses want the City to use ICT more effectively to execute its functions, particularly to make better use of ICT to disseminate vital information and increase the speed of its business transactions. Organisations feel that the City should play a role in lobbying for cheaper ICT services. There is a need for high-end ICT skills that are recognised by a training authority.

♥ # **Potential opportunities and solutions:** Organisations have a strong belief in the power of ICT. There is considerable interest in working with the City to help improve technology use and bridge the digital divide. The City can draw from a vast pool of experience that already exists within the private sector and among established NGOs. Networks of activities already exist. Existing initiatives are breaking new ground. Organisations are supportive of the City's approach.

♥ # **Potential constraints to improving ICT access:** Organisations do not know how to work with the City. There is a perceived lack of commitment among City employees. There is a perception that increased online information could widen the divide if it is not accompanied with improved

access to the Internet for all. Other issues are viewed as more important than ICT, and ICT is viewed as only part of the solution for social and economic development.

Recommendations

A number of recommendations are outlined to guide City leaders and the administration as they take forward their ICT strategies and programmes:

- # Use best practice principles in Cape Town's ICT strategies and programmes, including:
  - š Build upon existing kernels of activity;
  - š Scale up;
  - š Seek public support for strategic planning by helping citizens understand the potential benefits of ICT for their daily lives, and by involving the private sector;
  - š Catalyse action throughout society;
  - š Coordinate to avoid duplication;
  - š Establish links between ground level efforts and policy-making processes;
  - š Simultaneously address traditional development and ICT issues;
  - š Identify levels of priority for urgent and longer-term actions; and
  - š Establish and continue a feedback process throughout implementation.
- # Frame ICT strategies with long-term ICT objectives, notably to:
  - š Improve Real Access to ICT in Cape Town;
  - š Foster socio-economic development and bridge the digital divide; and
  - š Improve the way that ICT is used to meet the specific needs of Cape Town's communities and organisations.
- # Focus City actions toward Real Access to ICT.
- # Position ICT as an enabler for broad socio-economic development in key target areas, including:
  - š Governance and government processes,
  - š Economic growth,
  - š Entrepreneurship and employment,
  - š Poverty reduction, and
  - š Access to ICT.
- # Scale up programmes to improve local Government ICT use and internal capacity.
- # Build upon Cape Town's ICT kernels and facilitate widespread involvement to implement City strategies.
- # Provide City Council leadership for ICT activities in target areas.
- # Understand the obstacles in order to overcome them effectively.
- # Focus on implementation and conduct further research only as needed.

1   INTRODUCTION AND BACKGROUND

In January 2002, the City Council undertook a pioneering assessment of the digital divide in Cape Town, in order to get a picture of where its citizens, communities, and institutions stand in terms of ICT and the potential benefits of ICT use for social and economic development in the City. The holistic assessment examined the access to, use of, and need for ICT in Cape Town, with a special focus on the millions of people that live in disadvantaged communities within the greater metropolitan area.   An inter-Directorate project team comprised of the Economic Development and Tourism, Information Technology, and Social Development Directorates drove the project, and bridges.org was commissioned to carry out the work.

This groundbreaking citywide assessment was the first of its kind in the world. It considered more than just physical access to technology – telephones, computers, and the Internet – by examining the complex interrelated issues that determine how effectively ICT is, and could be, used to gain concrete benefits. The process was unique because it reached out to people in small organisations and some of the poorest communities in Cape Town to gain an understanding of their particular experiences and desires, as well as to alert them to the issues at stake.

1.1   The digital divide

ICT is a key weapon in the war against world poverty. When used effectively, it offers huge potential to empower people in developing countries to overcome development obstacles, to address the most important social problems they face, and to strengthen communities, democratic institutions, a free press, and local economies. Yet the reality is that a "digital divide" exists which separates those who can access and use ICT to gain these benefits, and those who do not have access to technology or cannot use it for one reason or another. The digital divide exists both between countries and between groups within countries. There is a wealth of real and anecdotal evidence to support this statement.[5] For example:

> *In March 2000 out of the 304 million people with Internet access, only 2.6 million were in Africa while 137 million were located in the U.S. and Canada. Sub Saharan African and South Asia are the poorest regions in the world and have the lowest access to information and communication resources. With respect to telephone lines, for example, there are only 14 and 19 telephones per 1000 inhabitants respectively in the two regions, compared with 69 in low and middle-income countries. (World Bank 2001)*

> *One in two Americans is online, compared with only one in 200 Africans. (Jensen 2002)*

And the digital divide is growing around the world, despite the fact that all countries and all groups within countries, even the poorest, are increasing their access to and use of ICT. That is because the information and ICT "have" countries and groups are increasing their access and use at an exponential rate. The underlying trend is that privileged groups acquire and use technology more effectively, and because they gain significant benefits they become even more privileged.   At the same time, information "have-nots" are increasingly excluded from jobs, participation in government processes, and public discourse on the issues that affect their lives, leaving them politically and economically powerless. Moreover, the infusion of ICT can intensify existing disparities based on location (such as urban-rural), gender, ethnicity, physical disability, age, and, especially, income level and socio-economic position. ICT alone is not enough to solve long-standing imbalances, and can make inequalities worse if they are not applied wisely. However, countries and communities face the threat of being left further behind if they do not address the growing digital divides.

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[5] Different researchers and commentators focus on different aspects of the digital divide, offering multiple definitions of the problem, conflicting reports of whether it is growing or shrinking, a range of opinions on the key factors affecting it, and different approaches to solutions. For an in-depth look at the issues, see *Spanning the Digital Divide: Understanding and Tackling the Issues*, bridges.org, June 2001, http://www.bridges.org/spanning/.

1.2   The need for this study

The City Council is committed to putting ICT to work for social and economic development in Cape Town, and it is driving the changes necessary to ensure ICT is used effectively. However, translating a vision into practical steps that fit the local context is not a simple matter. City leaders and the administration need to have a realistic appreciation for what ICT can – and cannot – do for Cape Town's communities and organisations, and they must lead effectively and bolster public confidence in the path they take. To put ICT to effective use, Cape Town must be "e-ready" in terms of infrastructure, the accessibility of ICT to the population at large, training, and the effect of the legal and regulatory framework on ICT use. If the digital divide is going to be narrowed, all of these issues must be addressed in a coherent, achievable strategy that is tailored to meet local needs.

The City has already started to put ICT to work to achieve broad development goals through its Smart City Strategy. One of the reasons for doing this study was to stand back from the efforts that had been launched and look at the needs of the City's communities, businesses, and organisations, and use the results to inform the further development of City strategies and programmes in this area. This study is intended to help City leaders and the administration measure and plan for ICT integration, to focus their efforts from within, and identify areas where external support is required. Further, the study aims to provide benchmarks for comparison and gauging progress. And, finally, the study is intended to be one part of a greater process to bring a wide range of stakeholders into the discussion of ICT and development in Cape Town.

1.3   Framing this study

National-level assessments of this nature commonly study e-readiness by compiling information from government agencies, big companies, business associations, and other secondary sources.[6]   This study started with that approach as a first step. It then went further to collect direct input from communities, small businesses, and community organisations, to gauge the need for ICT services among the public and depict the real-life constraints – and opportunities – that people and institutions face as they work to harness technology. The aim was not to ascertain the precise status of ICT across the entire population of Cape Town. Instead, the study took a wide-angle view of the issues, and focused on a sample of communities and organisations to paint a mosaic of the overall ICT landscape in Cape Town. At the same time, the study assessed the interest and capacity of the City's communities, businesses, academic institutions, and government agencies to help bridge the divide. This method allowed the study to look ahead, so that practical options and

> **E-Readiness Assessment**
>
> On the surface, "e-readiness" is a gauge of how ready a society or economy is to benefit from ICT and electronic commerce. Generally, e-readiness assessments cover one or more of the following:
>   š˙ Physical infrastructure
>   š˙ Levels of ICT use
>   š˙ Human capacity and training
>   š˙ Policy environment
>   š˙ ICT economy
> However, a comprehensive look at e-readiness should combine assessment of the society and economy with analysis of socio-economic divisions. This project combined an e-readiness assessment that looked at ICT usage statistics with a more holistic examination of people's needs for ICT and the constraints to improving ICT access and use.

recommendations could be framed to guide the City Council as it moves forward with its own plans in this area. The broad approach used to frame the assessment is summed up by the concept of *Real Access* to ICT.

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[6] For more information on e-readiness assessment, see http://www.bridges.org/ereadiness/index.html.

Real Access to ICT

Providing access to technology is critical, but it must be about more than just physical access to telephones, computers and the Internet. Computers and connections are insufficient if the technology is not used effectively because it is not affordable; people do not understand how to put it to use or are not trained to use it effectively; people are discouraged from using it; or the local economy cannot sustain its use. This study examined whether the people and organisations of Cape Town have Real Access to ICT by looking at twelve interrelated factors:

- **Physical access.** Is technology available and accessible to people and organisations?

- **Appropriate technology.** Is the available technology appropriate to local needs and conditions? What is the appropriate technology according to how people need and want to put technology to use?

- **Affordability.** Is technology affordable for people to use?

- **Capacity and training.** Do people have the training and skills necessary for effective technology use? Do they understand how to use technology and its potential uses?

- **Relevant content.** Is locally relevant content available, especially in terms of language?

- **Integration into daily routines.** Is technology use a burden to peoples' lives or is it integrated into daily routines?

- **Socio-cultural factors.** Are people limited in their use of technology based on gender, race, or other socio-cultural factors?

- **Trust in technology.** Do people have confidence in technology and understand the implications of the technology they use, for instance in terms of privacy, security, or cybercrime?

- **Legal and regulatory framework.** Do laws and regulations limit technology use? Are changes needed to create an environment that fosters its use?

- **Sustainability and the local economic environment.** Is there a local economic environment favourable to technology use? Is technology part of local economic development? What is needed to make it a part?

- **Macro-economic environment.** Is technology use limited by the macro-economic environment in the country or region, for example, in terms of deregulation, investment, and labour issues?

- **Public support and political will.** Is there political will in government to do what is needed to enable the integration of technology throughout society, and public support for government decision-making?

Specifically, the assessment had four main objectives:

(1) **To gauge Real Access to ICT** among Cape Town's people, communities, and institutions – including government, academic, private sector, and community organisations – in order to understand the current status of the digital divide in Cape Town;

(2) **To assess the needs** of Cape Town's people and institutions for future ICT services;

(3) **To identify opportunities** to improve access to ICT, use ICT to have a real and beneficial impact on Cape Town, and help fulfil the City Council's strategies for social and economic development; and

(4) **To identify constraints** that will hinder improvement.

1.4   Roadmap to this report

This report is divided into three sections:

Findings of the Cape Town digital divide assessment: The presentation of findings starts by describing the broader context of ICT infrastructure, use, and policy in South Africa and the Western Cape Province. It goes on to describe government efforts underway at the City level. It then looks at ICT in Cape Town through the lens of Real Access, first considering individuals and communities, then organisations, businesses, and government offices. Finally, it gives an overview of the trends that emerged. The findings are based on information collected through community meetings and organisation interviews. They also draw on a considerable number of existing reports and studies, as well as data gathered from a variety of publicly available primary source materials.[7]

Recommendations to the City Council: This section outlines recommendations to the City, based on the findings. It suggests both short and long-term objectives for City strategies, highlighting the need for coordinated action with the private sector and the range of stakeholders. It draws on international best practice in the field to identify the potential pitfalls and opportunities that the City should be aware of. Notably, it recommends that any new City programmes be aligned with efforts already underway, such as the Smart City initiative.

Annexes: This report includes a number of component parts, which are also separate products resulting from the Cape Town assessment, and they are included here as annexes. For example, the innovative methodology used – which draws on both digital divide analysis and e-readiness assessment strategies – has been tested and adapted through this project, and it is itself a project output. It will serve as a foundation for future assessments by the City to track progress. Other outputs include an annotated bibliography of research materials and an annotated list of stakeholders and initiatives relevant to the digital divide.

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[7] A wide variety of primary source materials, reports and studies were used in this assessment. Prior to this assessment, no comprehensive review had been done to analyse these diverse materials together in one context. A range of information was compiled as part of the background research, including statistics and other data on the size and nature of the ICT sector in Cape Town. Information was gathered from local and international research bodies, such as the Cape IT Initiatives' (CITI) ICT Sector Scan; Webchek's Internet surveys; Information Systems, Electronics and Telecommunication Technologies Sector Education and Training Authority (ISETT SETA) Skills Assessments; and various University of Cape Town (UCT) research papers. An annotated bibliography of these sources is included as Annex 8.

2   FINDINGS OF THE DIGITAL DIVIDE STUDY

2.1   ICT in South Africa and the Western Cape

This section of the report presents the results of background research on the state of ICT and e-readiness in South Africa and the Western Cape. Section 2.1.1 describes the state of ICT in South Africa and within the broader international context. Section 2.1.2 outlines the state of ICT in the Western Cape Province. And Section 2.1.3 describes the ICT policy environment at the national and provincial levels.

2.1.1 ICT and South Africa

Compared to other countries, South Africa is in the middle tier of ICT development with a relatively large and growing population that has access to ICT, but many issues hinder further growth and the beneficial impact of ICT. Like most other countries, South Africa has a large internal digital divide, which limits access to ICT and its impact on people's lives.[8]

South Africa compared to other countries

On the whole, South Africa has better telecommunications infrastructure and ICT access than the rest of the continent, but is far behind Europe and other developed nations.[9] According to the International Telecommunications Union (ITU), South Africa has 11.35 fixed lines per 100 people, and 21 mobile phones per 100 people. Table 1 summarises the ITU figures comparing South Africa with other countries and regions.

Table 1: ITU 2002 – Telephones and mobile phones in selected countries

	Fixed lines per 100 people	Mobile phones per 100 people
South Africa	**11.35**	**21.00**
Africa (all)	2.62	2.93
Asia (all)	10.84	9.24
Europe	40.54	43.75
Sweden	73.91	77.07
United Kingdom	57.78	78.28

Source: ITU 2002b, 2002d; data for 2001

Despite low rates of teledensity, or the number of telephones in use for every 100 individuals living within an area, public access to basic telecommunications in South Africa has improved rapidly and is now almost universal. In 1998, 87% of South Africans had access to a telephone within a 60-minute walk (DFID 2001). Currently, nearly 98% of the South Africans live within two kilometres of a telephone (Benjamin 2002).

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[8] The legacy of Apartheid is well known, and need not be recounted here. Yet, while South Africa is striving to move beyond the old divisions of class and race, these issues continue to shape current economic, social, and political realities. It is important to consider how historically significant socio-economic inequities in South Africa still affect, though do not determine, the impact of ICT and the digital divide. South Africa's history of inequality shapes and exacerbates the digital divide in four main areas: economic inequality and poverty, inequality of public infrastructure, inequality of education, and geographic isolation.

[9] For a more detailed comparison of South Africa compared with other countries in the Southern Africa Development Community (SADC), see *Better, Faster, Cheaper: Developing and Leveraging World Class ICT Networks for Social and Economic Advancement,* bridges.org and the World Economic Forum, January 2002, http://www.bridges.org/policy/sadc_wef/.

Personal computer (PC) density shows similar patterns to teledensity figures. It is estimated that there are 6.85 PCs per 100 inhabitants in South Africa, versus 1.06 per 100 inhabitants in Africa, 17.94 in Europe, and 36.62 per 100 people in the UK (ITU 2002a). In terms of the Internet, South African access is growing rapidly and is far ahead of the rest of Africa, but still lags behind developed countries.[10] Estimates vary for how many South Africans have Internet access. The ITU estimates that 3.1 million South Africans (or 7% of the population) had Internet access in 2001 (ITU 2002c). Media Africa estimated 1.8 million with Internet access in December 1999 (Media Africa 2000). In all of Africa, only 0.8% of the population has Internet access, while in Europe 18% has access, and 40% in the UK (ITU 2002c). By comparison, according to Nua Ltd, in February 2002 there were 544.2 million Internet users in the world (NUA 2002), from an estimated population of slightly over 6 billion people. Table 2 summarises the ITU figures.

Table 2: ITU 2002 – PC density and Internet access in selected countries

	PC density per 100 people	Internet access per population
South Africa	**6.85**	**8.8%**
Africa (all)	1.06	0.8%
Asia (all)	3.31	4.3%
Europe	17.94	18%
Sweden	56.12	52%
United Kingdom	36.62	40%

Source: ITU 2002a, 2002c; data for 2001

Media Africa estimates that in 1999, 30.8% of Internet connections in South Africa were modem dial-up connections (home or small office), 15.4% were connections through academic institutions, and 53.8% were dedicated corporate lines (Goldstuck 2000). Despite having received significant funding and publicity, telecentres (or public, community-level, Internet access points) have yet to produce sustainable, replicable models for community ICT access.[11]

International e-readiness rankings

South Africa has been ranked in terms of e-readiness in a number of reports. Many of these rankings are problematic because they are over-simplified and based on hidden assumptions about issues like culture and socio-economic divisions. However they do provide some insight into South Africa's perceived position against the rest of the world.[12] For example, the Economist Intelligence Unit and Pyramid Research ranks countries according to the extent to which a country's business environment is conducive to Internet-based commercial opportunities (EIU 2002). In 2001, they described South Africa as an "e-business follower" that has "begun to create an environment conducive to e-business, but has a great deal of work still to do." Each year, 60 countries are scored on a scale of 1-10 in terms of its e-business factors and ranked. In 2002, South Africa was given a score of 5.45 and ranked 33 (up from its 2001 score of 4.74 and 33 ranking). By comparison, other countries were ranked as follows: Brazil (34), Malaysia (32), Argentina (35), Turkey (40), Azerbaijan (60), United Kingdom (3), Netherlands (2), and the United States (1).

McConnell International also focuses its e-readiness assessments on the e-business environment, and rates countries as "low," "middle," or "high" according to five factors (McConnell 2001). From McConnell's perspective, South Africa should focus on improving its basic infrastructure, human

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[10] Both the Acacia Initiative and Mike Jensen's seminal work on the African Internet offer detailed illustrations of the divide between South Africa and the rest of Africa in terms of Internet connectivity (Acacia 2002 and Jensen 2001).
[11] For more information on telecentres in South Africa, see http://www.communitysa.org.za.
[12] See http://www.bridges.org/ereadiness/ for a detailed review of other e-readiness rankings.

capacity, and overall regulatory environment. Table 3 presents the McConnell ratings for South Africa.

Table 3: McConnell International's 2001 e-readiness rating of South Africa

E-Readiness attribute	Description	South Africa's rating
Connectivity	Are networks easy and affordable to access and use?	Low
E-leadership	Is e-readiness a national priority?	Middle
Information security	Can the processing and storage of networked information be trusted?	Middle
Human capital	Are the right people available to support e-business and to build a knowledge-based society?	Low
E-business climate	How easy is it to do e-business today?	Low

Source: McConnell International 2001

The digital divide within South Africa

Although most people across South Africa have access to basic telecom, access to other ICT such as PCs and the Internet shows major divisions between rural and urban areas, suburbs and informal settlements, men and women, racial groups, and income and education levels. For example, Webchek's Project SA Web User 2002, a random survey of World Wide Web (Web) users who access the Web at least once a month either at home and/or at work, illustrates this point for major metropolitan areas of South Africa; Table 4 sets out the relevant results.[13]

Table 4: Webchek survey of South African Web users, 2002

Age		Language		Race	
18-24 years	31%	English	63%	White	69%
25-34 years	19%	Afrikaans	25%	African	11%
35-44 years	22%	Other	12%	Coloured	13%
45-54 years	18%			Asian	7%
55+ years	10%				

Monthly household income		Children in the home		Education		Gender	
Up to R9 999	20%[14]	Children at home	51%	Matric and less	35%		
R10,000 to R14,999	20%	No children at home	44%	Some university	10%	Gender	
R15,000 to R19,999	14%	Live with parents	5%	University complete	30%	Male	51%
R20,000 to R29,000	8%			Other tertiary	25%	Female	49%
R30,000 plus	25%						

Source: Webchek 2002

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[13] Web users are a sub-set of PC users, but based on other countries' experience, Web use is an exaggerated form of the disparities among PC users. Also note, this survey covers only central-urban areas, and township communities were not included. The results would likely show wider disparities if township populations had been included.

