

Government Facilitated Access to ICTs: Adoption, Use and Impact on the Well- Being of Indigent South Africans

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Abstract: This paper presents preliminary results of an assessment of the impact of a government facilitated ICT access programme on the well-being of poor citizens. It examines South African government efforts in the application of e-government as a critical tool for speeding service delivery to all citizens. The study makes use of Sen's capability approach as a conceptual framework. The findings demonstrate that the main focus of government programmes is on the deployment of telecommunication infrastructure and e-literacy training. This study argues that, to effectively realise the benefits of ICTs interventions in poor communities, policy makers needs to expand the breadth of their interventions to the extent that the needs of grassroots communities are woven into e-government programmes via consultation. It is further argued that the value proposition of e-government and associated ICTS programmes does not simply comprise the number of e-centres and extent of connectivity. The findings of the study show that e-skills, an understanding of citizens' urgency and extensive programme awareness are required to deliver the benefits which are written into policy objectives. The latter are important elements of e-government interventions, without which, the widening of the economic and social gap between the haves and have nots, will remain unchecked.

Keywords: eGovernment and Public Service Delivery; Global development; Information and Communication Technology for Development (ICT4D).

1. Introduction

Several notable policy documents regarding the Digital Divide have been developed in South Africa, including the 2016 National Integrated ICT Policy White Paper [1]. This national ICT policy subscribes to the idea that the deployment of ICT facilitated e-centres contributes to addressing persistent inequality in the country by improving the quality of lives through accessing the benefits of, and participating in, the digital society. Such lofty aims assume that digital transformation can enhance efficiency of service delivery, ensure impartial access to public services by all, and improve citizens' participation in public policy-making; enhance stakeholder engagement to afford South African citizens the opportunity to access a wide range of information. On a more practical level, the ICT policy recommends the introduction of ICT facilitated e-centres that can assist the government to address divides in society between those with resources and capabilities, and those without who are marginalised.

Notwithstanding government's effort, the South African digital divide persists in terms of the constraints of low level of infrastructure penetration and affordability [1]. According to Mkhize, the emphases of investment in ICT is mainly urbanite; meanwhile there is huge infrastructure deficit in rural areas [2]. Mkhize goes on to reveal that the South Africa's

National Broadband Policy, “SA Connect”, is intended to extend broadband infrastructure and services to the most marginalised communities of South Africa by 2020.

In the same way, government at different levels have intervened in various programmes e.g. Gauteng on-line, eThekweni and Oliver Tambo (Eastern Cape). In doing so, one of the premises of government is that these interventions will promote and support its ability to undertake e-government services. Understandably, according to DTIC, its e-government strategy requires citizens to have Internet access, and become digitally literate in order to ensure adequate usage of government services provided online [1]. Arendse explains how the provincial government is providing e-centres with 12–50 computers that provide free access to internet, ICT services as well as formal and informal digital literacy training [3]. However, there is a dearth of evidence on whether such programmes have resulted in their intended outcomes [4].

This paper addresses this gap by investigating one such government initiative viz. the "Cape Access" programme, to assess whether the use of the programme has contributed to improving well-being of indigent residents. The research investigated the following questions, using the capabilities approach (CA) as a lens: 1) has the objective of improving government-citizen communication/interaction been met? 2) what factors have promoted the adoption and use of the ICTs at the facility? and 3) what have been the outcomes of the intervention in respect of the well-being of poor citizens living in rural areas? In order to answer these questions, the rest of the paper is organised as follows: Section 0 describes the context and motivation for the study via a concise analysis of the South African Digital Divide, the Cape Access case study, and challenges within the South African context. Section 0 also offers the main objective of the study. Section 0 follows with the research framework and description of the mixed methods employed to address our objective. Section 0 lays out the results based on data collected in the Overberg region of South Africa. Finally, Section 0 concludes and offers summary recommendations.