[14] This figure is deceptive, which is likely due to the limited group surveyed. To add context: 99% of all black households, 98% of coloured households, 89% of Indian households, and 80% of white households earn less than R8000 per month in Cape Town (CMC 2001; data from 1996).

Wide divides in basic infrastructure and ICT access exist between the provinces in South Africa, particularly between Gauteng and the Western Cape versus the more rural provinces of the Northern Cape, the Northwest, and the Eastern Cape. Within the various provinces, divides exist between the rural and town communities, literate and illiterate people, and employed and unemployed. This is similar to the rest of the Southern African Development Community (SADC), where access to ICT is unequally spread between rural and urban areas (bridges.org 2002b). While Webchek showed that Web use among the average South African Web user is relatively equal between the genders, more advanced ICT use in South Africa is strongly biased towards men. For example, the South African Information Technology Industry Strategy (SAITIS) jobs skills survey found that the ICT industry is still largely the domain of "White" males (SAITIS 2000).

ICT infrastructure in South Africa

South Africa has a well developed financial[15], banking, postal, and transportation infrastructure, and high literacy rates relative to the rest of Africa,[16] which all serve to facilitate growth in ICT use. However, cost is a key factor that many cite as limiting access to basic services by the poor. International practices suggest that high costs of basic ICT services such as telephones can be reduced by making use of value added network facilities such as the Voice Over Internet Protocol (VoIP),[17] which currently is controlled – and effectively banned except in rural areas with very low telecommunications access – by the former telecommunications monopoly, Telkom. Various providers supply Internet access for the end-user and business markets in South Africa. In 2001, there were 70 to 80 Internet service providers (ISPs) in South Africa, and four top-level Internet providers (CITEC, Internet Solutions, UUNET Africa, and SAIX) that serve all other secondary providers. Dial-up Internet users pay between R70 and R130 per month for unlimited connectivity, excluding basic phone charges (DFID 2001).

Estimates for August 2001 report that South Africa had a total international bandwidth of 300,000 Kb per second, compared with 723,038 Kb per second for all of Africa (Jensen 2002). This international bandwidth has recently been augmented by a new SAT-3/WASC/SAFE submarine cable along the west coast of Africa from Portugal to Cape Town, (de Wet 2002).[18] Another planned submarine fibre optic cable, the AfricaOne project, will connect Europe, the Middle East, and Africa (including South Africa); however this project may be delayed.[19] Satellite company Europe*Star reports that it also has 1 GBit/second bandwidth available over Southern Africa. Cape Town hosts one of South Africa's two Internet exchange points, the Cape Town Internet Exchange (CINX) (the other point is in Johannesburg); these points make local communications over the Internet more efficient, and decrease the overall cost by connecting ISPs for the exchange of local Internet traffic (ISPA).[20]

Overall, South Africa, as the rest of Africa, pays dearly for its Internet connectivity. African ISPs and consumers are paying the full cost of international traffic to or from Africa, instead of splitting it evenly with ISPs on the other side of the communication. According to the Kenyan Internet Service Provider's Association, this unequal situation costs Africa an estimated US$500 million per year (BBC 2002).

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[15] South Africa has one of the leading financial and banking infrastructures in Africa. It has a strong capital and money market, free floating exchange rates, numerous commercial banks, savings banks, insurance companies, discount houses, a stock exchange, and other world-class institutions. See ABSA's reports on financial institutions and markets at http://www.finforum.co.za/fininsts.htm.

[16] According to Statistics South Africa, 85.93% of people over age 15 can read and write in South Africa. The Western Cape Province has the second highest adult literacy rate in South Africa at 95.76% with Gauteng being the highest at 98.13%. Nonetheless, Cape Town still has 350,000 illiterate adults. *South African Statistics for 2002*, Statistics South Africa, incorporating 1996 census data, Stats SA and government resources, http://www.statssa.gov.za/default3.asp.

[17] VoIP is the two-way transmission of audio (voice) over a network that is based on the Internet Protocol. VoIP technology allows Internet-users with the appropriate software to speak to each other using the Internet network instead of the telephone network. In *How Internet Makes SA Competitive,* MoneyWeb, 15 March 2002, Tim Wood highlights how countries such as the USA are benefiting from low telephone costs by using Voice over Internet Protocol (VoIP) technology when dealing with South Africa, and how South Africa is losing as a result of non-use of the facility. His research on these countries suggests that VoIP reduces international rates to almost the equivalent of domestic rates. See http://allafrica.com/stories/200203150418.html.

[18] The cable will be extended to the east coast of Africa as well. For more information, see http://www.saix.net/sat3.html.

[19] For more information, see http://www.africaone.com.

[20] For a visual representation, see Gregory Massel's *Topological Map of Southern African Internet Access Providers* at http://www.ispmap.org.za.

2.1.2 ICT in the Western Cape

While there is a portion of the Western Cape population that is highly literate and financially stable, the majority of people below the poverty line do not have a fixed or mobile telephone, nor have access to computer, email, or the Internet (Vlachos 2001). Since the majority of low-income inhabitants in the Western Cape cannot afford to pay for basic services such as water, electricity, and sanitation, it follows that ICT services are out of reach as well (Palmer Development Group 1999). Similar to the national statistics, there are large divides in the Western Cape's ICT Industry. Only 20% of ICT workers are women (Van der Merwe and Stander 2002). The Western Cape and Gauteng Provinces host more than 80% of South Africa's ICT companies, although, only 11% of the ICT sector is in the Western Cape, versus 70% in Gauteng (ISETT 2001a).

ICT in schools

In the area of ICT education, the Western Cape is relatively well placed in comparison to other provinces. The Western Cape and Gauteng Provinces have the greatest availability of school infrastructure compared to other provinces (ISETT 2001a). Of schools in South Africa, 13% had one or more PC in 1998, with Gauteng and the Western Cape having the most extensive school infrastructure (Howell 2000). Additionally, schools in the Western Cape and Gauteng were more likely to have Internet Access: 49% of schools in Gauteng and the Western Cape versus 38% in the Eastern Cape and 12% in the Northern Province. The Western Cape has the highest high school pass rate in South Africa (80%), and five prominent tertiary institutions in the Western Cape supply trained personnel for the ICT industry (CITI 2002).

The Western Cape Schools Network (WCSN) is the primary Internet service provider to schools. It provides 900 of the Western Cape's 1556 primary and secondary schools with inexpensive email and/or Internet access. The University of Cape Town (UCT), the University of the Western Cape (UWC), Cape Technikon, and Peninsula Technikon are serviced by the Tertiary Education Network (TENET), and receive reduced Internet access rates and bandwidth from Telkom.[21] Some schools in the Western Cape have organised their own computer laboratories, with mixed success. Some make do with donated machines (e.g. Grassy Park), while others purchased machines from their own funds (e.g. Westerford High School in Rondebosch).

The Western Cape currently has a total of 1556 schools, and 753 of the schools have PCs for teaching purposes. While PC access is high, the ICT literacy of teachers and financial constraints place major limitations on how effectively schools are using their equipment. Of these schools, 95% are using their PCs to some extent for teaching, although anecdotal evidence indicates that many are under-utilised. In the Western Cape, 790 schools have PCs designated for administrative purposes, and approximately 85% are used to some extent, although anecdotal evidence indicates that many of these computers are also under-utilised (Bloomfield 2002). 49% of Western Cape schools had some Internet access in the year 2000 (Howell 2000). The Western Cape Education Department (WCED) is currently upgrading ICT access in schools for administrative and teaching purposes. The WCED's Khanya Project is addressing the implementation of technology in schools to improve teaching, especially in mathematics and science, by rolling out a programme for improving ICT access, teacher training, and curriculum integration (Khanya 2002). Additionally, school administration systems are being connected to the head and district offices to facilitate easier communication. In 2001, 66 schools were targeted for extending Internet access; in 2002 and 2003, 250 schools per year are targeted.[22]

For security and staffing reasons school laboratories are often closed to the public. However, a small number of Adult Basic Education Training (ABET) centres have negotiated use of school laboratories

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[21] For more information see http://www.wcape.school.za/wcsn/ and http://www.tenet.ac.za.
[22] No detailed information is available now for Cape Town schools, but initial evidence from this survey indicates that Cape Town has higher rates of Internet access overall, but there are wide divisions between schools in affluent and low-income areas. The Khanya Project is expected to publish comprehensive information about ICT access and use in Western Cape schools.

for evening training in Cape Town, for example in ABET's largest centre in Langa and in its Bonteheuwel centre.

2.1.3 The ICT policy environment

Most ICT-related policies fall under the jurisdiction of the National and Provincial Government, and the City's course of action will be shaped – but not determined – by their actions in this area. Both are embracing technology and have recently enacted important policies and initiatives related to ICT.[23]

National ICT policy

South Africa's ICT policy framework is currently undergoing rapid change as the National Government seeks to harness ICT for growth and grapples with new social issues raised by technology. Overall, this policy process has been consultative and forward thinking. Many of the national ICT-related policies are controlled by the Departments of Communications (DoC), Public Enterprises (DPE), and, in part, Trade and Industry (DTI).[24] The policies cover a range of topics directly affecting Cape Town and the Western Cape, including the following key issues:

- ♥ # **E-commerce.** The national e-commerce legislation covers regulatory issues related to electronic business transactions between businesses and consumers/clients, businesses and businesses, government and businesses, and government and citizens. The Electronic Communications and Transactions Act is especially relevant.[25]

- ♥ # **ICT security.** Security issues related to electronic commerce, privacy, and e-government are largely shaped by national policy. For example, the Interception and Monitoring Bill seeks to regulate the interception of communications for investigating fraud in communications, e-commerce, and other electronic transactions.[26]

- ♥ # **National education policy.** South Africa is transforming its national curriculum. For example, Curriculum 2005, a uniform policy for all schools in South Africa, is under consideration by the National Government. It will have a direct impact on the Western Cape school system, and potentially ICT training and capacity.[27]

- ♥ # **Market regulation.** National policies define the regulation of the ICT market, and can help or hinder local development. The leading example is telecommunications deregulation and liberalisation. Telkom's previous monopoly in the telecommunications sector prevented competition in the ICT market.[28] The Government has now agreed to licence a second national operator (SNO) but the slow implementation of this policy hinders development initiatives,

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[23] For example, the national skills development strategy seeks to promote training and to improve skills for the ICT sector in South Africa, see http://www.isett.org.za/isett_issa_learnership_project/. In the same light, the Telecommunications Amendment Act, no 64 of 2001 of the Department of Communication paved the way for sector liberalisation through the introduction of the second national operator. For more information see http://www.doc.gov.za.

[24] Though the telecommunication sector falls under the DoC, the DTI is responsible for promoting investment in SA and it plays a significant role either directly or indirectly, to influence the liberalisation and development policies of the sector. For example, the ICT Development Council, which seeks to build the sector, is chaired by the Minister of Trade and Industry. At the same time, the DPE plays an active role in shaping the privatisation of Telkom. For more information, see http://www.dpe.gov.za/dpe.asp?MainFrame=docs/policy/policyframework01.htm or http://www.dti.gov.za/offerings/offering.asp?offeringid=226.

[25] Cape Town ICT-related initiatives will need to conform to the regulations of the current *Electronic Communications and Transactions Bill of 2002* (Gazette 23195, Notice 302, March 2002, http://www.gov.za/gazette/bills/2002/b8b-02.pdf), which seeks to regulate the following: electronic communications and transactions; the development of the national e-strategy to promote access to electronic communications and transactions by small, medium and micro enterprises (SMMEs); e-government; and abuse of information systems. The Act became operational on 30 August 2002.

[26] The *Interception and Monitoring Bill* (Government Gazette no.22582, 17 August 2001) was criticised for compromising public rights to privacy. See commentary on the Interception and Monitoring Bill at http://www.bridges.org/policy/sa/submissions/interception.html.

[27] Spearheaded by the Minister of Education, Prof. Kader Asmal, the new programme seeks to apply a uniform curriculum to all the schools, and a single examination board for all matriculants in South Africa. See more on Curriculum 2005 at http://www.polity.org.za/govdocs/discuss/techno.html.

[28] The *Telecommunications Act 103 of 1996* shaped the national ICT market by giving exclusive rights to fixed line telecommunications and value added network services (VANS), as well as an exclusive international and long distance telephone monopoly license to Telkom for a period of five years.

restricts competition and foreign direct investment, and ultimately limits sector growth nationally.[29] The continued lack of competition prevents the development of a competitive pricing structure, which would have a direct effect on local ICT development.

There are a number of technology policy-related initiatives led by the South African National Government, including the DoC's Commission for Information Technology, consolidation of government networks and information services, the public e-commerce debate, Universal Service Agency (USA) efforts, and the Public Information Terminals for Post Offices (PITs) programme. Key initiatives are listed in Annex 10. A more complete review, not specific to Cape Town, can be found in SAITIS's Impact Analysis of Current Initiatives (SAITIS 2001a).

Provincial ICT policy

While the overarching ICT policy framework is controlled by the National Government, the Provincial Government influences two major areas: education and economic development. Two initiatives are leading the way in these fields:

♥ # **Education policy**. Education policy is implemented by the Provincial Government, but shaped by National Government policy. As described above, the Khanya Project of the Western Cape Education Department is investigating ways of using information, communication, and audiovisual technologies to improve curriculum delivery and the quality of teaching and learning in all schools of the Western Cape (Khanya 2002).

♥ # **The Knowledge Economy of the 21st Century Initiative.** This initiative is spearheaded by the Provincial Department of Economic Development & Tourism, with the aim of enhancing economic growth to make the Western Cape the leading learning region and premier centre for entrepreneurship and innovation, and to achieve equitable development in the region (PAWC 2001).

2.2   City level ICT strategies and initiatives in Cape Town

The City of Cape Town is governed by a City Council which comprises 200 councillors, and is managed by an Executive Committee with 10 members, including the Mayor and Deputy Mayor. An Executive Management Team of 11, including the City Manager, head up the various services and Directorates. The current administrative structure came into being in December 2000 when the six Cape Metropolitan Areas were amalgamated and is transitional, pending the final organisational structure of the City's administration. During recent years, the City has embarked on a number of ICT-related programmes designed to improve its own internal processes and increase the availability of ICT to communities and businesses in the area it serves. In November 2002, political control of the Council changed, however ICT has remained a priority on its agenda.

Implementation of these projects has not been easy for the City of Cape Town, with a number of internal and external challenges to address. Change management processes have been implemented to start to ensure common service delivery standards across all Departments and Directorates, while ensuring common and interoperable back-end systems. As the City administration is in transition, this process is ongoing. Externally, the City is faced with challenges that include increasing unemployment in the short-term as the regional economy repositions itself and an increase in income inequality as job growth is restricted to more highly skilled areas. In addressing these socio-economic challenges, the City of Cape Town is the only city in Africa that has highlighted ICT development as one of its top priorities.

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[29] Although the *Telecommunications Amendment Bill No 65 of 2001* has introduced limited liberalisation of the telecommunications sector by allowing a duopoly, i.e. introducing the SNO in the sector, major delays in the licensing of the SNO, together with a continued prohibition of VANS by this legislation still prevents competition in the sector and affects technologies in South Africa and Cape Town.

The Smart City Strategy

In March 2001, the City published its vision for the future which included as part of an Economic Development Strategy the adoption of the Smart City Strategy (SCS) for the transformation of the way in which the City Administration manages its internal processes, conducts business, and interacts with beneficiaries. The Strategy details a number of initiatives with the aim of creating "a smart city populated by informed people, connected to the world and each other by the technology of the information age." Particular reference is made to building global competitiveness, providing a business friendly environment, and creating economic opportunity for all. City leaders have recognised that ICT has an important role to play in realising this vision, and that such technologies already impact on the lives of all its communities, even if only indirectly. The Smart City Strategy aims to implement a number of discrete projects that will make a positive contribution not only to internal Government processes and the existing ICT Sector, but also to the community as a whole. At the outset, local Councillors were all provided with computer access in their homes to increase accountability and communication with their communities. The City's positive ICT strides were publicly acknowledged with the award of the African ICT Achievers E-Government Award to the City in October 2002.

Smart Cape Access Project

The Smart Cape Access Project is currently being implemented under the auspices of the Smart City Strategy, with the aim to ensure that all citizens of Cape Town have access to basic ICT[30]. The SCS plans a phased process of installing computers in the city's 105 public libraries to make administration more easy for Government and citizen alike, make Government more accessible to the citizen, and bring technology resources to the poorer areas of the population to effect positive changes. Through the Smart Cape Access Project, a model for public access has been developed that allows computing facilities with Internet connectivity to be provided cost effectively, using open source software and relying on existing infrastructure and resources. Six computers have been initially been installed on a pilot basis in each of six public libraries across Cape Town, primarily in economically disadvantaged areas. Each library member has the opportunity to use the facilities at no charge for up to 45 minutes per day, and can prepare and print documentation such as letters and curriculum vitas, draft and send email, and conduct searches on the World Wide Web. All users are allocated an email address for their permanent use. Citizens are also provided with their local councillor's email address as well as important information about their residential area.

The project has been positioned as an enabler of other social and economic development initiatives by the City, which can make use of this platform. Expansion across Cape Town is expected to have an impact on skills development, business support, and social cohesion. The challenges of expansion include the establishment of public-private partnerships and related commercial opportunities to cover costs, and the development of local content – including the provision of online municipal services – to make the service socially relevant. This would allow residents to pay for services online, while businesses are already enjoying the benefits of the project by completing online tender applications. The City is currently expanding the project.

Business Support Services

During 2001-2002, the City of Cape Town engaged in a set of activities to better understand its small business sector and investigate how the City can best support the development of small business, promote equity, and help alleviate poverty. The result of these investigations was a solid understanding and segmentation of the business sector, regarding its needs, demands and supply of support and services, and the role of the City of Cape Town, as local Government, in supporting the growth and expansion of the business sector.

The City is facilitating better access to information through various programmes such as Business Referral And Information Network (BRAIN), Library Business Corners, and Matchmakers. The latter

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[30] See http://www.capetown.gov.za/smartcape/defaultold.asp for further information on the Smart Cape Access Project.

programme is a pilot initiative to promote access to finance through providing quality and professional advice to businesses.

Library Business Corners

The Library Business Corner (LBC) initiative was created as a means of serving the wider communities' needs for information on starting and running small businesses. It has been particularly successful in making youth aware of entrepreneurship and programmes to foster small business development. The LBC initiative is paper-based, providing aspiring entrepreneurs and businessmen with information about setting up businesses, resources and local organisations involved in this work. It is currently only available in 33 public libraries. 2002 is the project's third year of its five-year life span. It aims to fund an additional 10 libraries by June 2004.

2.3   The status of ICT in Cape Town's communities

This section describes the current status of ICT in Cape Town's communities based on information derived from background research and collected through community meetings. Section 2.3.1 outlines the extent to which people and communities of Cape Town can access and use ICT by looking at each of the Real Access factors. Data for all of Cape Town is included, when available, and is compared to information collected from the specific communities studied in this assessment where appropriate. Section 2.3.2 summarises the overall trends that emerged.

Information about access to ICT in Cape Town's communities was gathered through 19 public meetings held in selected communities across the city during March and April 2002. The meetings drew an estimated 2000 Cape Town residents, including 923 who responded to the survey.[31] The meetings provided an opportunity for the project team to gather both quantitative and qualitative information and connect directly with community members to learn about their unique needs and views on ICT. The meetings allowed the City to engage some of the residents of Cape Town's disadvantaged communities and townships in a public discourse on technology and development. This outreach was part of a greater process for the City to build a dialogue with the stakeholders. It also helped the project team gain a practical view on the level of interest and capacity of community leaders and ground level organisations to work in partnership with the City on ICT issues.[32]

> **The Importance of Involving Stakeholders: Public Support and Political Will**
>
> Governments must get public buy-in for their ICT goals and strategies so that citizens will not reject their plans. In many countries the highest levels of government strongly believe in the potential of ICT and are committed to restructuring the economy and government to better support ICT use and growth. However, too often citizens feel excluded from the process of restructuring and believe that their views are not valued. For example, in South Africa the powerful labour organisations have staged strikes against the government and threatened to withdraw support because they do not feel their concerns have been addressed in the programme for telecommunications reform. Integrating stakeholder concerns and spreading awareness of the benefits of ICT throughout a society cannot only begin when governments are ready to implement their new strategies. The government will build greater support and buy-in if stakeholders are included when goals are set, information is collected, and the strategies are developed.

Community meeting locations were randomly selected based on stratified proportional criteria (including income level, predominant race, language, and geographical location).[33] A list of

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[31] The community meetings were conducted in two parts, a pilot stage and the full stage. In the pilot, five community meetings (in three different locations) were conducted. In the full stage, 14 more meetings (in 13 different locations) were held. The data presented here is based on the 923 valid questionnaires gathered during the final stage of the survey.

[32] Meetings were arranged and publicised in conjunction with local organisations such as churches, schools, Reconstruction and Development Programme (RDP) Forums, civic bodies, and ratepayers associations. Local councillors were informed about the process and invited to participate. The meetings were also publicised though flyers, loud hailer (megaphone), community radio, and newspapers. Participating radio stations included Radio Zibonele, Tygerberg Radio, K-FM, CC-FM, Cape Talk, and newspapers included the Tygerburger, Tygertalk, Atlantic Sun, and Southern Mail. General coverage of the project also appeared in the Cape Argus.

[33] Meeting locations were drawn from a proportional sample of Cape Town suburbs based on census data. It is relevant to recognise that the public meetings were not necessarily representative of the entire population of Cape Town. Given the

community meeting locations and description of the location selection process are included in Annex 2 and 3. At each meeting, respondents were informed about the study and the project team led a general discussion on local ICT use, how ICT might be applied to benefit the communities in the future, obstacles to improvement, and the potential role of the City in this area. Respondents completed a questionnaire to provide information about their demographics, experiences, and views on the issues. A sample of the questionnaire used to collect information is included in Annex 4.

2.3.1 Real Access to ICT in Cape Town's communities

Gauging the number of computers and connections that the people of Cape Town have is relatively easy, but measuring the level of *effective use* of ICT is much more difficult. For instance, there are many examples of ground level initiatives that provide technology access in underserved communities, but it is factors like training, affordability and locally relevant content that determine whether people use ICT successfully. The concept of Real Access offers a holistic framework for examining whether people *could* use ICT and whether they actually *are* using it, including looking at the underlying factors that affect *whether they do* (or do not) and *why*. This section presents findings on Cape Town's communities in terms of each of the Real Access criteria, in order to show how ready Cape Town is to integrate technology across all levels of society in an effective, sustainable way.

(i) Physical access to ICT

> *"Yes, the Government of Cape Town must try to improve access to computers for us black people because in other places like suburbs there are more access to computers." Unemployed man (age category 19-25), Khayelitsha-J*

The starting point for an assessment of Real Access is to determine whether and how much people have physical access to ICT. The most common measures of physical access look at the availability of PCs at home or work, and the availability of telephones. Internet access and use, and the availability of public access points, are also used in this survey to gauge physical access. All measures show large disparities between rich and poor communities and income groups in Cape Town.

Access to ICT at home or work

PC access

In the communities studied, there is low access to PCs overall, and corresponding low access in different income groups, as shown in Tables 5 and 6. These findings are similar to those of other studies.

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relatively small number of total community meetings and the selection process used, the meeting process gave a rough proportional representation of the City's population. The locations also included a range of smaller categories of the population (white Afrikaans speaking, white English speaking, upper income, city residents, and residents of isolated communities). Community meeting attendees were inherently a self-selected group, and biases based on the location, time, advertisement, and content of the meeting need to be taken into account. Throughout the report, it is clearly stated where conclusions can be drawn about all of Cape Town, or should be limited to the given community and meeting.

Table 5: CPT DD Assessment 2002 – Access to PCs, by community type

	Location of Community Meeting			
Access to PCs	Informal Settlement	Low Income Formal Settlement	Middle Income Formal Settlement	All Respondents
PC access at home	5%	5%	44%	10%
PC access at work	6%	10%	36%	11%
Number of respondents	349	231	90	670

Table 6: CPT DD Assessment 2002 – Access to PCs, by income level[34]

	Income Level			
Access to PCs:	Unemployed	<R1000/month	R1000-R2500/month	>R2500/month
PC access at home	5%	2%	17%	35%
PC access at work	-	12%	22%	35%
Number of respondents	378	92	46	69

Internet use

Respondents to this survey reported that Internet *use* is also very low in the communities studied, as shown in Table 7.[35]

Table 7: CPT DD Assessment 2002 – Use of the Internet, by income level

	Income Level			
Use of the Internet:	Unemployed	<R1000/month	R1000 - R2500/month	R2500/month
Do not know what the Internet is	29%	18%	27%	23%
Never used the Internet	3%	4%	9%	8%
Have used the Internet	6%	4%	22%	36%
No response	62%	74%	42%	33%
Number of respondents	476	113	51	78

Telephone access

Since 1996, Telkom has connected 2.8 million fixed lines nationally to meet its licence rollout obligations during the five-year exclusivity period. During this period Telkom was protected from other competitors entering the market, but under the pre-condition that a certain number of lines needed to be installed, especially in rural areas. This trend of increasing access to and use of fixed line

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[34] The employed population of Cape Town was divided into three categories based on income, plus one category for the unemployed. According to the 1996 census, one-third of employed persons earned between R1 and R1000 per month, one-third earned between R1001 and R2500 per month, and one-third earned over R2500 per month.
[35] Because many respondents were unfamiliar with computers and the Internet, the questionnaires asked about *actual* Internet use, instead of asking respondents to state whether they had *access* to the Internet at various community locations where they may have used computers.

telephones, however, is being reversed by rates of disconnection as high as 50-70%.[36] According to Telkom's 2002 annual report, there are two reasons for the disconnections: non-payment due to the poor economic climate, and an apparent public shift from fixed to mobile telephony.[37] Telkom did not release figures about the number of people who were disconnected in Cape Town specifically or about the locations where the majority of cut-offs occurred. However, 60% of disconnections countrywide were due to non-payment, which is likely to disproportionately affect poor sectors of the population. The communications regulator, the Independent Communications Authority of South Africa (ICASA), has raised concerns about the high disconnection levels countrywide. As a result, ICASA and Telkom have recently agreed on a "lifeline service" whereby residential customers who cannot afford to pay their bills will be offered the option of a minimal service that will allow them to receive calls and make only free outgoing calls to emergency services. In this way, all customers can access basic services at a low cost, and the universal service targets are met.[38] Telkom public phones with cash and card payment mechanisms are also reported to be readily available in many township communities. However, despite the number of phones available, anecdotal evidence suggests that many of them are not operational.[39]

Vodacom is the leading cellular phone company in South Africa and has a share of approximately 55% in the booming mobile phone market. As part of its license conditions, it is obliged to provide 22,000 lines to the disadvantaged to meet community service targets. Vodacom is meeting this obligation by setting up small businesses running subsidised "phone shops" in areas with limited or no access to fixed-line services. The company has taken an innovative approach by introducing "ready-to-go" shops in renovated shipping containers to specifically target township communities and rural areas where security and infrastructure are critical external challenges.[40] There are approximately 2 335 Vodacom phone shops operated by 1 314 entrepreneurs in South Africa, 23 of which are situated in the Western Cape. All Vodacom phone shops in the Western Cape are situated in townships and are privately owned, however none have an explicit community development role.[41] See Annex 11 for a list of the Vodacom phone shops in Cape Town.

Respondents to this survey reported greater access to cellular telephones than to fixed line telephones, and both far exceeded access to computers; see Table 8. This is consistent with national figures for South Africa and many other countries.[42]

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[36] This is referred to as "churn", and in some of the rural areas, the rates of churn are as high as 50% to 70%, with most lines being disconnected within a few months due to economic (and not technical) reasons. See http://www.communitysa.org.za/rollout.htm for further information.

[37] According to Telkom's *Position Paper on Disconnections*, 20 June 2002, 60% of line disconnections in this period were a result of non-payment by clients, which is attributed to bad debts and public failure to meet contractual obligations. The other 40% comprises a combination of reasons including migration to prepaid services, migration to mobile telephony, and physical relocation.

[38] For further information, see http://www.icasa.org.za/?FromHome=1&Cmd=Search&ContentID=218.

[39] CommunitySA Telecentre 2000, Report 3: Domestic Case Studies Review, Appendix 16: *Khayelitsha Vodacom container*, Grant Maserow. See http://www.communitysa.org.za/tele2000.htm.

[40] Most phone shops start with five phones, but many quickly expand as demand increases. Vodacom has developed a special unit for these shops called the "Zigi phone", which includes a handset and a meter to record the price of a call. A phone shop requires an investment of R25,000 that is paid either by the entrepreneur in instalments or by a development bank. In most cases loans are paid off within six months. All the Vodacom phone shops charge R0.60 a unit for calls, which is slightly cheaper than Telkom payphones. Of this, R0.40 goes to Vodacom for the call and R0.20 goes to the phone shop. The shops operate on a pre-paid system that requires entrepreneurs to first pay to load their lines with "airtime" before the system will work, which avoid debts and arrears. Most of these phone shops have proven to be very successful, with less than 3% closing down. Many of the entrepreneurs now own several phone shops that are highly profitable. For more information see, Vodacom Foundation (2002), *Prospective,* http://www.vodacom.co.za/about/foundation_perspective.asp.

[41] For more information see CommunitySA Telecentre 2000, Appendices 13, 16, and 17, http://www.communitysa.org.za/tele2000.htm.

[42] In South Africa, 65% of phone subscriptions are cellular. Other examples include: Mozambique (66%), Morocco (80%), Finland (59%), UK (58%) (ITU 2002b).

Table 8: CPT DD Assessment 2002 – Fixed line and cellular telephone access, by income level

Telephone Access	Income Level			
	Unemployed	<R1000/month	R1000 - R2500/month	>R2500/month
Fixed line telephone at home	39%	31%	49%	70%
Cellular telephone in household	54%	56%	56%	82%
Number of respondents	476	113	51	78

Public Access to ICT

"The council must provide us with the training centre for the youth so that they get to use the computer." Unemployed women (age category 26 – 35), New Crossroads

There are several realistic options for providing public ICT access in Cape Town – including libraries, post offices, telecentres, and Internet cafés – each of which shows promise but has not yet delivered physical access to ICT to large numbers of people. In addition, township communities of the Cape Flats are sorely lacking in this kind of basic infrastructure. The schools are often understaffed and lack secure, unused space for computer laboratories, and the libraries are similarly understaffed and under-resourced. Wealthier areas, on the whole, have better funded libraries and schools.[43]

Libraries

Of the City's 105 libraries, 33 have computers open to the public or will receive them in the next few months. In June 2002, the Smart Cape Access Project piloted computer laboratories in six libraries, and six more are expected to open soon. The Library Business Corners Programme has set up information stations in 24 libraries, but only two have Internet access. The Shuttleworth Foundation is setting up Internet access in three libraries as part of an open source software experiment that it is conducting.[44] Libraries provide the security needed for operating computer laboratories, but several community members strongly voiced their concerns that library facilities are not open after business hours. This limits library computer access to schoolchildren, and makes access by the working community almost impossible.

Post Offices

At the national level, there have been numerous attempts at using post office infrastructure to supply public access to ICT, but large-scale rollout has not yet occurred. The Public Information Terminals for Post Offices (PITs) programme is a joint initiative of the South African Post Office and the Department of Communications. Hosted by various post offices throughout the country, PITs kiosks provide various ICT services, both to the community and the business sector. Specifically, PITs services include an online business directory, public email communication facility, "CV creator" facility, provision of online government forms (with options to print a blank copy or complete the form before printing), government information, and Internet browsing. While the programme is still under development, a selected number of PITs terminals have already been installed throughout South Africa, including 11 in the Western Cape during 2001: Beaufort West, Caledon, Cape Town Main, Ceres, De Doorns, Gugulethu, Khayelitsha, Stellenbosch, Oudtshoorn, Vredendal, and Worcester.[45] As in the case of libraries, inaccessibility after business hours limits usability and impact of the PITs.

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[43] Although one local councillor noted that these divisions are fading since some public schools in affluent areas serve almost exclusively non-local students, often from poorer areas of the City.
[44] Athlone, Mitchells Plain, Brown's Farm.
[45] For more information see http://www.sapo.co.za/pitwww/index.htm.

Telecentres

Telecentres, or gathering places devoted to providing computer services to the public at low or no cost, are often regarded as the solution for public access to ICT in poor communities.[46] Despite large expenditure on telecentre development by national and international agencies such as the Universal Service Agency, Microsoft, and Africare, overall these centres have so far failed to live up to their promise in South Africa, often because of a lack of sustainability and community engagement.[47] Most telecentre programmes in South Africa have been initiated in isolation and there is little coordination or sharing of resources among them, nor any directed efforts to support their activities. This is also true in Cape Town. Many telecentres receive donated equipment and some training from donors, but they have poorly trained managers who struggle to achieve sustainability as they deal with practical matters like broken equipment and high Internet connection bills. See Annex 11 for a list of telecentres in Cape Town.

A Telecentre Example in Cape Town

In 1999, Africare attempted to set up two Digital Villages in Cape Town: one in Khayelitsha with the help of the Student Health and Welfare Centres Organisation (SHAWCO), and the other in Retreat with the help of the Cape Flats Development Association (CAFDA). Africare's funding for the project dried up and the telecentre project has since faced a number of challenges. The SHAWCO computers sat unused for over a year. More recently, SHAWCO obtained limited funding and with assistance from bridges.org and the World Economic Forum Entrepreneurship Channelling Organisation (ECHO) it has set up a small computer centre. However, the centre is not fully operational. The centre in Retreat survived just over a year. Africare gave little support to help create a sustainable operation and did not provide training in financial management. Eventually, South Peninsula Technikon took over most of the centre and now pays CAFDA a small monthly fee for space and equipment. However, frequently the computers sit unused.

Internet cafés

Small-scale Internet cafés have been very successful at supplying Internet access to city dwellers in a number of countries. There are 19 Internet cafés listed in the Yellow Pages for Cape Town, which are concentrated in the central business district and suburban shopping malls such as Tygervalley and Century City. See Annex 11 for a list of Internet Cafés in Cape Town. Some Internet facilities are also provided in restaurants and other businesses facilities, such as City Lodge Hotels, that offer additional services to clients; a total number is difficult to trace, but none are known to be located in Cape Town's township communities.

Knowledge of local computer access points

Some 44% of survey respondents did not know where they could access computers in Cape Town, as Table 9 shows. However, *awareness* of public access to computers was shown to be less than *actual* access.[48] For example, in Masiphumelele – where computers are available for public use in a local community centre – only 36 of 108 respondents were aware that they had local, public access to computers.

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[46] Also known as multi-purpose computer centres, or community technology centres.
[47] For more information see Peter Benjamin's CommUnity website for resources and reviews of telecentres: http://www.communitysa.org.za. See especially Aki Stavrou and Peter Benjamin's Telecentres 2000 report: http://www.communitysa.org.za/tele2000.htm. Other materials can be found at http://www.bridges.org/resources/practical.html#RunCTC.
[48] Questions about whether an individual has access to ICT at work or home require a straightforward "yes" or "no" answer. However, questions as to whether people know of access in other places, such as community access points, are more subjective and require of them to know about the availability of ICT, regardless of whether they use it themselves.

Table 9: CPT DD Assessment 2002 – Knowledge of where public access to computers is available to citizens

Places where computers are available	
No access point known	44%
School	14%
Work	11%
Community centre	11%
Home	10%
Library	6%
Shop / Internet café	4%
Other	1%
Number of respondents	670

(ii) Affordability

"The problem is money, but we would like to know about computer[s]." Unemployed woman (age category 19 – 25), Khayelitsha, Site B2

Where physical access to ICT is available, the cost of hardware, telephone lines, electricity, Internet connection, software, and maintenance must not be so expensive that it excludes people from using the technology. National competition in the communications industry is expected to help drive prices down. While many people do have access to telephones and cell phones, significant anecdotal evidence collected at the community meetings suggests that overall ICT is simply too expensive for most people in Cape Town's poor communities to use it regularly. The current realities of ICT affordability at ground level in Cape Town are described below. A comparison of unemployment rates and average salaries in the communities studied against the costs of ICT access and use set out in the sections below and summarised in Table 10 illustrates the stark realities of this point.

Fixed line telephone

The national telecommunications environment has yet to be fully liberalised, so fixed line charges are based on non-competitive pricing structures set by Telkom, the incumbent telecommunications provider.   There are charges for connection/installation of both residential and business lines (approximately R239), and a monthly rental fee (ranging from R67 to R90).[49] Call charges range from R0.21 to R0.49 per minute for local calls, and R0.88 to R1.56 per minute for long distance calls, depending on the time of day.[50]

In November 2002 Telkom announced its proposed tariff adjustments for 2003.[51] From 1 January 2003, local and long distance call charges in standard and off-peak time will increase by 12.5%. Charges for calls from Telkom's network to mobile numbers will increase by 5.5%. International calls will increase by an average of 5%. Telkom has also introduced its "PrepaidFone" service for private residential customers that has marginally higher rates per prepaid minute, but does allow the user greater flexibility in managing finances. It is claimed to be the "world's first prepayment service on a fixed line telephone network". All rentals and calls are paid up front by means of a scratch card type voucher.

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[49] For more information, see http://www.telkom.co.za/pricing/content/transfer_charges.jsp and
http://www.telkom.co.za/pricing/content/monthly_rental.jsp
[50] From the 2002-2003 Phone Book, compiled by Telkom Directory Services (Pty) Ltd.
[51] For more information see Telkom's website at
http://www.telkom.co.za/servlet/ClickManager?currentFile=/index.jsp&nextFile=/news/article_510.jsp&clickSource=LINK&website_id=www.telkom.co.za.

Cellular telephone

Vodacom and MTN predominantly control the cellular environment, with the recent addition of Cell C as a third cellular operator. The increased competition has yet to bring a significant drop in cellular tariff rates. Prices of cellular phone handsets range from cheap (usually illegal) street sales for R500, to basic models for R1500. Cell phones can also be purchased new at numerous retail outlets beginning at roughly R600, subject to the in-store activation of a cellular prepaid package. Low-cost prepaid phone cards have helped put cellular telephones within the reach of more people, if only to make the telephone available for receiving calls, because payment options are more flexible. The customer base of all three cellular operators is predominantly based on a prepaid option – calls range from a minimum of R1.40 to R2.85 per minute (more than three times the price of a call from a fixed line) depending on the time of day the call is made and the cellular network accessed. Although cellular phones go some way to provide people with connectivity, even the prepaid option is still well out of reach of the poorest Cape Town residents. According to a Vodacom spokesperson, only 6.7% of their township customers are based in the Western Cape (nationally, 15.4% of Vodacom's customers live in townships).