2. Context and Motivation

2.1 South African Digital Divide

Kayisire and Wei show that from 1998 to 2008 sub-Saharan Africa has been spending an average of \$5 billion per year on telecommunications [5]. Duncan follows on this theme, and shows that such spending is based on the supposition that technology is the main driver of socio-economic development, and it has the power to shape society [6]. This supposition is so fundamental to ICT-driven thinking, e.g. "build it and they will come", a form of technology determinism that often comes down to numbers of computers in homes and centres. Within the South African context, Uys and Pather postulate that only 21.4 percent of South African households have access to a computer and 10.8 percent of households have access to Internet at home in spite of growing spending on ICT related infrastructure [4]. In addition, the evident failure of information and communication technology for development (ICT4D) projects which are rolled out in a wide variety of rural areas are a result of developers focusing on the same technology determinism. Steyn and Van Greunen indicate that to reap the benefits of ICT investment, the country needs to improve its e-learning platform by improving e-learning policy to ensure that learner will be equipped with relevant skills to be used when infrastructure is available [7]. In other words, what's the point of infrastructure without the skills to use it?

2.2 Case Study: Cape Access Programme

This study investigates Cape Access e-centres in six small towns located in Overberg District Municipality in the Western Cape Province (see Figure 1). Due to earlier discriminatory policies, poor and indigent citizens from these selected municipalities still

experience high level of socio-economic inequality and disparity. This state of inequality extends to the access to and the use of ICTs. The extent of this Digital Divide is underscored by Dalvit *et al.*, who point out that in spite of language barriers, poor literacy and skills, and users' attitudes toward ICT, the majority of poor citizens in South Africa will only be able to make meaningful use of ICT by 2020 [8], which is a mere two years hence.

According to Arendse, the strategic objectives for Cape Access are “to improve access to government services; to bring government information and services closer to citizens and to promote access to opportunities; to create a platform for greater dialogue between citizens and the government; to improved good governance and to increase service excellence through technology” [3]. Despite deserving and well-thought-out objectives, outlined in Government documents, such as creating equal access to opportunities for all communities, control poverty and improve poor citizens' well-being [7], there is no evidence of whether ICT interventions have achieved strategic objectives. A literature search reveals that other than a few individual cases studies, there has not been a systematic evaluation of whether the Cape Access programme has had any effect on the well-being of poor citizens.

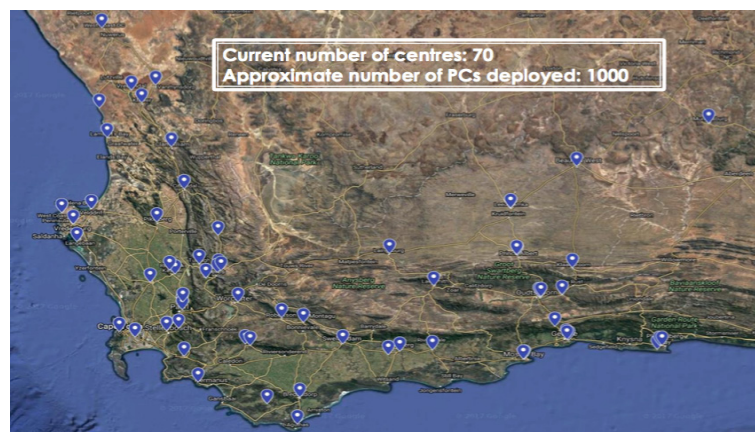


Figure 1 Cape Access locations across the Western Cape province of South Africa.

2.3 Challenges to Successful Use of ICT in South Africa

The increased availability of e-centres across local municipalities contributes to increased demand for effective ICT4D implementation strategy; and a policy that promotes ICT4D education [9]. Moodley further points out that, government investment in ICT is of great concern since it is often done at the expense of other forms of initiatives [9]. Continuing on this theme, Moodley also states that unless poor citizens are empowered to take control of their own development, promote dialogue between communities, and to see themselves as equal to other stakeholders within the web of development, ICT programmes will not improve their lives. Thakur and Singh concur that the failure of ICT programmes at local municipality level in South Africa is somewhat caused by lack of users' acceptance, because for decades, e-government initiatives have been developed from the perspective of the government [10]. In our opinion, this is symptomatic of typical top-down approaches, akin to the technological determinism mentioned above.

In the case of South Africa, Krauss argues that an ICT4D programme is impacted by a lack of good governance which determines the ability to implement a sound e-government strategy [11]. Krauss goes on to argue that what is required is a clear understanding of information needs of the poorest in society *as a starting point* for crafting ICT strategies aimed at poverty eradication [11]. This kind of bottom-up approach stands in stark contrast to typical top-down approaches; and regrettably, most of government ICT programmes directed at the poor citizens in South Africa tend to take a top-down approach. Users are not adequately engaged during ICT adoption and implementation processes [9].