Computer hardware

Computer ownership is prohibitively expensive for most of the population in Cape Town. Local prices for a desktop computer range from R2,500 for a quality refurbished PC, to R14,000 for a new mid-range desktop. Alternative technologies such as handheld computers may offer more affordable hardware options in future.

Internet access

Internet access is also unaffordable for the majority of Cape Town residents. The rates for unlimited Internet access range from R78 to R130 per month for a dial-up connection, and R109 to R119 per month for a dedicated ISDN line, depending on the service provider chosen and level of technical support preferred. For dial-up connections, telephone charges also apply, with an hour of connectivity costing an additional R8.67 to R23.80 per hour. Wireless connectivity is more expensive due to the mobile call charges, and has not seen a substantial uptake in South Africa. This contributes to the fact that in Cape Town, Internet access is achieved almost exclusively through physical lines as opposed to wireless Internet connections. Internet access is also gained through Internet cafés where charges range from R3 for five minutes of computer use to R5 for 15 minutes. Subsidised public access points are being put in place where people can use computers and the Internet for little or no cost, but use will be restricted. Table 10 presents the average ICT costs in Cape Town.

Table 10: CPT DD Assessment 2002 – Average ICT costs in Cape Town

Fixed line telephone	Installation of residential line	R239
	Monthly line rental	R47.65 (standard minimum)
	Local calls	R0.75 per call
	National calls	R0.88 per minute
	Calls to a cell phone	R1.06 - R1.78 (depending on time and network)
Cellular telephone	Handsets	R500 - R1500 (minimum)
	Prepaid calls	R1.40 - R2.85 per minute
Computer hardware	Refurbished PC	R2500
	Mid-range desktop	R14,000
Internet access	Dial-up connection	R78 - R130 per month + up to R23.80 per hour telephone charges
	ISDN connection	R109 - R119 per month

Source: Sampling from public providers, 2002

(iii) Appropriate technology

A wide variety of technologies are now available, and in many cases, computers and connections are not the best technology choice to meet the daily needs of most people in disadvantaged communities. Policy makers and users must be able to critically assess which kind of technology is appropriate for the intended use. The reality on the ground in Cape Town is that the majority of people lack electricity or a secure location to keep a computer in their home, so personally-owned PCs are unlikely to be the most appropriate technology for them. However, that does not mean that they cannot participate in the information society. In light of current technology developments, more appropriate ICT options in the future will include handheld computers and public access points, and more effective use of cellular telephones, television, and radio for Internet access.

Radio

Radio currently has the broadest reach of any technology in Cape Town's communities. National radio's penetration rate lies at approximately 93%.[52] There are 15 community radio stations in the Western Cape serving 714,000 listeners in 2001-2002.[53] Community radio, which has been one of the most important media for conveying information in South Africa, uses computers, email, and the Internet in its daily activities.[54] However, radio stations in Cape Town do not see a direct link between themselves and other ICT access points such as telecentres and multipurpose community centres that would justify collaboration. A recent study, commissioned by the National Community Radio Forum (NCRF) on the feasibility of community radio stations as potential public access points, disagreed.[55] The study found that partnering between local initiatives such as the multipurpose community centres and the community radio sector creates conditions for the convergence, not only of technology, but also of civil society, local communities, and local Government. Stations can be intermediaries between the local, Provincial, and National Government, and the communities within their coverage areas.[56]

Television

Television penetration in South Africa is estimated at 69.6%, and television broadcasting is a key method through which the majority of the population receive their information.[57] The rate of television uptake is certainly higher than that of computer hardware, which has important implications for the future of television-based Internet access. "Set-top" devices that allow television sets to be used as a means of connecting to the Internet have already been launched in South Africa to allow television viewers to send and receive email, surf the Web, and conduct banking transactions. An exclusive alliance with Netactive allows users to subscribe and receive full Internet access through their television set for R85 per month.[58]

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[52] For more information, see Freedom of Expression Institute, http://fxi.org.za/letter.htm.

[53] The stations are: Bush Radio, Cape Talk, CCFM, Fine Music Radio, KFM, MFM, P4 Radio, Radio 7, Radio 786, Radio Helderberg, Radio Tygerberg, Radio Zibonele, Suid-Kaap Stereo, UCT Radio, and Voice of the Cape.

[54] According to Adrian Louw, a programme integrator at Bush Radio (www.bushradio.co.za), community radio stations use a great deal of ICT, including computers, email, and the Internet, for word processing, programming, script writing, and information sharing with other media institutions. Bush radio also uses computer services to train other radio station such as P4, KFM, Cape Talk, CCFM, and the Voice of the Cape, as well as individuals, some NGO's and its own volunteers, at selected times and for a small fee.

[55] *ICT, High Maintenance – High Output: Building a Community Radio Network in South Africa*, the ICT Feasibility Report for the National Community Radio Forum (NCRF) of South Africa, Rene Roemersma (WorldcomDev), May 2002, funded by the Netherlands Institute for Southern Africa (NIZA).

[56] For example, by locating activities within a Multi-purpose community centre, or MPCC, (such as with a local facility linked to a central studio) would enable the radio station to act as a local "social thermometer" and create channels for communication with government authorities. Access to the telecommunications infrastructure of an MPCC (such as telephone, email, Internet) can also enhance a station's newsgathering and research capacities. The NCRF study concluded that community radio stations would need to work more closely with the national Universal Services Agency, as well as provincial and local government initiatives to design access projects that involve stations and station listeners.

[57] For more information, see Freedom of Expression Institute, http://fxi.org.za/.

[58] Source: http://www.digitalplanet.co.za/dp/news/red.asp?ID=11430 as quoted in the Balancing Act's *News Update* Issue 56, http://www.balancingact-africa.com/news/back/balancing-act56a.html.

Open Source Software

Open source software has emerged in the last few years as an alternative to proprietary software products such as Microsoft Windows or Office. It differs from proprietary software because the source code is publicly available, which means that software developers can modify or build on it to meet specific needs. Open source software is usually made available for little or no cost, but often companies charge fees for associated services such as installation or trouble-shooting. Once confined to computer laboratories at universities or research facilities, open source applications such as the Linux operating system have entered the mainstream market and are today used in many sectors of industry and services on server computers as well as desktop workstations. Proponents argue that open source software is an ideal solution for developing countries because it can run on less powerful hardware (old, refurbished or cheaper computers), is easy to maintain and very secure, and unlike proprietary software, open source software comes with the permission for anyone to use, copy, and distribute it, usually free of charge.

Within Cape Town, there are numerous initiatives and organisations involved in promoting the use of open source software in the computer laboratories of schools and community centres. Two leaders in this area are Linuxlab.org.za and The Shuttleworth Foundation (see the section below on *Thin Client Technology*). Local non-governmental organisation Translate.org.za has created Xhosa, Zulu, and Venda versions of the open source KDE Office Suite, an open source desktop programme akin to Microsoft Office in functionality.[59] It also translated Mozilla, an open source Web browser and mail client, into six languages: Xhosa, Zulu, Venda, Northern Sotho, Siswati and Tswana.[60] This is an example of how the open source philosophy has lent itself to serve a market that commercial software vendors failed to address. Information on programming is freely discussed and shared so that volunteer programmers anywhere in the world can rapidly enhance the software. By promoting a spirit of co-operation and collaboration, these programmes gained multi-lingual input for software development.

Thin Client Technology

"Thin client" technology involves the use of a client/server system whereby a number of computer terminals are connected through a network to a server where the bulk of the software is stored and data processing occurs.[61] In this kind of system, the computer terminals connected to the server can have lower overall technical specifications and each terminal does not require a full individually licensed copy of all of the software it uses, making thin client systems an economical option. Usually the system requires significantly less upgrading overall, because only the server requires further upgrades as opposed to each individual computer terminal. Thin client systems are considered by some to be an appropriate technological application for the ground level realities faced in Cape Town.

Linuxlab.org.za deployed a pilot Linuxlab at the Alexander Sinton High School in Athlone that uses thin client technology.[62] The laboratory uses a Linux server sponsored by the Shuttleworth Foundation, and recycled 486 PCs as terminals, which were donated by the Department of Land Affairs. The laboratory has been facilitated by netday.org.za and freecom.org.za with the goal of achieving a cost per terminal of under R1,000, which includes a portion of the overall costs to run the network and server.[63] The Shuttleworth Foundation uses open source software, thin client systems, and refurbished computers in library computer centres in the technologically disadvantaged communities

[59] Translate.org.za is a project to translate computer software into the 11 official languages of South Africa. Current languages include Xhosa, Zulu and Venda. For more information see http://www.translate.org.za. KDE is currently translated into 42 languages.
[60] Mozilla runs on Windows, Linux, and the Apple Macintosh Computer, making it immediately useful for any computer user. It consists of the most standards compliant web browser, a sophisticated email client, and an html editor. For more information see http://www.translate.org.za/screenshots.php.
[61] The term "thin client" is an especially popular buzzword now because it serves as a symbol dividing the computer industry into two camps. On one side is a group led by Netscape and Sun Microsystems advocating Java-based thin clients running on network computers. The other side, championed by Microsoft and Intel, is pushing ever-larger applications running locally on desktop computers, which touches on the importance of appropriate software applications.
[62] For more information see http://wcape.school.za/sinton.
[63] Alexander Sinton has shared the knowledge and experience gained from the pilot, and has already assisted less advantaged schools in getting access to ICT using the model. The school also encourages other schools to visit and evaluate its technology systems.

of Athlone, Mitchells Plain, and Brown's Farm. The Smart Cape Access Project also uses open source software and a thin client model.

(iv) Capacity and training

"There are lots of children with ideas, but they lack opportunity." Unemployed man (age category 19-25), New Cross Roads

Providing physical access to appropriate and affordable technologies to members of the community will amount to nothing if community members do not have the capacity to take advantage of the opportunities that technology can offer them. This highlights the importance of raising awareness about the possibilities of ICT use, and the need for ICT education and training at all technical levels.

Levels of ICT skills

The community meetings gave a snapshot of ICT skills among the residents of Cape Town's disadvantaged communities. Half of the survey respondents reported that they had some ICT training, but usually only in basic skills. Of people who have had training, 59% are only trained in basic skills, 18% have programming training, 9% have professional training, 6% are specifically trained in using the Internet, and 6% are trained in other skills. Overall, professional level training seems to be linked to employment, but basic ICT skills are far less in demand and there appears to be a glut of unemployed people with low-end ICT skills. Low overall access to ICT among the unemployed means that trained people lose their skills because they cannot practice them.

Availability of training

Cape Town has at least 120 private ICT training programmes (Capricorn 2002). Most of these programmes are in Bellville and the central city, and survey respondents complained of a lack of training centres in outlying and isolated areas such as the Strand and Bloekombos. Because poor people often live far from the city centre they have to travel far to obtain ICT training. The cost of transportation from Khayelitsha to the Cape Town suburbs (where many training programmes are located) can be as much as R130 monthly. A typical trip from Mitchells Plain to central Cape Town would take 40 minutes and cost at least R6 each way.[64] This makes the majority of training programmes and non-township based access initiatives beyond the reach of most township residents.

With the exception of Megabyte Computer and a scattering of other township-based centres, most training programmes that serve township communities are locally organised, informal, and of unverifiable quality.[65] Overall training is extremely expensive in relation to the income of the majority of local residents. Part-time certification programmes in Cape Town cost between R4,000 and R22,000 for one-month to one-year courses. The current lack of accreditation also means that poor people often spend hard-earned money on unaccredited courses, which are then not acknowledged when they go for job interviews. At least one subsidised programme exists: the Cape Town City Council awarded a tender to local training company DGE Computers in 2001 to train 200 Western Cape students in computer literacy, the A+ user-training programme, and basic programming, at no cost to students.

(v) Locally relevant content and language

People will only embrace ICT when it is relevant to their daily lives and offers them content and services that they want to access and use. Many community access points have noted the lack of locally relevant content as one of the key factors that limits the Internet use in the communities where they operate. Making information available in local languages would also be beneficial, but remains a secondary consideration.

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[64] Most of these journeys are not single trips and the traveller has to take more than one taxi or train (or combination thereof), which increases the time and money costs.
[65] South Africa has a great number of ICT training organisations that are not certified or accredited and which offer self-styled certificates or "degrees" (IT Web Training Guide 2001, Cited in Capricorn 2002).
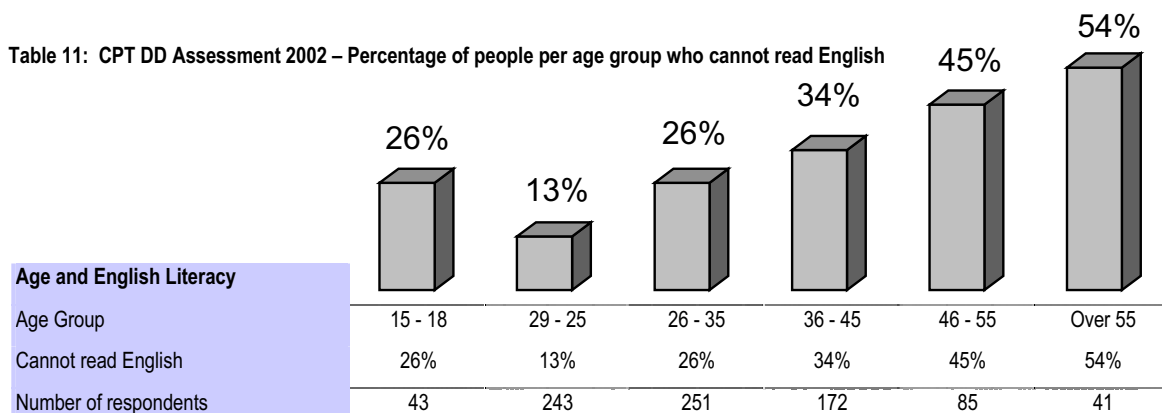
Appropriate Content

In Cape Town, there are many efforts to generate information and content that is relevant to the needs and desires of local residents, ranging from the small business information compiled and created by the Library Business Corners Programme, to the healthcare information created by organisations like LoveLife.   At the time of this study, very little of it is disseminated electronically, however, there is considerable awareness about this issue in Cape Town, and the things are beginning to shift toward online distribution of many materials. One example of effective electronic distribution of locally relevant content is the Agricultural Research Council, which makes its "infotoons" educational materials available online.   Local Government information and forms made available as online resources would be a great incentive for Cape Town citizens to use the technologies, a point that was repeatedly raised by community meeting participants.

The World Space Foundation (WSF) specialises in electronic distribution of social development information and educational materials created by a range of civil society organisations. WSF works with over 250 partners (which include some 176 community broadcasters) to deliver content to disadvantaged, rural and geographically isolated communities. In Africa, the content is transmitted through the Africa Learning Channel via satellite and reaches people in 51 countries, including South Africa. Digital satellite receivers are strategically placed in central community locations where the majority of the community can access the broadcasts. WSF also allows community broadcasters to download programmes from the Africa Learning Channel for rebroadcast on AM/FM radio. This gives the stations access to a variety of educational and social development information to enhance their regular programme schedules. Many community broadcasters translate the programmes into local languages before broadcasting them. Content can also be downloaded from the satellite in a multi-media format and viewed as Web pages on any computer.

Appropriate Language

> *"We need Sesotho and Xhosa [in] our school because it's only English and Afrikaans [now]."*
> *Unemployed man (age category 36-45), Bloekombos.*

Many argue that the predominance of English language in the content available online limits the widespread interest in and use of the Internet. In 2002, 76% of Web users in the major metropolitan areas of Cape Town (again, excluding townships) reported English as their native language (Webchek 2002). High levels of illiteracy are probably a greater hindrance. An estimated 350,000 adults in Cape Town are illiterate, and this number is growing by 15,000 persons annually (City of Cape Town 2001). Nonetheless, the question of local language is a critical one in the discussion of online content in the Cape Town (and South Africa) context. English has been, and continues to be the default language in South Africa; it is used as an interconnecting medium between the 11 official languages, and as the language of business and education. And, at present, English is also the most common language on the Web across the world. Those who cannot read English are all ages, including many economically active people who may be marginalized as ICT becomes integrated into many levels of society, as shown in Table 11.

Table 11: CPT DD Assessment 2002 – Percentage of people per age group who cannot read English

Age and English Literacy						
Age Group	15 - 18	29 - 25	26 - 35	36 - 45	46 - 55	Over 55
Cannot read English	26%	13%	26%	34%	45%	54%
Number of respondents	43	243	251	172	85	41

Some conclude, therefore, that focusing on English language literacy will help more Cape Town residents get online. On the other hand, local languages have important implications for society at large, which cannot simply be pushed aside. IsiZulu is the most commonly spoken language in South Africa, followed by isiXhosa, and then Afrikaans (Statistics South Africa, 1999). Language is linked strongly with individual and group identity, and it is a key medium by which culture is transferred and held. The words of Prof. Isabel Cilliers, former Chairman of the Western Cape Language Committee, highlight the issues at stake:

> *Language is a basic human right. The constitutionally enshrined language rights of the people of the Western Cape and the Batho Pele (people first) service principle are therefore paramount in developing action plans.*
>
> *The principle of multilingualism is important in considering both rights and service delivery. We promote multilingualism in the Western Cape in the knowledge that language diversity forms part of our heritage. Up to 21 different languages, including the 11 official languages, are spoken daily in the Western Cape. This rich linguistic diversity in the Province calls for an innovative and creative approach and prevents a bland uniformity. We believe that language diversity is a resource and not a problem - it is an intellectual, cultural and economic asset.[66]*

In fact, ICT makes it easier than ever before for people of all languages to create and disseminate content, and to communicate with one another no matter where they are. So rather than being a homogenising force that will weaken local languages and culture, ICT can be a tool for strengthening local languages and connecting dispersed peoples who share common language and culture. Initiatives are starting to emerge in South Africa that will foster the development of local language content in electronic formats, especially in the education area. Translate.org.za is an example of one organisation working to create online resources in Xhosa and other local languages.

The City of Cape Town is also playing a leadership role in this area by adopting a policy that promotes multi-lingualism and equal status for English, Afrikaans and Xhosa. The City is committed to finding practical and affordable ways of engaging with its customers and stakeholders in the language of their choice. Highlights of the policy include:

- A member of the public may use any of the official languages or sign language in his/her communication with the City.
- The City must respond in the language in which the original communication was received. Officials and Councillors will be encouraged to learn the three official languages and assistance to do so will be made available.
- Municipal signage and directions at offices and facilities must be in the three official languages.
- The languages must be used equitably on road and direction signs.
- For street names the communities language usage and preferences must be duly considered.

(vi) Trust of technology

The level of confidence that people have in computers and the Internet has been a defining issue in the development and widespread acceptance of ICT in other parts of the world. If computer and Internet users do not feel confident about what happens "behind the screen", it can significantly limit the ways that people are willing to use the technology. This is especially relevant to the adoption of e-government and e-commerce applications. However, the discussions at the community meetings give a different perspective on how some residents of Cape Town feel about technology security. The

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[66] Excerpts from the Western Cape Language Committee, Chairman's Annual Report 1999-2000.

majority of the respondents in this survey feel that Internet communications and transactions are very safe, as shown in Table 12.

Table 12: CPT DD Assessment 2002 – Perceptions of online safety

Perception of safety	Send a message online	Pay an account online	Buy goods online	Allow children on the Internet
Very safe	34%	30%	25%	25%
Safe	13%	14%	11%	11%
Somewhat unsafe	4%	3%	4%	6%
Very unsafe	3%	2%	2%	6%
Do not know	6%	6%	7%	6%
No response	40%	45%	51%	46%

Given the fact that most of the survey respondents have never used a computer, these levels of trust in technology could be subject to speculation. Some would argue that these numbers are more reflective of the fact that people do not understand the security and privacy issues at stake.

Do people trust ICT? The attitude of members of Sonke Cape (a township tourism organisation in Cape Town) towards computer technology highlights the issue of public trust in ICT. Although they are keen to establish a website for their organisation that potential clients could use to do online bookings, they themselves are reluctant to purchase products on the Internet. One of their members said he "saw on CNN how easily criminals can get into one's bank account via the Internet".

(vii) Integration into daily life

Most people are less likely to use ICT if it adds an additional burden to their everyday lives; they will only embrace technology when it is useful and easy for them, and it helps them to do something practical or improves their life in a concrete way. This study looked at how people who use PCs gauge their usefulness and difficulty, as an indication of whether they have integrated computers into their everyday lives. As Table 13 shows, the majority reported PCs to be very useful, and easy or moderately easy to use.

Table 13: CPT DD Assessment 2002 – Perception of usefulness of computers

Usefulness of Computers in everyday life		Level of difficulty of computer use	
Very useful	67%	Easy	37%
Useful	14%	Moderately easy	31%
Slightly useful	5%	Difficult	14%
Useless	1%	Very difficult	4%
No response	13%	Never used	1%
		No response	13%
Number of respondents	240	Number of respondents	240

(viii) Socio-cultural factors: age, race, and gender

"It is important for black people to know computers as it is known to be a white man's thing."
Man in low-income group (age category 36-45), Khayelitsha-J

Often Real Access to ICT is limited by the same kinds of socio-cultural factors that lead to social and economic inequalities overall. Around the world, deeply embedded discrimination based on age, race, and gender has discouraged old people, minorities, and women from participation in the information society. A look at the demographics of computer use among the people who participated in community meetings illustrates the local differences for computer use in Cape Town based on age, race, gender, settlement type, income, education, and disability status, as summarised in Table 14. Among respondents to this study, computer users are disproportionably higher income, educated, and "Coloured" (there was not a significant enough number of "White" respondents in this study to reveal the bias toward the "White" population that is shown in other studies of ICT demographics in South Africa). The differences based on gender were minimal in this survey. The only notable age difference was seen among the very young (higher access) and very old (lower access). Overall, this breakdown is in line with international trends.

Table 14: CPT DD Assessment 2002 – Summary of demographics for computer use

		Used Computer Before	
Income band	No of respondents	No	Yes
Unemployed	418	74%	26%
<R1000/month	96	73%	27%
R1000 - R2500/month	50	56%	44%
>R2500/month	70	31%	69%
Gender			
Female	380	70%	30%
Male	324	62%	38%
Age			
14 or younger	5	40%	60%
15 – 18	32	69%	31%
19 – 25	211	66%	34%
26 – 35	205	61%	39%
36 – 45	141	70%	30%
46 – 55	71	68%	32%
over 55	35	83%	17%
Location Type			
Informal settlement	392	83%	17%
Low income formal settlement	233	59%	41%
Middle income formal settlement	97	19%	81%
Education			
No formal schooling	35	89%	11%
Grade 1-7	94	99%	1%
Grade 8-12	258	85%	15%
Matriculated	140	56%	44%
Some study after matriculation	82	27%	73%
Technical diploma	33	27%	73%
University degree	44	23%	77%
Disability			
Disabled	71	80%	20%
Not Disabled	506	69%	31%
Race			
Black	601	74%	26%
Coloured	75	24%	76%
All Respondents	722	67%	33%

Webchek found similar patterns of inequality for Web users in urban Cape Town (again, major metropolitan areas of Cape Town only; township communities were not included), as Table 15 shows.[67]

Table 15: Webchek Web user survey 2002 – Web access in Cape Town (home and/or work)

Age:		Language		Race	
18-24 years	32%	English	76%	White	61%
25-34 years	23%	Afrikaans	21%	Coloured	33%
35-44 years	17%	Other	3%	Asian	4%
45-54 years	17%			African	2%
55+ years	10%				

Monthly household income:		Children in the home:		Education	
Up to R9,999	25%	Children at home	50%	Matric and less	41%
R10,000 to R14,999	17%	No children at home	42%	Some university	10%
R15,000 to R19,999	11%	Live with parents	8%	University complete	21%
R20,000 to R29,000	5%			Other tertiary	28%
R30,000 plus	23%				

Gender:	
Male	58%
Female	42%

Source: Webchek 2002

Webchek also found higher use among historically less marginalised groups ("White" and "Coloured" respondents). Webchek showed a more marked variation by age, where younger groups had higher Web use.

(ix) Local economic environment

"Clean up [this place] for us and [give us] a place for people to have soup through this winter."
Unemployed women (46-55), Masiphumelele

When looking at the provision of access to and use of technology it is also important to consider the local economic environment that underpins the community. Irrespective of how affordable the technology is and whether the required training is performed, if the local economic situation is poor – with high unemployment and poverty levels – access to technology will continue to remain out of the reach of ordinary citizens. The affected population will be denied the opportunities and resources offered by ICT to improve their lives and communities.

Employment and income levels are key indicators of the overall economic environment. Within Cape Town, employment varies significantly between racial categories, and genders. Similarly, there are wide disparities in personal and household income. Table 16 outlines demographics in Cape Town.

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[67] Web users are a sub-set of PC users, but based on other countries' experience, Web use is an exaggerated form of the disparities among PC users.

Table 16: Cape Metropolitan Council 2001 – Demographic profile of Cape Town residents

	Black	Coloured	White	Asian
Total Population	702,000	1,313,000	631,000	36,000
Unemployment by Gender				
Female	50%	22%	6%	9%
Male	33%	18%	5%	17%
Average Annual Personal Income	R4,200	R15,000	R48,000	R24,000

Source: CMC 2001; data from 1996

Unemployment was a critical recurring theme in the community meetings held as part of this study. Of the 912 community meeting participants who responded to this survey, 509 reported that they were unemployed (91 were employed within the formal sector, 73 worked in the informal sector, 32 were self-employed and 205 people did not reply). The vast majority of respondents wanted ICT access and training because they hoped it would increase their chances of finding a job, or obtaining a better job.

Two-thirds of the employed population of Cape Town earn less than R2,500 per month (Statistics South Africa 1999; data from 1996). Information collected during the community meetings illustrates that in Cape Town's middle and low-income areas, income relates directly to computer use, as Table 17 shows.

Table 17: CPT DD Assessment 2002 – Computer use, by income level

Use of Computers:	Income Level			
	Unemployed	<R1000/month	R1000 - R2500/month	>2500/month
Has not used a computer	74%	73%	56%	31%
Has used a computer	26%	27%	44%	69%
Number of respondents	418	96	50	70

(x) Macro-economic environment

Macro-economic policy is largely driven by national level decision-making, framing the context within which issues of poverty, employment, privatisation, and access to ICT can be addressed at the local level. The discussions at the community meetings showed that the people of Cape Town are aware of some of the key macro-economic issues that affect them, notably privatisation; however, public opinion focused on negative implications such as work retrenchment.

Broad macro-economic issues are often used at the community level to garner support for short-term political goals, and the response of community meeting participants illustrates the point. The general public is frequently drawn into debates on macro-economic issues, but only given half of the story. In the case of privatisation, for example, labour unions and others who seek to garner public support for their activities have used unemployment and the risk of further job loss as a rallying point to draw public ire against Government policy. And the Government has been ineffective at engaging with citizens and explaining the long-term benefits of their strategies, so the public has not understood the potential benefits of privatisation in terms of general economic growth and related employment opportunities. The community meetings showed that this scenario has played out in Cape Town.

(xi) Legal and regulatory environment

The legal and regulatory framework sets out laws and regulations to implement national policy positions and creates many of the rules that will govern the use of ICT. This has a direct effect on Real Access where laws can either foster or hinder the effective, widespread use of ICT. The current status of ICT-related laws and policies in South Africa was outlined in 2.1.3. At the community level in Cape Town, the community meetings revealed that, overall, people are unaware of how legal and regulatory matters related to ICT impact on their lives. There is a clear need for citizens to be informed of the implications of laws and regulations in this area. Furthermore, stakeholders want to be consulted and engaged in policy processes to ensure that their views are taken into consideration.

There is a further need for unbiased policy information that places available options in a broader context and paints a picture of what the potential outcomes of decisions taken at a national level will be at a community level. Laws must be interpreted and explained to citizens, so they understand the rules that govern their technology use. There are a few ground level initiatives in Cape Town – including the Cape IT Initiative (CITI) and bridges.org – that aim to describe policy developments in ways that are accessible to the general public, to inform community discussions, and spur public participation in national policy processes.

(xii) Public support and political will

"The City of Cape Town need[s] to play a leading role to initiate the project." Man from the Strand (age category 36-45)

In order to lead effectively, it is important that the City Council has public support for its ICT-related strategies and programmes. This will fortify the political will of the local Government and empower it to make tough decisions and drive the change needed for the City of Cape Town to achieve its goals. The community meetings gave some insight on how the people of Cape Town's disadvantaged communities feel about the City's plans for ICT in social and economic development. The majority of survey respondents felt that the City should be responsible for improving public access to ICT in Cape Town. Contributions from the Provincial and National Government were also cited as important, reflecting the widespread perception that the public sector has a role to play in driving ICT development. See Table 18.

Table 18: CPT DD Assessment 2002 – Community perspectives on responsibility for improving public access to ICT

Potential Driver	
Local Government	41%
Provincial Government	29%
National Government	22%
Community organisations	5%
Individuals	4%
Businesses	2%
Do not know	4%
Number of respondents	656

The study asked respondents to rank a number of items in a list of potential ICT-related services that the City could provide, from basic access to computers to online government information to online bill payment. All of those that responded to this question (half of all respondents in the study) indicated that every service was "very important".

2.3.2   Common themes that emerged during the community meetings

The meetings themselves gave some indication of where different communities stand with respect to the digital divide. The trends that were seen in the different types of communities consulted in terms of attendance level, kinds of participants, and the key points of discussion illustrated the general perceptions about what ICT could and should do as part of social and economic development.

Low-income predominantly Xhosa-speaking communities

These meetings had significant community participation, with a combination of youth, the middle aged, and elders attending. All meetings drew crowds of over 50, with most over 100. The meeting in Bloekombos drew an estimated 700 people. The participants were a mix of local representatives and unaffiliated community residents. Three issues were mentioned repeatedly: basic access, training, and jobs. ICT is viewed primarily as a means to obtain jobs, and secondly as a source of general information and upliftment. Overall, participants have very little experience with or access to ICT, and have very little understanding of the potential applications of technology. Most people do not have access to ICT at home, and only a few use computers in their work. The discussions focused on desktop computers. Understanding of the potential of ICT for communication, artistic creation, or business is very limited.

Low-to-middle income predominantly "Coloured" communities

Between 12 and 24 representatives of major community organisations in each area attended these meetings. They responded to the invitation because they were concerned about their communities and saw the possibility for upliftment. Few or no participants at each meeting came because of their personal need for ICT training. These meetings focused on the needs of the community overall, and the needs of organisations serving the community residents. On the whole, participants have basic experience with ICT, but are more concerned about the needs of the more disadvantaged members of their communities who do not have ICT access, and suffer worse socio-economic conditions and higher levels of unemployment.

High-income communities

Meetings held in these communities, notably in Stellenberg and Three Anchor Bay/Sea Point, had no real community participation. (The two respective councillors attended, and one community representative in Three Anchor Bay attended.) Similarly, a pilot meeting in Durbanville had only five respondents. Like other meetings, local councillors and community organisations had been consulted beforehand. These communities have a range of community organisations, including ratepayers associations, police forums, churches, and schools, that were interested in the project and willing to assist. However, the community representatives warned that it is very difficult to get the residents to come to any meeting, including the meetings of very well established organisations. Because of the poor turnout at these meetings, no generalisations can be made about this group. However, the Stellenberg and Durbanville community representatives commented that this community on the whole had PC and Internet access at home, or could choose to purchase it if they so desired.

Overall themes that emerged

As stated previously, this study specifically targeted low and middle-income communities, in part because they have the most to gain from the City's ICT-related social and economic development programmes, and also because this study was part of a greater strategy to involve poor communities in the ICT discussion. The common themes that emerged from the meetings are presented below, making specific reference to the three different groups where appropriate. This high-level perspective begins to reveal the picture of Cape Town's ICT landscape.

Need for ICT services

♥ # Respondents are most enthusiastic about ICT where it can help with basic services and employment. This is especially the case in low-income communities. Respondents often spoke about issues outside of the City's control such as education, and national forms and applications. Issues related to housing, hospital services, police services, pension grants, and privatisation were also commonly mentioned.

♥ # Awareness about ICT programmes is low overall. Even where computers and the Internet are publicly available for use in libraries and other local access points, frequently people did not know about it. There is a need for awareness-raising about existing and future programmes.

♥ # Low-to-middle income communities see computers as a simple necessity for the future of their children, especially to get jobs and information. They mentioned that access and training would also be useful for the adult generation, but should be matched with basic literacy programmes.

♥ # Some indicated a desire for computers only because they have a vague belief that computers "are a good thing".

♥ # Online government information is a low priority for most people, well after basic ICT access, training, and jobs.

♥ # Community representatives of low-to-middle income communities noted that community access to ICT (at a school laboratory or telecentre) would help "take the kids off the streets", and thus transform idleness (and crime) into constructive activities.

♥ # In low-income communities ICT is seen as an issue for young and middle-aged people to be concerned about, but not the elderly.

♥ # "Anything would be better than nothing". Respondents welcomed the possibility of gaining refurbished or second-hand computers, as long as they are functional. Several community organisations requested support from the City financially and/or materially, both in terms of ICT and more generally. While they have the desire and energy, they do not have the funds to maintain the computers; training of the trainers (staff) is also paramount.

Potential opportunities and solutions

♥ # There is considerable non-specific enthusiasm for computer technology, and a general feeling that the communities are being left out of the information society and that it is important to bridge the digital divide. Especially in Khayelitsha, people are very interested in computers, want to learn more about them, and feel that if they do not become more involved and knowledgeable, they will miss out. People are interested and keen to participate in the City's processes and efforts to bridge the digital divide.

♥ # Community members are ready and willing to conduct their own training programmes, if they are given the means to do so. In all middle and low-income communities surveyed, there is a pool of trained people who are interested in teaching others. Some are professionals using computers daily, many are unemployed but have picked up skills and want to learn and teach more, including on a volunteer basis.

♥ # Overall, schools and libraries are seen as the best possible venues for community ICT access. Several community organisations have already worked with the schools, community centres, and other venues to plan computer laboratories. They feel that if they are provided with the finance (and computers), they could run their own laboratories. The community organisations could play a meaningful role in providing security for laboratories and instilling a sense of community ownership. In three communities (Elsiesriver, Kuilsriver, Grassy Park), local schools have organised and purchased their own equipment.

♥ # Evening access to ICT, linked to online access to government services, was repeatedly identified as a way to help alleviate the problem of government services closing early.

♥ # Each community has its own unique set of community structures that can be engaged to mobilise the residents. For example, in the Kuilsriver area, schools are the main way to reach the

population. In Bloekombos, SANCO and the Development Forum are key. In Mitchells Plain, there are very active and established civic organisations that are interested in providing community access to ICT. These bodies are registered with the City, and may offer a vehicle for public access in other communities as well.

Potential constraints to improving ICT access

♥ # Respondents are concerned that ICT access points based in schools and libraries would not be open after hours for the public or would not have the necessary staffing. Employed residents return home very late, often after 6:30 pm, and thus need access to ICT and government services during evening hours. Schools and libraries currently close much earlier.

♥ # Security is a concern, as some local schools had been recently broken into and equipment was taken.

♥ # Community organisations want to communicate with the City, but feel that the City "is not listening" and that online access to officials will not help. Some noted that existing online government information is difficult to find (because they did not know which department was responsible for what) and often out of date. All communities studied are concerned about the City's follow-up, and many people said they are "tired of talk and promises".[68]

♥ # In low-income communities, widespread poverty and unemployment mean that most people cannot afford to pay for computer use or training. The lack of community access points is also seen as a primary obstacle. The overall lack of access to computers means that trainees cannot practice their skills after they are trained. Those respondents who have some ICT training feel that they are rapidly losing the skills they have learned.

♥ # While community members in low-income communities repeatedly requested training as a means to obtain jobs, many other respondents had been trained but were unsuccessful at finding jobs. Overall there is a mismatch between training available and job opportunities.

♥ # Geographical isolation is a key form of exclusion from ICT. Many of the communities farthest from the business districts of Cape Town have less ICT-related community infrastructure (training locations and access points), and residents face high transport costs to go to areas with ICT infrastructure.[69]

♥ # Overall, elderly people feel left out and do not understand how ICT applies to them.

♥ # Issues related to ICT access for disabled persons or equal access for women did not arise in the meetings, although some respondents mentioned they would like access to computers for their disabled family members.

2.4 ICT at work in Cape Town's organisations and businesses

This section describes the current status of ICT at the organisational level in Cape Town based on information derived from background research and collected through questionnaires and face-to-face interviews with a diverse range of over 100 organisations and businesses. Section 2.4.1 describes the current status of Real Access to ICT in Cape Town's organisations and businesses. Section 2.4.2 summarises the overall themes that emerged.

The interviews gave the project team an opportunity to gather input from NGOs, community organisations, and small businesses that might otherwise fall below the radar of a traditional e-readiness assessment. Many organisations and businesses were selected specifically because they work in the area of ICT, so that they could give a sense of the robustness of the budding ICT sector in

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[68] This scepticism of the City's ability and sincerity to follow-up was strongest in Wynberg, Grassy Park, and Kuilsriver.
[69] For example, members of the Strand community and Bloekombos (near Kraaifontein) decried the complete lack of community infrastructure for ICT. They reported that the nearest training locations were in Bellville, which made them impractical for residents to use. Residents of the community of Masiphumelele (near Noordhoek) noted that while they do have a training centre for computers, government offices are extremely far away and difficult to reach in terms of time and money. In Khayelitsha, the high cost of transport into the city centre for services was also noted.

Cape Town. Others were selected to provide snapshots of technology use in the workplace, with a focus on disadvantaged communities. Information was collected on internal technology access for business uses, as well as ICT use among employees, customers, and business associates. These interviews also served to engage key players in the business community and many constituency organisations in a discussion of the issues, which will be important to implementation of the City's plans at later stages. The list of organisations that were interviewed and a description of the selection process can be found in Annexes 2 and 3. Four sectors were tapped for this study:

(1) **Business,** with a focus on ICT companies and service providers, informal businesses, small, micro and medium-sized enterprises (SMMEs), black-owned businesses, exporting businesses, and businesses within the tourism, manufacturing, and textile industries.

(2) **Academia**, with a focus on higher education bodies conducting ICT-related research or training, primary and secondary institutions, and the Western Cape Education Department's Khanya project.

(3) **Government agencies**, with a focus on local and Provincial spheres with responsibility for economic growth or education, or with ICT-related projects.

(4) **Community organisations, institutions, and NGOs**, with a focus on ICT service providers, churches, libraries, community forums, labour unions, and healthcare providers.

For the purposes of this report, "organisation" refers to all of the above-referenced kinds of organisations and businesses, unless specified. In addition to information collected during the interviews, both quantitative and qualitative information was collected from organisations and businesses through questionnaires. Samples of the questionnaires are included in Annex 4. The information presented in the tables of this section represents the actual number of responses given for each optional answer to a particular question; percentages were not calculated because often organisations gave more than one answer.

2.4.1 Real Access to ICT among organisations and businesses

Cape Town has a budding ICT business sector. However, this does not mean that organisations are using ICT to its full potential, or that all segments within the ICT sector are using ICT equally. The study found that there is a wide range of ICT access and use, as well as differences in capacity, affordability, access and integration in the workplace.