There is little experience of long-term impact of e-centres in the context of rural areas in South Africa [9]. Additionally, Joseph postulates that policy design and implementation should take place within the space where the dominant and less dominant citizens see each other as equal partners in the design and implementation of ICTs intervention [12]. Krauss, further points out that government ICT policy framework seems to be techno-centric, as it presents ICT intervention as an end in itself rather as a supporting function [11].

2.4 Objective of the Paper

The main aim of this study is to critically analyse the impact of Cape Access intervention on the lives of poor citizens living in the Overberg region of South Africa. The next section outlines methods used to collect and analyse data. Thereafter the paper presents the results.

3. Methodology

3.1 Theoretical Framework

To systematically analyse the impacts of Cape Access on the well-being of poor citizens in the Western Cape, this study is framed around the use of Amartya Sen’s capabilities approach [13]. Sen defines development as a “process of expanding the real freedoms that people enjoy” which includes freedom of choice in the person, social, economic, and political spheres [13]. According to Kleine, Sen’s argument is that development should be viewed from the perspectives of those interacting with an ICT4D intervention [14].

Oosterlaken notes that there is shift in the manner in which CA is operationalised in the context of ICT programmes such that the focus tends towards human well-being rather than access and expenditure issues [15]. Therefore, the focus is on examining whether access to ICT and the meaningful use of an ICT programme can enhance users' informational and valuable capabilities [15]. Furthermore, according to Kleine, ICT4D studies which use the capabilities approach must acknowledge the multiplicity of reasons that cause citizens to use ICT [14]. Hence, Kleine postulates that ICT interventions are believed to have the ability to expand a range of human capabilities, yet at the same time leave the choice to realise specific functions to individual users [16].

The benefits of using CA as the research lens of this study is that it provides a basis for the analysis to be directed towards developmental constructs as related to the *use* of technology, rather than a narrow technical focus. The CA framework thus enables a focus on human capabilities, encouraging a bottom-up rather than a top-down perspective. Further to the motivation for the use of CA in this study is provided by Moodley, who argues that CA provides a framework for examining whether investments in ICT are consistent with the social goals of empowering the poor [9]. Thus, for this study, a list of functionings, derived from CA [13], were used as indicators to investigate users’ interaction with the ICT services which were facilitated by government (see Table 1).

Table 1 List of Possible Functionings that can be Achieved Through the Use of CA

1	Increased communication opportunities	Ability to communicate with all stakeholders via ICTs	Kleine, 2013
2	Increased confidence	Becoming aware of one’s competencies	Uys & Pather, 2016
3	Increased income generation opportunities	Ability to generate income as a result of using ICTs programme	Kleine, 2010
4	Increased knowledge and self-reliance	Increased choice of deciding the kind of the live one wants to lead	Kleine, 2010 Kleine 2011
5	Increased participation in decision making process	Opportunity to participate in governance and decision making were made mention of or achieved by users.	Uys & Pather, 2016 Kleine, 2013

3.2 Methods

The study explored the experiences and perceptions of citizens interacting with the Cape Access intervention. Geographically, the area of study covered small rural towns located in three local municipalities in the Overberg district of the Western Cape. The majority of citizens in the sample areas earn less R2500 (US\$205) per month and are therefore considered as poor.

The study adopted a mixed methods research approach to data collection [17], incorporating triangulation into the research design as per Yin's prescription [18]. Qualitative empirical data was obtained via semi-structured interviews, focus groups and observations. This yielded a detailed and rich data set which enabled an understanding of policy design, participants' experiences, implementation strategies, and users' behaviours in relationship to decision-making processes. Following on Mouton, quantitative data was collected via a face-to-face survey to generate statistical evidence in order to strengthen representative findings on the perspectives of respondents in the area [19]. The objective of the survey was to examine users' experience and perceptions of the Cape Access programme, and n=385 responses were collected.