(i) Physical access to ICT

Most of the organisations surveyed have basic access to ICT (notably telephone, fax, computer, and, for two-thirds of organisations, the Internet). These organisations ranged from one-person ratepayer associations to labour unions to multi-million Rand professional NGOs. Over 80% reported at least one computer; only a few SMMEs and CBOs were found not to have any computers.

Although NGOs often have access to ICT, they complained that their effective use of the technology was severely limited by the lack of access among their clients and other organisations that they work with. For example, organisations such as the Micro Enterprise Network of NGOs (MENNGOS), COSATU (the country's largest trade union), and the Child Welfare Service Agency stated that, despite the fact that they use ICT internally, the lack of access among their members makes communication difficult and expensive. CBOs and SMMEs with local community access points where they could gain access to ICT complained that these facilities are often closed after-hours. During this assessment, no example was found of CBOs that were co-located with libraries or telecentres.

Local Government is one of the main users and owners of ICT. Approximately 9,000 desktop machines service the City's employees. Within the Western Cape Government, an estimated 68,000 employees have 8,100 computers (7,480 of which are connected on a wide area network), with 80% of these computers located in the Cape Peninsula. Lack of email also hampers the network effect at a

provincial level. Only 7% of Provincial Government employees have access to email (Vlachos 2001; data from 2000).

Cape Town's three universities are all currently in the process of expanding their computer resources for use by staff and students alike. For example, at the University of Cape Town an additional 500 computers have been made accessible in the Chancellor Oppenheimer library, over and above those available in the various departmental computer laboratories. The University of Stellenbosch is investigating a scheme to rent computers to students for academic use, to help them defray costs. The universities are also looking at rolling out network access points in the student residences and hostels.

(ii) Affordability

Computer and Internet prices were outlined in the previous section. And as was seen among individual computer users, the survey showed that the cost of ICT is also a critical factor in determining whether organisations have Real Access to technology. Although the SMMEs surveyed acknowledge the importance of ICT and the fact that it would give them a competitive edge to their businesses, most reported that high costs prevent them from buying equipment, training their staff, and paying telephone bills associated with Internet use. Even larger businesses and major NGOs indicated that Internet access costs are a major constraint to increased ICT use. Table 19 shows that the majority of organisations surveyed cited high costs as the main constraint to increased use of ICT.

Lack of ICT Hinders Economic Development Support

Rebecca Davids, manager of Catholic Welfare Development (CWD) in Atlantis, is one of the countless NGO workers who have done wonders with very little resources. She has been instrumental in creating and empowering community committees to get poor people on their feet. For example, she helped to create the Western Cape Fishing Association that successfully lobbied for fishing quotas for impoverished communities of the West Coast. In the squatter community of Frankdale – where she found "drunk people, dirty children and battered wives" who had no toilets or access to clean water – she established successful income generating projects. The community committee she helped establish negotiated with the municipality of Blaawberg until they got proper sanitation services and eventually secured housing for themselves on a nearby RDP development site.

However, Rebecca also describes how her efforts have been hampered by a lack of communication infrastructure. Few of the communities she serves have telephones, and those that do regularly have service cut off for non-payment. None of them have access to fax machines or copiers, let alone the Internet. They mostly communicate by word of mouth. This means that Rebecca has to travel hundreds of kilometers to visit far-flung communities. Fortunately she is in telephonic contact with her colleagues at other branches who often phone her for advice and encouragement. She is aware of how email and Web content could improve her organisation's work, but it is out of her reach.

Table 19: CPT DD Assessment 2002 – Main constraints to increased use of ICT in Cape Town organisations

What are the main constraints to increasing the use of ICT in the organisation or business?				
High cost of computers	Internet charges	Lack of training	Lack of knowledge	IT not valuable
34	25	15	12	2

The threat of theft is another problem that affects all of Cape Town's organisations, but especially SMMEs and CBOs located in economically depressed areas. The high cost of installing security adds another factor to an ICT purchase.

The cost of training was cited as a reason why organisations cannot develop the capacity needed to start using ICT. Many organisations said that government-subsidised training courses would help. In particular, CBOs feel entitled to training subsidies to support their efforts, since they deliver services to the community where the Government falls short. Manufacturing and textile companies surveyed also welcomed subsidised training courses especially for lower level staff. Black-owned tourism companies called for Web training so they could manage their own e-commerce enabled websites. These tourism companies currently receive Web design and hosting services from an outreach project

run by the University of the Western Cape, but would not be able to afford these services on the open market.

In principle, all Cape Town companies with an annual payroll in excess of R250,000 have access to subsidised training, including ICT training, through South Africa's Skills Development Levies Act of 1999. These companies must pay a tax-deductible Skills Development Levy to the appropriate Sectoral Education and Training Authority (SETA). Organisations can then send their staff on accredited courses that are intended to build capacity within the local workforce. The companies are entitled to get back an appropriate portion of the levy paid. However, companies must have a registered skills facilitator and a Workplace Skills Plan in place in order to take advantage of the programme. This scheme has come under fire by chambers of commerce and industry representatives who say the process is too complicated. They claim small companies cannot afford to meet the requirements in order to take advantage of the offer.

> **Opportunities To Recycle Old Computers**
>
> When asked what happened to his old computers, one company owner looked surprised and shrugged his shoulders. "The guy who does our maintenance comes and takes it away. I don't know what he does with it...." Often organisations do not know *what* to do with old computers, and they do not even think of donating them. There may be untapped opportunities for obtaining old computers from small businesses and organisations for recycling in community access programmes.

Despite high prices, the majority of organisations surveyed still valued the benefits to be gained by computer use, as shown in Table 20.

Table 20: CPT DD Assessment 2002 – Cost/benefit of computer use

Do the benefits of using computers outweigh the costs?

Yes	No	Do not know
46	8	6

(iii) Appropriate technology

As with individual users, organisations need appropriate technology to meet their needs, and that does not necessarily mean an Internet-connected computer on every desk. There are many organisations in Cape Town that use mainstream ICT in new and innovative ways to meet specific needs. For example, the pulmonary unit of Tygerberg Hospital's paediatric department runs a "homemade" telemedicine system comprising simple parts and largely designed by its own doctors. The system, which costs a fraction of those available on the open market, has been used to extend specialist care to peripheral hospitals like Worcester, Paarl and Somerset West. Another example is the use of cell phones to facilitate the treatment of TB patients in a joint pilot undertaken by a Cape Town medical consultant, the City of Cape Town, and the Medical Research Council (MRC).[70] The pilot, which uses cell phones to remind TB patients to take their medication, has been so successful that it has caught the attention of the World Health Organisation (WHO). And a third example comes from the five tertiary institutions in the Western Cape, which have linked their libraries through the online Cape Library Cooperative system so that any student can access the catalogues, journals and databases of all the institutions. This, together with the InterLibrary Loans facility, significantly extends the resources available to students.

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[70] For more information, see the bridges.org case study *Compliance Service programme uses SMS technology for TB treatment*, 21 January 2003, http://www.bridges.org/iicd_casestudies/compliance/index.html; see also World Health Organisation's Observatory on Healthcare for Chronic Conditions http://www.who.int/chronic_conditions/best_practices/zaf/green/en/.

(iv) Capacity and training

Organisations need to have sufficient internal capacity among staff members in order to put ICT to effective use, and this means training is required. Many of the organisations surveyed have provided training to their staff members, as shown in Table 21.

Table 21: CPT DD Assessment 2002 – Type of computer training provided to staff

If your organisation trains employees, what type of training is given?		
Do not offer training	Basic computer training	Training beyond basic computer use
4	13	21

However, the level and standard of training provided by different organisations varies dramatically and has a direct impact on the organisation's ability to use computers to its benefit. Larger businesses and major NGOs tend to train their staff for higher levels of computer use than do SMMEs or CBOs. Moreover, among all organisations two main problems were seen related to ICT training and capacity: there is an overall lack of high-level ICT skills and a need for learning environments in the workplace.

Lack of high-level ICT skills

The national Information Systems, Electronics and Telecommunications Technologies (ISETT) SETA skills development report indicates a massive shortage of ICT skills in South Africa, and Cape Town is no exception. The greatest demand among the City's businesses is for high-level technology skills (software developers, database workers), professionals (project managers, business analysts, systems engineers), and teachers (Capricorn 2002). For example, 75% of the schools in the Western Cape cannot offer Computer Studies because they do not have enough qualified teachers (Western Cape Education Department; cited in Capricorn 2002).

The tertiary institutions of the region train 6,644 undergraduate students per year in ICT skills, half of them at UCT, but only 297 postgraduate students (Capricorn 2002). The universities of Cape Town, the Western Cape and Stellenbosch, as well as Peninsula Technikon are all part of the Centre of Excellence (COE) programme,[71] which aims to promote research and development in broadband technologies and their applications, and train postgraduate students and professionals in the field of telecommunications. However, the programme, which was started in 1997, is still considered to be relatively young and has not yet met industry's skills demand.

The lack of high-level skills training has an impact on the type of services and products that Cape Town's ICT industry can provide. It is composed primarily of software services companies and traders in ICT equipment. With a few exceptions, there is a notable lack of manufacturing and development (CITI 2002).

Need for learning environments

In addition to formal ICT training, staff members must have the opportunity to practice their skills regularly so that they are comfortable and effective in using the technology. However, many of the organisations surveyed have only one computer, which is the exclusive domain of one or

A Catch-22 Situation

One small NGO that was interviewed for this study had sent several staff members for basic computer training some months previously. But the organisation has only one computer, which is used solely by the secretary. "We are scared that the other staff will break the computer if they practice on it," said the manager. Consequently, most of them had been unable to use their ICT skills and had forgotten the training they received. And now, if the NGO receives funds to buy more computers, they do not have the money to send their staff for retraining.

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[71] The Centre of Excellence Programme is funded by Siemens and other industry stakeholders that support and fund university-industry collaborations. For more information see http://www.botany.uwc.ac.za/uwcCoE/index1.htm.

two people who are considered the "experts" or who have to fulfil crucial organisational tasks on the computer. This situation limits Real Access among even those organisations that have technology and whose staff members are trained.

A strong belief in the power of computers

Capacity also means that organisations can imagine the possibilities for how they could use technology to improve what they do; in this regard, Cape Town's organisations have shown vision. In spite of the fact that staff members in many of the organisations were inexperienced in using computers, all of the organisations surveyed displayed considerable faith in the possibilities that computers have to offer, as Table 22 shows.

Table 22: CPT DD Assessment 2002 – Views on the significance of computer use for the future of organisation

Does your organisation see the use of computers as critical to the future of the organisation?		
Yes	No	Do not know
57	1	2

(v) Locally relevant content

The need for relevant content is equally important to organisations as it is to individuals and communities. Since the interviews for this survey were framed in the context of the potential government role to foster ICT use in Cape Town, many organisations targeted their comments on this issue at information derived from the City. Many complained about the lack of online content available from the City, pointing out that often the content that is available is outdated. In particular, many called for more information about tendering processes. The interviews revealed dissatisfaction at every level with the amount of information about the processes, the selection criteria, and the notification procedures. SMMEs were especially concerned about this flow of information from the City. They felt that a lack of information automatically eliminates them from the tendering process. While it was not clear whether this feeling of exclusion is real or perceived, a better flow of information would help alleviate the discontent.

While online information cannot be individually or organisationally focused, identifying key topic areas is important and useful. For example, there is a strong feeling among black-owned businesses that "black empowerment" principles are not being implemented effectively in Cape Town. They called for more communication and transparency from the City on the matter. The Chemical, Energy, Paper, Printing, Wood and Allied Workers' Union stated that they want access to online information on labour laws and industrial zones. Businesses also want the City to alert them about potential business opportunities. For example, the manufacturing and textile companies mentioned that they would like the City to alert them about upcoming external trade fairs, promotions, and export opportunities.

> **Online content for entrepreneurs: linking business support programmes with local ICT access**
>
> The UCT Centre for Innovation and Entrepreneurship knows that providing access to ICT is not enough to stimulate job creation. "You need to complement that with education and provide entrepreneurship opportunities so people can create a self-sustaining loop," says business manager Ali Brey. The UCT Centre runs an entrepreneurship programme that uses MBA-students to give advice to township SMMEs, and Mr. Brey would like to collaborate with the City's ICT access efforts. If the UCT Centre could make use of telecentres and community ICT access points, it would be much easier for students to consult township entrepreneurs via email. Simultaneously the service would also infuse the access initiatives with relevant content.

SMMEs also have a need for online entrepreneurship support. Although support networks like the Business Referral And Information Network (BRAIN) and Inzuzo provide online resources to

SMMEs, according to the organisations surveyed, entrepreneurs would also value online help from mentors that can give them first-hand advice.

(vi) Trust of technology

Some SMMEs interviewed do not trust the safety of online transactions, however, overall, the organisations surveyed do have confidence in ICT and are ready to use computers and the Internet for paying accounts and making purchases. No organisations raised concerns about the need for cryptography, authentication or other online security measures that are required in conducting safe electronic commerce transactions. See Tables 23 and 24.

Table 23: CPT DD Assessment 2002 – Organisations' confidence in paying accounts via computer

How safe is it to pay accounts via computer?

Very safe	Safe	Somewhat unsafe	Very unsafe	Do not know
19	21	7	3	6

Table 24: CPT DD Assessment 2002 – Organisations' confidence in purchasing goods or services via computer

How safe is it to purchase goods or services via computer?

Very safe	Safe	Somewhat unsafe	Very unsafe	Do not know
12	26	9	4	8

(vii) Integration into daily life

ICT is merely a tool, and Real Access for organisations means that they integrate the tool into the way they operate, communicate, and do business. The goal is for organisations to use ICT to do things more efficiently; if technology adds more time to an employee's workday, then it will not be adopted. This survey revealed a small segment of well resourced, often larger, businesses in Cape Town that use ICT as an integrated part of their work. ICT has enabled them to communicate with their peers and clients around the world, transact nationally and globally, and more efficiently track expenses and business processes. The same can be said of the major NGOs operating in Cape Town, albeit to a lesser degree. They surf the Net to do research, build links with online communities, host their own websites to post reports, and make use of email to connect with their peers.

On the contrary, it is more difficult for Cape Town's SMMEs and CBOs to integrate ICT into their daily operations. They often struggle with outdated, broken computers that do not operate reliably, and they rarely have the skills to repair faulty equipment. A lack of software and knowledge on how to restrict Internet use by their many clients also prevents CBOs from subscribing to Internet services, for fear that they will not be able to pay their telephone bills.

(viii) Socio-cultural factors: race and gender in the business environment

Race and gender are the two main socio-cultural factors that affect Real Access to ICT at the organisational level in Cape Town. In terms of race, this survey revealed that ICT access and use in Cape Town's organisations echoes the patterns seen in the greater population, with clear divisions across racial lines. While the percentage of black-owned businesses has been increasing, it still does

not appear to reflect the population ratio, especially in the ICT sector.[72]   CITI's 2001 *Sector Scan*, a voluntary sampling of ICT companies, indicates that there is a very low percentage of black personnel and ownership in the region's ICT sector, as summarised in Table 25.[73]

Table 25: CITI Sector Scan 2001 – Black professional staff and black ownership in Western Cape ICT companies

Black professional staff/ black ownership			
20% or more professional staff black	51% or more black owned	Some black ownership	No black ownership
19%	11%	18%	71%

Source: CITI 2001

Dimension Data's Public Sector Business Unit, opened in September 2001, is a noteworthy public-private partnership to promote the ICT skills of black-owned businesses. The unit aims to build capability within black empowerment organisations by providing comprehensive training to enable these companies to execute major ICT projects. Dimension Data partners with black-owned companies to effect skills transfer by working jointly on public sector projects in South Africa.

In terms of gender, there are no studies on the situation of women and ICT in the business environment that are specifically targeted to Cape Town. However, nationwide figures are worth mentioning. While basic access and use of ICT is at parity between the sexes in South Africa, participation in the ICT sector is far from even. According to Professors Van der Merwe and Stander of UCT, only 20% of ICT workers in South Africa are women, and 80% of female ICT workers are "White". Of that study's 388 respondents, 73% reported cases of discrimination, 76% stated that they were underpaid, and 85% state that they lack career advancement and self-development opportunities (Van der Merwe and Stander 2002).

(ix) Local economic environment

The City of Cape Town states that ICT is one of the 14 most important sectors in the Western Cape's regional economy (City of Cape Town 2001).   The ICT sector in Cape Town, according to the City's Economic and Tourism Development Directorate, is composed of approximately 860 companies, employing a total of more than 15,000 people, with an annual turnover of R7.5 billion. These firms are primarily small (average 17 staff) with a R9 million average turnover (*Background Report: City of Cape Town Economic Trends and Analysis*, *1980- 2000* (April 2001)). Cape Town's ICT industry primarily serves South African businesses, with only a few companies that have become internationally competitive, such as Dimension Data, Emerald Technology, and Thawte. Insiders view Cape Town's distance from the country's main business centre in Gauteng, and its small local market, as major weaknesses for the ICT sector (CITI 2002). The planned expansion of Cape Town's high-tech business incubator, the Bandwidth Barn, to Johannesburg is expected to benefit Cape Town's ICT sector by offering them greater links with the financing and market centres in Johannesburg.

(x) Macro economic environment

In this survey, the ICT companies located within the Bandwidth Barn (Cape Town's first networked business incubator that serves as a focus point for IT entrepreneurship in the Western Cape) are the organisations most aware of macro-economic issues that hamper access to ICT. The main macro-

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[72] No comprehensive survey of Cape Town's ICT industry has occurred, but related research indicates that the sector is strongly white-male biased. A 2003 ICT Census of Cape Town's and Western Cape is currently underway, being led by CITI with support from the Economic Development & Tourism Directorates of the City of Cape Town and Provincial Government of the Western Cape.
[73] CITI's Sector Scan is open to ICT companies in the Western Cape, but has primary coverage of Cape Town.

economic issues raised are related to telecommunications environment, high telecommunications and Internet access costs, and substandard or restrictive telecommunications services. This informed group could be ascribed to the Bandwidth Barn working environment, which is conducive to networking and information sharing. CITI members are well informed about the South African Government's attempt to liberalise the telecommunication environment in the face of strong opposition by COSATU, whose members fear increased liberalisation would lead to job cuts. The challenge now for CITI is to expand its current network and influence sphere beyond the confines of the Bandwidth Barn community and the established ICT businesses, and raise awareness of these issues among more SMMEs and community organisations.

Community organisations find themselves in a difficult situation when it comes to lobbying for the liberalisation of the telecommunication sector: on the one hand increased liberalisation is expected to mean cheaper phone calls and Internet access, on the other hand it could lead to the retrenchment of lower end staff (often the clients of CBOs) when the telecom companies downsize to become more cost-effective. This study revealed that some businesses also fear that greater competition within the telecommunications industry will lead to job cuts.

(xi) Legal and regulatory environment

Two organisations in Cape Town are dedicated to stirring a local dialogue and communicating with government on ICT legal and regulatory issues. The members of the Cape Telecommunications Users' Forum (CTUF) include representatives of academia, government, NGOs, other public entities, corporations, and small businesses. [74] CTUF meets from time to time and operates as a voluntary forum through a public email list. Bridges.org, an international NGO based in Cape Town, regularly submits comments on proposed ICT regulation and advises decision-makers on key issues (including e-readiness assessments, policy briefs and recommendations, and workshops). [75]

Three issues emerged during this assessment as primary ICT policy concerns among Cape Town organisations:

- ♥ # **The need for an ICT training certification authority.** As described in section 2.2 of this report, Cape Town has at least 120 private ICT training programmes. While these programmes train many Cape Town citizens, there is no verification system that sets quality courses apart from those offered by more questionable groups. This situation is fortunately changing as the accreditation of courses is now being addressed through the formation of the Information Systems, Electronics and Telecommunications Technologies (ISETT), Education and Training Quality Assurance (ETQA) body.

- ♥ # **The need for regulation of Internet Portal Companies.** SMMEs within the tourism industry wanted steps to control Internet portal companies. They claimed that they were charged high annual fees (up to a R1,000 per year) to advertise on these portals, but that the promised exposure was seldom delivered. If nothing else, this is a case of the promises of ICT and ICT businesses not matching reality.

- ♥ # **The need for an e-rate for community organisations**. CBOs called for the City to help them lobby for an "e-rate", or subsidised rate for Internet access, which would enable them to reach more clients and provide better services.

(xii) Public support and political will

The majority of organisations interviewed indicated their belief that local Government should be responsible for improving computer access for citizens. Provincial and National Governments were also cited as responsible, illustrating that organisations believe the public sector should lead in ICT issues. However, the organisations also envision a much greater role for stakeholders outside of government, including businesses, community organisations, and individuals. See Table 26.

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[74] For more information see http://www.ctuf.za.org/
[75] For more information see http://www.bridges.org/policy/sa/articles/telcom_summary.html

Table 26: CPT DD Assessment 2002 – Organisations' views on responsibility for improving computer access to citizens

Who should improve computer access for citizens?

Local govt	Community orgs	Provincial govt	Businesses	National govt	Individuals
53	13	15	25	16	10

In terms of their own access to computers, the organisations interviewed also saw a major role for the Government: local, Provincial, and National. Interviewees also saw a role for community organisations and businesses, as Table 27 illustrates. However, the interest of organisations in working together with the City on these issues is striking, as Table 28 further outlines.

Table 27: CPT DD Assessment 2002 – Organisation views on responsibility for improving computer access to organisations and businesses

Who should improve computer access for organisations and businesses?

Local govt	Community orgs	Provincial govt	Businesses	National govt
20	17	15	12	10

Table 28: CPT DD Assessment 2002 – Interest in working with the City of Cape Town on ICT issues

Would your organisation be interested in working with the City of Cape Town to provide input to its future technology initiatives?

Very interested	Somewhat interested	Slightly interested	Not interested
41	10	2	2

2.4.2 Common themes that emerged from the organisation interviews

Common themes that emerged in all of the meetings are presented below, making specific reference to the groups who raised them where appropriate.

Need for ICT services

♥ # CBOs and SMMEs usually have the least access to ICT. Although SMMEs and CBOs are clamouring for newer PCs and training that would enable them to use ICT more effectively, financial obstacles – including the costs of hardware and software, training, and Internet access – prevent them from using ICT. The problem is usually more severe in the case of black-owned SMMEs.

♥ # Local Government is seen to be responsible for providing ICT access to citizens. Most organisations interviewed feel it is the responsibility of the City of Cape Town to increase access for its people. CBOs and NGOs that do not have access themselves want access so they can better perform internal operations, including Internet-based research to learn from international best practice, finding like-minded organisations on the Internet and collaborating with them via email, identifying possible international funders, and presenting their proposals better. They also want to communicate with their clients via email, but made the point that this is currently impossible since many of their clients do not even have access to a telephone.

♥ # CBOs and NGOs want to be better equipped to play the role of information broker. CBOs and NGOs complained that many people come to them with problems related to the City's service delivery, but they have difficulty dealing with these problems due to their lack of infrastructure

and because they sometimes lack information about the City's policies and procedures. In their capacity as information brokers, these organisations are therefore particularly in need of access to ICT and relevant online information from the City.

♥ # There is a need for a clearinghouse of ICT and digital divide initiatives in Cape Town. There is a lack of information about the organisations involved in technology and the digital divide field in Cape Town. The private sector wants to partner with like-minded organisations that fulfil other niches (such as hardware providers looking for maintenance or training groups to work with), but do not know where to find them. Major NGOs look forward to receiving the information collected as part of this study.

♥ # Businesses want the City to use ICT more effectively to execute its functions. Specifically they want the City to:

   š˙ Make better use of ICT to disseminate vital information. Although this assessment found overall a low interest in online government information, this could be because the current online information is outdated or not relevant. Organisations have a pressing need for specific information that they want the City to put online, such as information about the tendering process and black empowerment programmes. They also want the City to alert them about potential business opportunities such as trade fairs and markets.

   š˙ Use ICT to increase the speed of its business transactions. SMMEs, who often operate on small cash flows, said they would welcome efforts by the City to use electronic funds transfer to speed up payments, as payment delays from the City have the potential to hurt them financially or even put them out of business. Since July 2002, the City has begun to use electronic payments.

♥ # Organisations feel that the City should play a role in lobbying for cheaper ICT services. Organisations that know about and use ICT (established and ICT companies and to a lesser degree NGOs) are less concerned about basic access to computers and more concerned about the high cost of telephone and Internet services due to the uncompetitive telecommunications environment. They also complained about the fact that certain services, such as VoIP, are reserved almost exclusively for the use of Telkom.

♥ # There is a need for high-end ICT skills that are recognised by a training authority. As mentioned in section 2.2 of this report, there is a glut of people who have basic training in computers, and no ICT access where they can practice their skills. At the same time, many are unable to verify the quality of their training because there is no relevant authority that certifies courses. This causes a dilemma for employers who urgently need high-end ICT skills and seek to employ black people with appropriate skills. Overall, more accredited programmes, especially those offering bursaries to people from disadvantaged communities, are needed to fill this gap.

Potential opportunities and solutions

♥ # Organisations have a strong belief in ICT. All organisations surveyed, regardless of size and field, see faxes and computers as vital to their work. Even if organisations use the computer as a "fancy typewriter", they feel that the ability to produce professional documents and reports is a prerequisite of their work. Further, many noted that the ability to create "template documents" and save previous reports makes their work better organised and efficient.

♥ # There is interest in working with the City. The vast majority of respondents are very interested in working with the City of Cape Town to help improve technology use and bridge the digital divide. Some of the respondents are obviously interested in helping because they see the potential of possible government contracts. Nonetheless, there is a sincere interest on the part of both businesses and NGOs to work with the City (and not necessarily for a fee).

♥ # The City can draw from a vast pool of experience that already exists. There is a vast pool of experience within the private sector and among established NGOs that the City can draw from. Within this pool is a hidden wealth of hard-learned lessons and nuggets of insight into how to

bridge the digital divide. For example, as Stephen Marquad of SchoolNet South Africa joked, "one of our values as an organisation is that we have gone through every possible problem – and learned, survived, and continued to grow." In the discussion, he made a number of insightful comments about ongoing ICT initiatives that are going through the same growing pains that SchoolNet South Africa experienced years ago. [76]

♥ # Networks of activities already exist. In the private sector and civil society, a number of projects are already in place that the City could collaborate with. For example, CITI, which networks between Cape Town's ICT sector and operates a successful business incubator, SchoolNet South Africa, the well-respected training and ICT networking NGO, and the Centre of Excellence Programme at the local universities. A complete list of current initiatives such as these is available in Annex 10.

♥ # Existing initiatives are breaking new ground. Several pioneering government and business initiatives have been launched in Cape Town recently. In particular, the Smart City Strategy is leading by example with ICT implementation.

♥ # Organisations are supportive of the City's approach. Most organisations interviewed made a point of saying that they are happy that the City has undertaken this study, and consider it a very positive step. They see it as important for bridging the divide generally, vital for the City to coordinate its work and plan for the future, and an interesting and valuable tool to inform each organisation's own efforts. There is a great deal of tentative goodwill. Respondents are also eager to see the follow up this assessment.

Potential constraints to improving ICT access

♥ # Organisations do not know how to work with the City. Many of the respondents said that they would like to work with the City and support its efforts, but they simply do not know where to start. They complained of a lack of clear channels of communication, and a lack of information on who to contact, and confusion about what the City was looking for.

♥ # There is a perceived lack of commitment among City employees. Black empowerment companies in particular noted that access to government information online could be a good thing, but frequently pointed out that it is useless if the officials and civil servants do not support the project. For example, some SMMEs surveyed said that the City does not respond to their emails.

♥ # There is a perception that increased online information could widen the divide. Black empowerment companies in particular expressed a fear that improved online information could easily widen the divide between have and have-not companies if it is not accompanied with improved access to the Internet for all.

♥ # Other issues are viewed as more important. Within the government service agencies surveyed (local health clinics, water and sanitation, and housing), basic staffing and funding issues are paramount. For example, budget cuts have made it difficult for clinics to supply patients with medications, and a budget allocation for computers is not considered a priority. Where access is available, the widespread view is that the staff members of these agencies are not sufficiently trained to make effective use of the technology.

♥ # ICT is viewed as only part of the solution. Organisations such as the Community IT Foundation, the School Principals Forum, and the Western Cape Schools Network recognised that their efforts are only a part of the picture. For technology use to be sustainable and useful in people's lives, they stated that the wider picture of access, affordability, meaningful content, economic empowerment, and skills capacity must be addressed. They see this study as a way to inform their efforts and help build the necessary network of information.

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[76] Another example: Africare's first attempt at establishing Digital Villages (telecentres) in Cape Town has failed. However, they have commissioned two evaluations of their project that would provide valuable lessons to any similar initiative that the City might want to tackle.

3   RECOMMENDATIONS TO CITY LEADERS[77]

3.1   Use best practice principles in Cape Town's ICT strategies and programmes

There is no one-size-fits-all strategy for putting ICT to work for communities and development. Often, a single solution that promotes favoured technologies and policies is promoted, regardless of the ground level needs. But the process of developing and implementing an ICT action plan should be unique for each country, region, city, or community, as shaped by the existing web of legislation, local culture, business, economics and politics.   However, there are some general best practice principles that can be drawn on to frame and implement effective ICT strategies and programmes for Cape Town.

An ICT action plan must outline ICT initiatives that will benefit the range of stakeholders. The growing digital divide shows that despite the promises of technology, far too many ICT programmes are increasing inequity by bringing the benefits of technology to only a few. The plan must include particular actions to address the needs and views of the relevant constituencies in a balanced way, such as consumer rights, business and labour. Programmes that fail to balance the concerns of diverse stakeholders will face resistance, making effective implementation difficult, if not impossible.   The action plan must also specify concrete steps toward ICT integration goals, including policy measures, business initiatives, and development programmes that are to be undertaken. It must consider who can implement them and how to engage the appropriate participants. It should also set a realistic timeframe for implementation, which includes oversight and evaluation processes. Finally, the action plan must ensure that ICT is embraced and used by people at the ground level. If people do not actually use the technology, then ICT integration will not bring the social and economic benefits that are sought.

Taking into consideration these broad concepts, and drawing on international best practice and local needs, several key principles to guide Cape Town's initiatives are outlined below. It should be noted that the City has already begun to use these best practice principles as part of its current efforts in this area.

- ♥ # **Build upon existing "kernels" of activity.**   The City of Cape Town should look to existing "kernels" of ICT activity, and build upon them, instead of starting from scratch. These kernels will provide the initial energy, expertise and structure to expand the effective use of ICT in government, businesses, organisations, and the wider public.

- ♥ # **Scale Up.** Cape Town faces a significant digital divide, and the City Council must look to solutions that address the true scope of the problem. This does not mean that the City must launch massive projects, but instead it should look at how its efforts and others can be replicated and built throughout the region with well-designed and evaluated pilot projects. These pilot projects should be targeted to areas of need where the potential impact will be greatest.

- ♥ # **Seek public support for strategic planning by helping citizens understand the potential benefits of ICT for their daily lives, and by involving the private sector.** The City of Cape Town should use ground level pilot projects to explore the options for improving ICT access and use, while demonstrating the value of ICT to citizens, winning public buy-in, and gaining the participation of all stakeholders.

- ♥ # **Catalyse action throughout society.** The City Council should lead the way with example ICT-related programmes while facilitating others to expand the scope of activity and become involved in the process. The City should also play a role to establish relationships and partnerships among government agencies, businesses, and civil society groups that will foster technology use;

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[77] Draft recommendations were subject to a series of reviews by the City of Cape Town's project team, local stakeholders and international experts in the field of e-readiness assessment, and revised based on the input received.

facilitate productive local use of technology to generate demand for content and services developed and delivered through technology; and demonstrate this demand to the public and private sectors to cultivate a self-sustaining economic environment.

♥ # **Coordinate to avoid duplication.** A wide range of institutions are involved in training, access, content development, technology support, and policy in Cape Town, but few are working together. By promoting broad consultation and cooperation among stakeholders, the City can help the various groups understand each other's skills and know-how, and promote coordination to reduce duplication.

♥ # **Establish links between ground level efforts and policy-making processes.** The City should help establish channels of communication between government policy-makers and the businesses, communities, and current and future technology users that they serve. This would help policy-makers better understand ground level realities and the effects of their decisions, and help ground level efforts better communicate their needs to policy-makers.

♥ # **Simultaneously address traditional development and ICT issues.** The City should link its approaches to traditional socio-economic development issues such as health care, sanitation, and housing with its efforts to address the problems of the digital divide. ICT must be used as a tool for development and incorporated as part of the solution to the range of social and economic problems.

♥ # **Identify levels of priority for urgent and longer-term actions.** The City should set realistic and achievable short, medium, and long-term goals; establish appropriate priorities; monitor progress; and report back.

♥ # **Establish and continue a feedback process throughout implementation.** The City should establish an open dialogue with stakeholders and give them extensive opportunities to provide feedback. It should also evaluate its progress at regular intervals and adjust its approach accordingly.

3.2   Frame ICT strategies with long-term ICT objectives

There are three key, long-term objectives that the City should target in its strategy to expand the environment for ICT use in Cape Town:

(1) Improve Real Access to ICT in Cape Town;

(2) Foster socio-economic development and bridge the digital divide; and

(3) Improve the way that ICT is used to meet the specific needs of Cape Town's communities and organisations as identified in the study, including:

   š˙   Community needs: jobs, quality of life (crime, sanitation, healthcare);
   š˙   CBO needs: organising and gathering information; communicating;
   š˙   Major NGO needs: organising and gathering information online; communicating;
   š˙   SMME needs: access to tendering and business support information;
   š˙   ICT business needs: income generation; and
   š˙   Local Government needs: increased internal efficiency, better service delivery.

Based on the findings of this study, Table 29 looks at how well current activities in Cape Town address each of these areas with respect to different stakeholder groups. For each group a rating of High, Medium, or Low has been given. "High" means that appropriate and sufficient ICT programmes and activities are in place to address needs in the area. "Medium" means that ICT programmes are somewhat used with some level of success, and "Low" means that ICT programmes are not available and/or not effective. The City can use this information to set priorities for future action.

Table 29: CPT DD Assessment 2002 – Rating Cape Town's current ICT programmes in terms of three key objectives

	Achieving Real Access to ICT	Using ICT to foster socio-economic development and bridge the digital divide	Using ICT to meet the daily needs of communities and organisations
Communities	Low	Low	Low
CBOs	Low	Medium (access low for all)	Low
Major NGOs	High	Medium	Medium
SMMEs	Low	Low	Low
ICT businesses	High	Low	Medium
Local Government	Medium	Medium	Low

3.3   Focus City actions toward Real Access to ICT

The City should build on its current strategies and focus further actions toward providing Real Access to ICT for the people and organisations of Cape Town, to ensure that ICT is not only physically available but also effectively used as part of daily life. Cape Town's leaders can use the following questions as guideposts to help them determine what they can do and to further develop their strategies and programmes in this area.

- ♥ # **Physical access:** What can we do to make technology available and physically accessible to our citizens in their communities and workplaces?

- ♥ # **Appropriate technology:** What can we do to ensure that the technology that is available is appropriate to how our citizens need and want to put technology to use, and that it fits within the reality of their daily lives?

- ♥ # **Affordability:** What can we do to make technology access and use affordable for our citizens?

- ♥ # **Capacity and training:** What can we do to help our citizens understand the potential ways that they could use technology in their lives, and what can we do to ensure they receive the training they need?

- ♥ # **Relevant content:** What can we do to ensure that content is developed which is locally relevant to our citizens, especially in terms of language?

- ♥ # **Integration into daily life:** What can we do to ensure that technology is not just a further burden to the lives of our citizens, and how can we help them integrate technology into their daily routines?

- ♥ # **Socio-cultural factors:** What can we do to ensure that our citizens are not discouraged from using technology or limited in their use because of their gender, race, or other socio-cultural factors?

- ♥ # **Trust in technology:** What can we do to help our citizens trust technology and how can we help them understand what happens "behind the screen" so that they will feel confident and be informed about things like electronic privacy, data security, and cybercrime?

- ♥ # **Legal and regulatory framework:** What can we do to determine how our laws and regulations affect technology use and what changes can we make to create an environment that fosters its use?

- ♥ # **Sustainability and local economic environment:** What can we do to foster local economic development that can and will sustain technology use?

♥ # **Macro-economic environment:** What can we do to determine whether our national economic policies are conducive to widespread technology use, for example, in terms of transparency, deregulation, investment, and labour issues, and how can we help to drive change to create a more conducive environment?

♥ # **Public support and political will:** What can we do to gain public support for our e-strategies, to fortify our Government's political will so that we can make tough decisions and drive the change needed for our city and country to achieve its goals?

3.4   Position ICT as an enabler for broad socio-economic development in key target areas

In places with more advanced technology infrastructure, ICT has proven to be an enabler for a wide range of social, political, and economic benefits. The same can be true in Cape Town if ICT is positioned as an enabler for broader social and economic development.   Yet, the potential benefits of ICT must not distract from the risks of increased inequity if the digital divide is not also addressed. The City should work to close the divide while using ICT as a tool to fulfil its broad vision for social and economic development in the mid and long-term.

Table 30 outlines broad target areas for ICT actions – governance/government processes, economic growth, entrepreneurship/employment, poverty reduction, and access to ICT – and highlights key strategies that should be considered in each area. The City Council should build on its existing strategy for the City, and connect its efforts with business and civil society initiatives to take advantage of the full range of collaborative opportunities available.

> **Economic Growth, Entrepreneurship, and Poverty Reduction**
>
> These recommendations separately highlight the issues of (1) *economic growth*, or macroeconomic increases in total output, employment, and investment, and (2) *entrepreneurship*, or innovation and new job opportunities from an individual or SMME perspective.
>
> While these two issues are interrelated, the actions needed to address them are different. Fostering entrepreneurship and economic growth can also lead to *poverty reduction*. And ICT can enable these benefits as part of a broad strategy.

Table 30: CPT DD Assessment 2002 – Targeting ICT strategies for socio-economic development

Target Areas for ICT Action	Strategy
Governance and government processes	Improve Government use of ICT, especially in service delivery. Broadly consult and engage with community members and other stakeholders to target the action plan for local needs at each step of the implementation.
Economic growth	Work to integrate ICT into existing businesses (including SMMEs and trade/export orientated companies), targeting priority sectors such as tourism, film, manufacturing, biotechnology and the ICT sector.
Entrepreneurship and employment	Use ICT to improve job opportunities from the bottom up, especially through improved information for entrepreneurs and more effective entrepreneur support programmes.
Poverty reduction	Focus on the basic needs of disadvantaged citizens, and use ICT to better meet these needs.
Access to ICT	Coordinate and avoid duplication of efforts both within the Government and externally.

3.5 Scale up programmes to improve local Government ICT use and internal capacity

Continuing and scaling up programmes to improve local Government ICT use and internal capacity should be a priority action for the City in the short term. The Smart City initiative has already started pilot projects to improve the City's internal technology and create a smarter workforce. It is revamping the City's ICT systems with the Enterprise Resource Planning (ERP) system and providing training to Government employees. It is also providing ICT access and training to City Councillors, to make internal communication more efficient and create a new channel for communication with the public. By addressing the access and training gap internally, the City is enhancing its efficiency and reducing costs, but also demonstrating the Council's commitment to bring change and direct benefits to its citizens. At the same time, it is increasing citizen contact with and use of ICT.