The researchers visited Cape Access e-centres regularly between April 2016 and May 2017. In addition to the interview, focus group and survey data described above, the site visits included observations of and informal interactions with users at the Cape Access sites. Lastly, interviews were conducted with 17 participants, 2 policy strategists, 4 local municipality employees, 6 Cape Access centre managers, 3 local government directors of social and economic development, and 2 ICT managers. Using CA as a lens, the data was coded and categorised until several high level themes emerged. For quantitative analysis SPSS was used to obtain descriptive statistics. This was done by using univariate analysis for single variables and bivariate to analyse two variables. Univariate analysis yielded frequencies and percentage. The process involved the generation of frequencies and percentage as variables. The use of multiple sources of evidence in data collection increased construct validity. This resulted in the identification of several indicators that needed to be examined in order to determine whether the intervention is actually making a meaningful contribution into the lives of users (Table 1).

4. Results

The findings demonstrate that poor citizens use ICTs to meet needs of employment, communication, educational, leisure skills and increased self-confidence. To systematically explore the impact of Cape Access on the lives of poor citizens in rural areas, the study began by examining resources that are prevalent in each respective community. These are external resources that have the ability to influence an individual's usage of the Cape Access ICT4D initiative. Participants identified the following resources as predominant in their community: financial resources, education resources, e-skills resources, ownership of ICT devices and a public library. These needs and themes have been grouped within three subsections: strategy and policy, outcomes in terms of citizen well-being; and use factors.

4.1 Engagement Strategy, Communication and Policy Development Process

With respect to engagement processes used during the development of policy that led to the rollout of Cape Access, our findings unfortunately found no evidence of convincing engagement strategies to ensure that the voice of poor citizens was incorporated into the process of drafting the Cape Access policy design and its project implementation. The perceptions amongst provincial and local government leadership are that a community will make use of ICT programmes as long as its people have access to facilities. *"They will make use of it when they have it. Some among us believe that people will make use of ICTs*

when they have access to it”, as indicated from an informant in the economic development directorate. Therefore, it is evident that amongst other reasons that continue to contribute to the failure of ICT programmes, it is clear that leaders are not consulting users adequately. All policy developers interviewed indicated that the focus of Cape Access was to supply an intervention with the expectation that citizens will use it (because it is there). The Chief Information Office responsible for the ICT project explained that: “*The earlier focus of the programmes was to supply interventions while expecting citizens will use it, though it is only now when we are looking at what do citizens want and how can we service their needs*”.

The notion that people will learn how to use ICT as soon as infrastructure is provided to them goes against the developmental conceptualisation inherent in the capabilities approach. CA infers that the impact of an ICT programme should not be purely viewed based on the availability of infrastructure and on the number of users. Instead, CA draws our attention to what people do with the opportunities presented to them by an ICT intervention and then how these opportunities can change and influence well-being. Hence, there is a need for government to shift attention and focus from the provision of infrastructure to the well-being infrastructure enables. Our findings follow on related work, and demonstrate that many poor citizens hardly make use of the Cape Access programme. The assumption is that lack of individual capability and agency are major impediments as compared to users that have acquired computer literacy skills, for example, through formal education. Similarly, poor citizens are more concerned with basic needs such providing meals for their dependents than making use of e-centres.

Consequently, data continues to demonstrate that many citizens are not aware of the e-centres, as a result of unconstructive engagement processes. Participants were surprised to learn that there was 'public participation' during the inception of the centre. Similarly, if citizens were engaged in public participation, then the question to be answered is, what was the nature of the participation that took place? Was the participation more about what to do instead of what is needed to be done? Subsequently, another question arising from the study is whether public participation was merely to *legitimise* the programme and not really obtain public *engagement*. In the same way, a further surprising finding is that some of those making use of the e-centres were not really aware of government online services that they could access through the e-centres. As a result, it would appear that users may make use of e-centres to meet immediate and individuals needs without having interacted with or used the government’s e-services; which were the purpose for centres from the start.

With regards to engaging government electronically, our findings demonstrate that the percentage of users is yearly increasing, and stand at 56.9 %, with 42.6% of participants using the Cape Access programme to communicate with government in 2017 alone. This is a significant improvement when compared to 2016, where only 9% made use of the programme for the same objective, as clearly shown in Table 2.