The City should build on and scale up these efforts. Task-oriented training in public service delivery should be an area of focus as programmes move forward. Government service delivery departments should be given the funding and mandate to prioritise training their staff in ICT. The City should also ensure that its ICT-related projects are connected to government initiatives that fall outside of the ICT arena.

> **Short-term priority: scale up programmes to improve local government ICT use and internal capacity**
>
> *Next step:* The City Council should set out a timeline that links to customer relationship management and service area strategies and programmes.
>
> *Benefit to the City:* Improved service delivery to citizens, increased effectiveness and efficiency, cost savings, improved ability to interact with people and organisations through electronic channels of communication, support for entrepreneurship and economic growth through electronic business support information and improved access to tendering processes, greater public goodwill, and potentially increased staff morale.
>
> *Potential pitfalls:* Many departments will not place ICT training as a high priority, and will not pay for these services out of their own budgets. The Skills Levy is one means to fund these training initiatives that is currently underused.

3.6 Build upon Cape Town's ICT kernels and facilitate widespread involvement to implement City strategies

Working in closer partnership with other stakeholders should also be a priority for the City in the short term. Following the example of Silicon Valley in the United States and numerous other places where ICT hubs have been developed, the City Council should help extend the region's leading programmes that are driving positive ICT development – or ICT kernels – into larger centres of activity and networking. By working with Cape Town's thriving business and ICT sector, community organisations, NGOs, and academic institutions, the City Council can have a much wider impact than its own resources alone would allow. And furthermore, the City Council must foster a closer relationship with its diverse communities, learn from their local knowledge, and draw upon their expertise.

There is a pool of stakeholders and initiatives that are active in the field and have gained valuable experience that the City Council can learn from. There are many diverse ICT-related efforts underway in the city and region, including a few notable ICT kernels like CITI's *Bandwidth Barn*, the *Smart City Strategy*, and the *Cape Online* project[78]. There is also a budding culture of ICT

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[78] A collaborative partnership framework has been developed and agreed between the City of Cape Town and the Provincial Government of the Western Cape to facilitate co-operation and develop synergies in e-Government, the knowledge economy and information society. The framework is a strong platform for driving ICT development in Cape Town and the Western Cape.

entrepreneurship taking hold in Cape Town. But most efforts are disconnected and in some cases duplicative, and overall they do not collaborate or effectively share resources. The vast majority are ready and willing to work with the City, but need direction and co-ordination. The City could play a key role by helping existing efforts grow and connect better among themselves. A detailed list of engaged stakeholder groups and current initiatives is presented in Annex 10, which also notes how each could contribute to improving ICT access and impact in Cape Town. Figure 1 highlights the major stakeholders in each of the target areas for ICT action suggested above.

Figure 1: Major Cape Town stakeholder groups within the target areas for ICT action
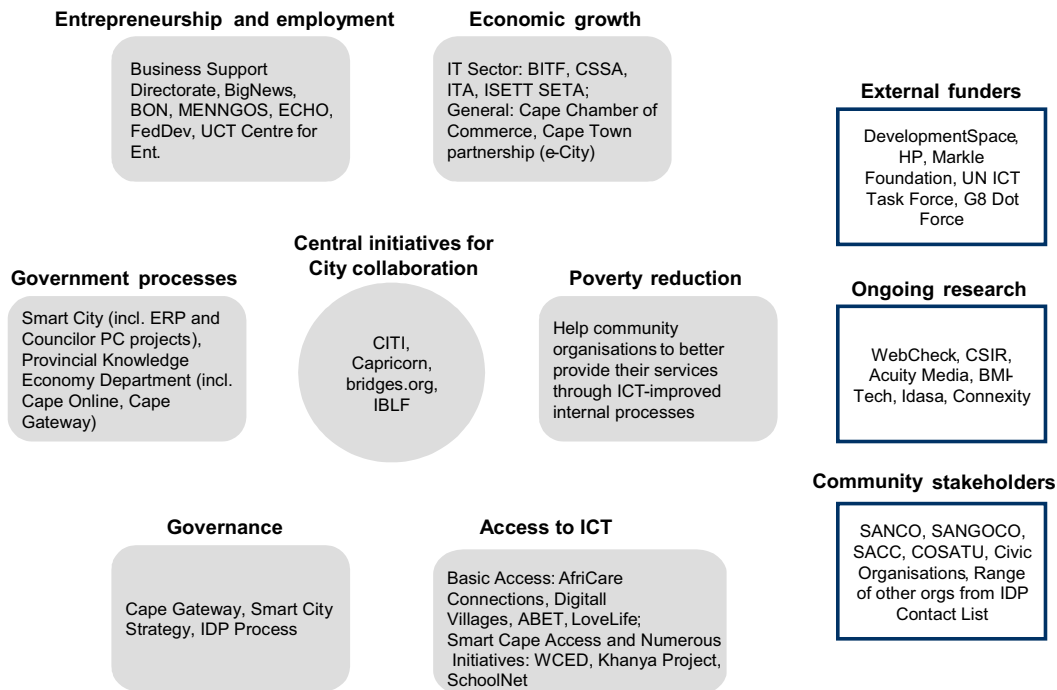
The City should help bring together the various activities and resources, and provide a physical point of connection and a gathering place for ICT-related activities of NGOs, government programmes, entrepreneurs, SMMEs, funders, investors, ICT companies, and others. One way to accomplish this would be to establish a public-private partnership and make it the basis for a dynamic, catalytic "eco-system" of ICT-related projects and programmes. It should offer a range of programmes as well as training, conferences, networking opportunities, and a comprehensive resource centre to help launch entrepreneurial activities, e-government efforts, and ICT use throughout the region.

Activities launched under the auspices of such a City initiative should aim to enhance existing kernels of activity throughout the broader metropolitan area and form widespread, community-level outlets for information and resources to reach the wider population. For example, libraries, community technology centres, and government offices could be appropriate bases for diverse, but loosely connected, ICT-related community activities. A distributed network of community ICT projects could disseminate locally relevant content and best practices, while at the same time contributing information and local experiences with ICT to inform the efforts of others in similar circumstances. And the initiative could be linked with related City priorities like the Urban Renewal Programme, which offers focus sites in Khayelitsha and Mitchells Plain that could be built on. Finally, such a centre of activity could be used to stir a local dialogue and increase public participation on ICT policy issues.

> **Short-term priority: build upon Cape Town's existing ICT kernels and facilitate widespread involvement to implement City strategies**
>
> *Next step:* Conduct strategic planning and make commitments to establish a public-private partnership with key stakeholders. Complete a proposal to obtain external funding for a city-level initiative.
>
> *Benefit to the City:* Shared resources and improved efficiency among government, business and civil society efforts, enhanced community services and ICT access, and an inclusive strategy for meeting the ICT needs of Cape Town's communities, organisations and citizens to bridge the digital divide.
>
> *Potential pitfalls:* To achieve the greatest success the project must be open to all, and not limited to the current ICT sector or well-established NGOs. Distributed sub-centres of activity throughout Cape Town will help alleviate this issue, but not eliminate it.

Figure 2 sets out a visual representation of what a City initiative of this kind might look like in Cape Town.

Figure 2: Model for a City initiative to build on existing ICT kernels and facilitate widespread involvement of stakeholders in City ICT strategies
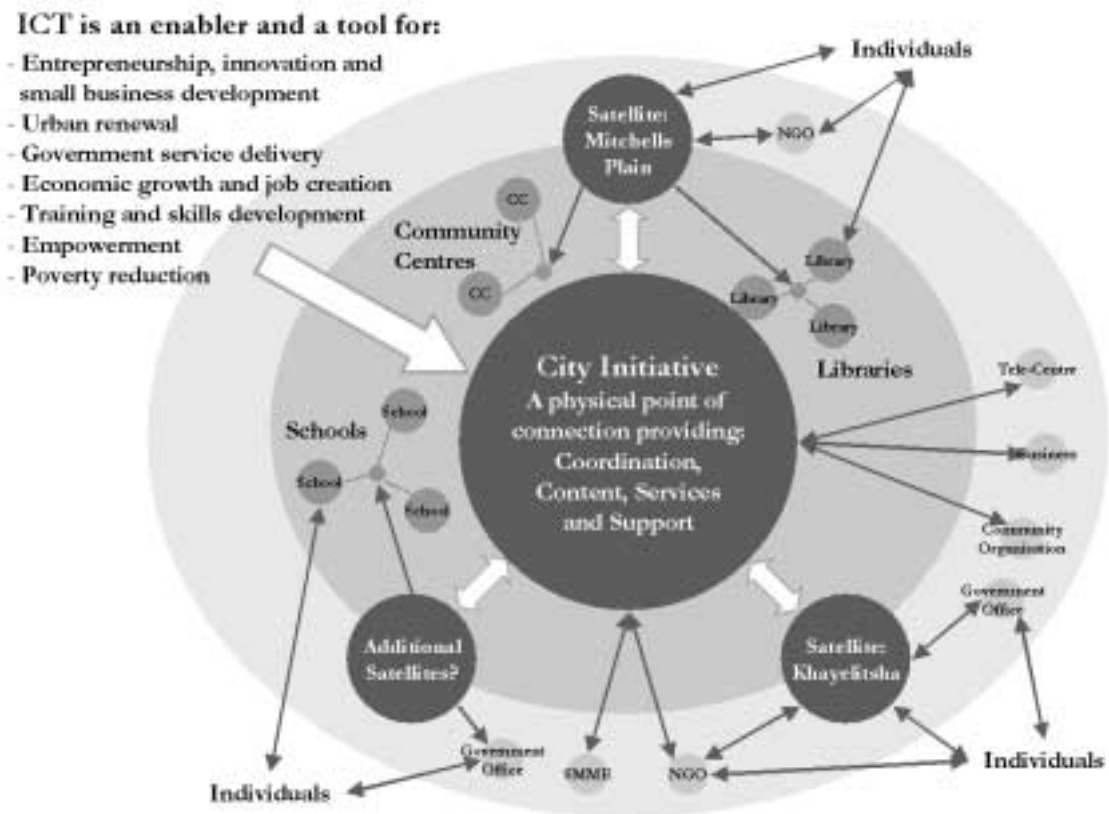
## 3.7   Provide City Council leadership for ICT activities in target areas

Table 31 outlines suggestions for additional ICT activities that the City Council could lead in the target areas set out above. These suggested actions follow from the previous recommendations, and are consistent with the City's overall efforts to promote social and economic development in Cape Town.

Table 31: CPT DD Assessment 2002 – Recommendations for City Council leadership in target areas for ICT actions

Target areas for ICT action	Concrete actions recommended	Role of the City Council
Governance and government processes	Ensure that City councillors are trained to use their PCs, and that the machines are functional. Work with the Cape Gateway to create a unified ICT portal, focusing first on the needs of organisations and businesses. Hold regular consultations with the public regarding continued ICT improvement.	Contract external expertise through a central coordinating project and tendering. Lead in the improvement of Government communication with organisations, businesses, and citizens. Contract external expertise through a central coordinating project and tendering
Economic growth	Pursue joint lobbying efforts with the South African Cities Network. Consider joint or coordinated policy efforts with local stakeholder groups such as CITI, CTUF, and bridges.org that are engaged in national policy processes.	Directly motivate other policy groups, facilitate public discourse on key policy issues, and/or jointly write policy statements.
Entrepreneurship and employment	Create and provide business support information, which could be distributed through ICT access points. Work with ISETT SETA to regulate or accredit the region's ICT training industry. Investigate partnerships for small business ICT training. Empower small-scale ICT service businesses.	Facilitate other actors and provide coordination. Facilitate other actors, contribute information, and provide coordination. Lead by example with Business Support projects. Support other actors with finance or equipment.
Poverty reduction	Donate used computers from the government and local businesses to community organisations. Create and compile relevant content for programmes. Compile existing information from local content providers to support and foster basic ICT use. Expand where needed, and deliver to community organisations.	Facilitate other actors and provide coordination. Support other actors with finance, information and/or equipment.
Access to ICT	Help to coordinate ICT access efforts and avoid duplication. Expand the library access project and pilot further community access projects in partnership with civic organisations.	Build a public-private partnership to launch a central coordinating project with other stakeholders. Lead by providing access through libraries. Potentially support other public access projects with finance or equipment.

The five target areas for ICT action used above to frame recommendations and stakeholder roles are interrelated. Figure 3 illustrates the relationships among the target areas and corresponding recommendations, to highlight the linkages in this holistic approach.

Figure 3: Relationships among ICT target areas and corresponding recommendations
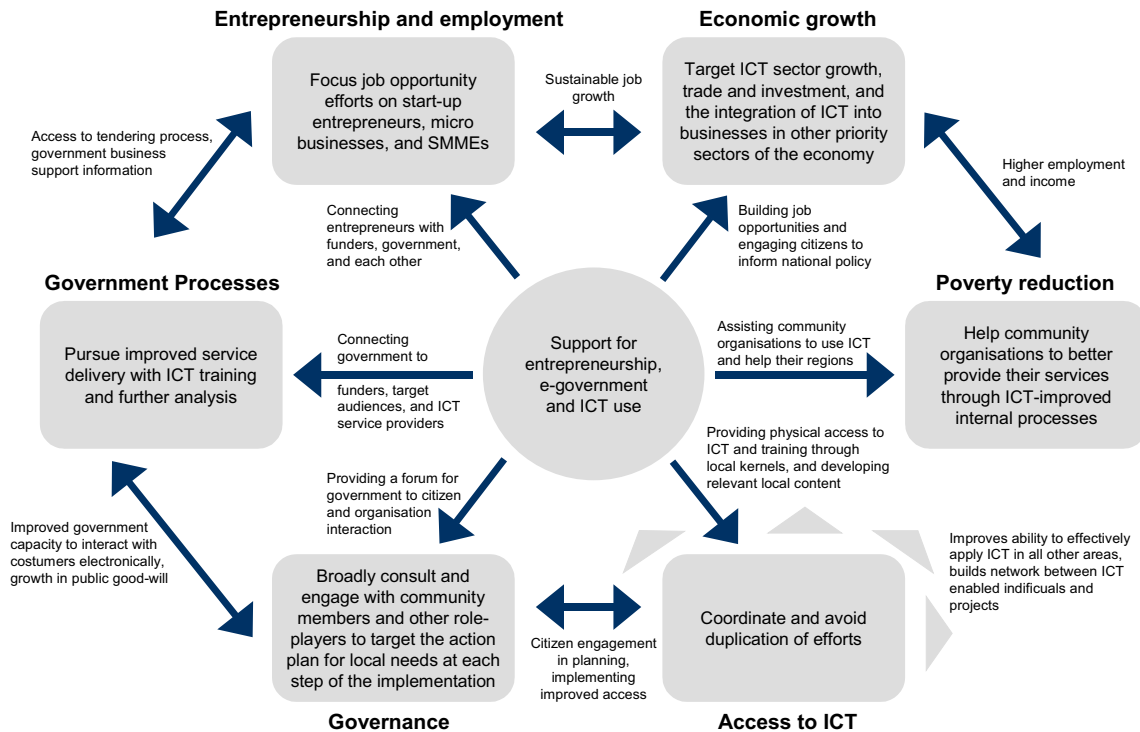
3.8   Understand the obstacles in order to overcome them effectively

The City faces a number of potential obstacles in implementing the recommendations outlined above, which it should understand clearly in order to overcome them effectively. While these obstacles are real and significant, the City has opportunities to minimise each of them. Key obstacles and potential solutions include:

♥ # **There is major scepticism of the City's ability to deliver**. The City must take the community scepticism to heart because it illustrates a growing apathy on the part of the public, and raises questions about the City's capacity.

♥ # **There are limitations to the City's jurisdiction.** For example, policy, education, and job creation may fall outside of the scope of City activities; however, the City has the power to influence and inform all three areas.

♥ # **The short-term demands of citizens do not always fit with the long-term benefits to be gained from a reasoned strategy.** The City must plan wisely to truly benefit the majority of people over the long-term, but citizens may disagree with the strategy because they seek short-term benefits. For example, a vast majority of respondents in this study highlighted the need for ICT training in their communities. However without jobs or community ICT access, newly acquired skills are forgotten. In this example, the City should resist calls for ICT training as a panacea to help people get jobs.

3.9　Focus on implementation and conduct further research only as needed

As the City takes forward its ICT strategies and programmes, it is well advised to base its decision-making on sound information. However, given the City's internal knowledge base, the findings of this study, and outside studies that are underway or planned, the City has sufficient resources at its disposal at present to be informed on the key issues. Therefore, the City should conduct further research only as needed and instead focus on implementation.

♥ # **The City can draw on its existing internal knowledge base to detail how service delivery can be improved with technology.** The City should compile existing knowledge already within the Government from prior ICT and department assessments, and use that information to set its priorities.

♥ # **Highly detailed statistics are not available for ICT access in Cape Town, but are not needed at this stage.** The information set out in this report provides snapshot views on ICT access and use in Cape Town and paints the picture of the broad ICT landscape. A more sophisticated analysis and survey does not currently exist for Cape Town, although some may desire one. However, the overall lack of ICT access and the divide between information haves and have-nots in Cape Town is so stark, that acquiring finer grain information would probably cost more than it would be worth at this time.

♥ # **Keeping up-to-date on other research projects will inform ongoing efforts.** South Africa is a focus of international studies, both on a National level and at the city and province level. By keeping in touch with this external research the City can be well informed and avoid duplication of effort. For example, the City should consider the DTI's Diffusion Study, Erasmus University's e-government in cities study, and the National Community Radio Forum's study of community radio stations for suggestions of potential public access points.

4   CONCLUSION

This report presents an examination of Real Access to ICT among Cape Town's people, communities, and institutions, and thereby paints a picture of the current status of the digital divide in Cape Town. It considers the needs of Cape Town's people and institutions for future ICT services, as well as the potential constraints that will hinder improvement. Finally, it suggests clear steps that City leaders can take that will help them to improve access to ICT, use ICT to have a real and beneficial impact on Cape Town, and help fulfil the City Council's strategies for social and economic development.

The City has the opportunity to use ICT to bring many benefits to the communities and organisations of Cape Town and alleviate many of the ongoing problems that challenge the city. What if the City does not act on these opportunities? Based on the experience of other countries, ICT can and will cause greater inequality if there are not concerted efforts to bridge the digital divide. The information "have-nots" will be *increasingly* excluded from jobs and communication channels, leading to greater political and economic disenfranchisement.

In Cape Town, the consequences are even greater. Many people in Cape Town are sceptical of the City's ability to deliver its basic services to the people. Some express their frustration in small-scale protests over poor service and service cut-offs. Others have merely withdrawn from political participation and are apathetic. ICT access is a small part of the services that people expect from the City. However, if the City can take the opportunity to improve its internal processes, especially its service delivery, through ICT, these efforts will help counter this apathy and frustration.

Economically, the City must act to create the necessary skills that its industries need. The standard for employment is rising, and Cape Town is not keeping up. There is already a dearth of high-end ICT skills, and this is likely to worsen as the need increases. There is similarly a severe lack of participation among disadvantaged individuals in the ICT economy. At the same time, there are many sincere active initiatives tackling a small piece of the puzzle in isolation. If the City Council can help connect and build upon these energies to improve entrepreneurship and economic growth, it will make a concrete contribution to social and economic development in Cape Town.

The City has taken the first step by embarking on this study. Cape Town is home to a respected ICT sector, and the City Council has already shown that it is placing a priority on using technology as a tool for economic growth, improved government efficiency, and development. The City must now continue down the path that it has set for itself, and draw from these recommendations to ensure that ICT is applied to meet the needs of its people and that none are left behind. The digital divide did not occur overnight, and will not disappear quickly. But if the City Council acts on these opportunities, it can make a major impact on the lives of its people and organisations, and build a foundation for future growth.