Table 2 Last time to communicate with government through CA service

	Frequency	Percent
2010	1	.3
2012	2	.5
2013	3	.8
2014	1	.3
2015	12	3.1
2016	36	9.4
2017	164	42.6
Total	219	56.9
Total	385	100.0

Of all the investigated households, only 29.2% made use of e-mail to communicate with the government. In the absence of a framework for measuring whether Cape Access is changing the lives of poor citizens, provincial and local government officials believe that the success of Cape Access should be measured on the basis of output. Besides government officials' assumptions of the positive contribution of Cape Access, there is no empirical data available from government publications that reveal the contribution of Cape Access to service delivery, socio and economic development. An analysis of identified ICT-related strategic documents from the provincial Government fail to clearly indicate how the use of Cape Access contributes to the improvement of the lives of poor citizens living in rural areas.

4.2 Outcomes of the Intervention in Respect of the Well-Being of Poor Citizens

Well-being for indigent populations tends to be measured in terms of income generation opportunities and self-reliance indicators. Critical cases were identified in municipalities M1 and M2 where Cape Access enabled two users to achieve their development needs. One member of the community has developed new competences in film-making and editing. He also mentioned that he is currently doing motivational speaking in various parts of the province, whereby before the introduction of Cape Access he never thought he would achieve his dream of becoming an actor. Another case is a female participant from municipality M2 who is now delivering food to a police station for inmates, and it all started after learning new ICTs skills and receiving support at the e-centre. Both citizens acknowledged that they are now capable of meeting their social and economic needs and capable of supporting their family members and friends. *This has improved their individual well-being.* Cases like these are very hard to find, and stand out in stark contrast to the general story of ICT4D and e-centre failures. Income plays an important role in the processes that motivate individual choice and urgency. Based on the table below, collected from n=385 citizens, the majority of poor citizens' household income is less than R2500.

Table 3 Average household's income

		Household Income	Household workers
N	Valid	173	351
	Missing	212	34
Mean		3111.07	2.12
Median		2500.00	2.00
Mode		1500	2

We found conflicting views on whether Cape Access has contributed in improving poor citizens' lives. Some participants argue that it has helped and others indicate that it is not. Local government officials are of the view that the government should invest in programmes that can provide jobs. At the same time, respondents believe the issue of awareness should be addressed. They argue that citizens are not fully aware of Cape Access, and have no knowledge of the opportunities that are availed through Cape Access. Their views were also supported by Local Economic Development (LED) manager at Municipality M1 as she noted that: *"In terms of investment, I think the government should invest in things that can provide jobs, because people are more interested in job instead of visiting e-centres. But again, we should ask ourselves do people know about the Cape Access, do they know the opportunity that they can access through Cape Access?"*

Finally, citizens living on government grants hardly make use of Cape Access. One of the engaged Integrated Development Planning (IDP) managers at municipality M1 said that: *"I'm not quite sure about the impact of Cape Access on the very poor people."*

Similarly, this view is further supported the LED manager at municipality M2 saying that: *“This is my personal opinion – Is mostly young people that makes use of the e-centre. So the answer is the young generation will benefit and not those depending on government grant”*.

In respect of socio-economic development, the views held by policy developers is that persons living on social grants, who cannot make use of ICT themselves, should take responsibility for sending their children to these e-centres. Regardless, we found a fragmented model of communication between the policy developers and poor citizens living in rural areas. The data reveals that students aged 6 to 20 years old are regular users of e-centres. They make use of the centre as compared to other groupings because they search for opportunities, and support schoolwork. Therefore, taking into account the number of students making use e-centres, this study finds that the e-centres are contributing to improvement of social condition of students. Cape Access is enabling them to meet their educational and entertainment needs, thus improving their psychological well-being.

4.3 *Effective Use of Cape Access*

Individual choice and freedom of leading a life as an individual is influenced by various factors. Hence there was a need to explore users' profiles to understand the factors affecting *effective use* of the Cape Access programme. The IDP manager at municipality M1 pointed out: *“Education is another thing; our people are not well educated. I would say Cape Access is not for the poor of the poor”*. Therefore, this study investigated the profile of participants by exploring a number of things, including highest education level and the number of workers per household. In terms of education level, the findings show out of 385 participants, 85% percent went to high school, with only 6% completing their diploma; 1.8% completed undergraduate studies and only 0.3% proceeded to postgraduate level. In terms of employed persons per household, the data reveals that only 35.6% of surveyed households have 2 employees per household, i.e. the majority of households have only a single person, or none, working. Although many of them are farm workers, or doing related kind of work, they earn very little. Yet employment is considered as one of leading factors that influences how citizens use government services provided online at e-centres.

Some of the most critical factors identified concern the issue of space and geography (including those in Kleine's reconceptualisation of Sen's CA [16]). The geographical context in which most of these e-centres are located is problematic. In some areas, the issues of race and colour stand as barriers to users from a given ethnic grouping. Here, the question to be asked is whether the space is accessible. How do different ethnic groups in the community feel when visiting these e-centres? For example, our findings reveal very few black people are making use of the e-centres. Few reasons that were highlighted are, for example, that facilitators were a different race from those of users. In other words, the current situation has not changed the unequal socio-economic relations that manifest as poverty and social exclusion along racial and colour lines. This remains the bane of South Africa, as elsewhere. Our concern is that the ICT infrastructure provided by the Cape Access project is hindered in its accessibility because of the physical placement of e-centres in ethnically concentrated, and potentially gentrified, areas. Basing the argument on individual's choice and freedom of doing and being as per Sen Approach, government should therefore extend the reach of these e-centres in order to meet the needs of specific community group members.

5. **Conclusions and Recommendations**

In conceptualising development, we concur with Pather that access to ICT facilities is a pathway toward development and not an end in itself [20]. Thus a user's ability to identify and remove barriers to one's own development is critical. The lens of the capabilities

approach provided this study the opportunity to explore how ICTs can be deployed to tackle societal challenges that continue to manifest as Digital Divide inequality and disparity in poor communities. Our findings suggest that the Cape Access programme has enabled young people to challenge social structures that may constrain their developmental freedoms; although the benefits they have acquired are for the most part limited to psychological aspects. Economically, these users remain trapped in poverty. In spite of the noted handicap, the significance and benefit of the Cape Access programme cannot be ignored. The cases in two municipalities demonstrate how the programme contributes to improving social and economic condition of some users. The programme improved their capabilities and increased their choice and freedom to choose the lives they want to lead hence impacting their social and economic life positively.

Increased awareness and effective use of ICT in an intervention like Cape Access can lead to improved social and economic conditions of the citizens interacting with such a programme. The evidence presented in this paper demonstrates that ICTs can play a productive role in enhancing people's capabilities as well as their agency to identify and uproot the structural causes of disadvantage. This is demonstrated by the two users that made use of the opportunity embedded in the Cape Access project to meet their socio-economic needs. The ICT infrastructure at Cape Access afforded them opportunities which in turn enabled them to lead the lives they want, and the freedom to choose who to help and when to help. Notwithstanding the notable contribution of Cape Access in the lives of a few individuals, many, if not most, have not realised the benefits of the Cape Access intervention.

Based on the findings we argue that the emphases of ICT policy designed for rural communities should be on identifying and addressing the root causes of social and economic ills in communities. Policy should be intentionally developed to ensure citizens will remain motivated to use the ICT programme after realising the values and reasons why they should make use it. This is a bottom-up approach which is quite unlike the approach that 'government knows best' and 'build it and they will come'.

Consequently, there is dire need to integrate into ICT4D praxis, modalities which align with the reality of community needs and which will address the roots of localised societal challenges. Within the South African historical context, ICT interventions will not achieve developmental outcomes without genuine bottom-up public participation. South African citizens who are struggling to meet basic needs such as providing food for their families will not be able to take advantage of a swanky new e-centre merely because it exists. This calls on policy makers to rethink ways to engage the poor, and to have an ongoing discussion with indigent citizens about a framework that could be used to optimise government decision making and planning processes regarding an ICT programme like Cape Access.

Finally, the findings indicate that government must become more diligent in holding regular consultation with communities at grassroots level. Such consultation should start at the stage of conceptualisation of the e-centre and continue during implementation. The importance then of a coherent and regular monitoring and evaluation is critical. This is because elements of government policy in respect of development tends to be too theoretical. As a result, in practice, not enough effort is put into consultation. Regular survey of user's experience and behaviours, will help to keep e-centres and its services relevant.

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