

Challenges and Proposed Solutions Towards Telecentre Sustainability: A Southern Africa Case Study

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Abstract: Access to information through telecentres is essential for social and economical growth in rural areas of sub-Saharan Africa. While many governments have established telecentres as means of bridging the increasingly wide digital divide in rural or unserved areas, their corresponding sustainability or continual operation is in doubt due to various challenges. These challenges to information and communications technology (ICT) access has resulted in many of the rural population being unable to exploit the potential of promoting social economic development through innovative business solutions and education. In this study we evaluate the sustainability of telecentres in Zambia and South Africa and propose possible solutions to the problems that telecentres face. Strictly speaking, we focus on two telecentres; Comsol telecentre in KZN, South Africa and Kanyonyo Resource Centre in Mongu, Zambia.

Keywords: Telecentres, Universal access, Information, Bottom of the Pyramid.

1. Introduction

Most developing and developed countries have adopted universal service policies in order to bridge the ever increasing digital divide among the country's information "haves" and "have-nots". These telecommunication policies that propose universal service as the means of promoting social and economic growth are well acknowledged and the impact of them on social and economic growth has been documented in numerous publications [5] [8] [11]. Defined by the International Telecommunications Union (ITU), universal service is the provision of telecommunication services of specified quality, and in light of the specific national conditions, at an affordable price to the majority of potential users who do not have the service and for whom not having access to the service would constitute a social or economic disadvantage.

In developing countries universal service provision has been seen by institutional frameworks as an important commitment to attaining equitable social and economic development through the redistributions of information access to "needy people" (also called Bottom of the Pyramid) and underserved regions of the country [7] [9]. Among the methods employed by government to provide universal service, "telecentres" occupy a prominent place [6] [7] [13]. The establishment of telecenters in South Africa and in Zambia has been seen as the most effective way of reaching the millions (needy people) untouched by the ICT revolution shaping the current information economy. In South Africa a total number of 140 telecentres and almost 7 multipurpose telecentres in Zambia have

been set in order to bring the benefits of ICT to communities where individual ownership of computers is low and use of the Internet is infrequent.

Telecentres are expected to cater for rural populations by providing access to basic ICTs and services to meet the basic necessities such as economical and communication needs of their communities [7]. Strictly speaking, telecentres are seen as the means of bridging the ever increasing digital divide in most developing countries. However, as reported by Parkinson [6] and Khumalo [17], telecentres have found it very difficult to sustain themselves and are usually faced with a number of problems such as; poor pricing structures, lack of well trained business managers, lack of clear tariff structure, unclear role of the overseeing agencies as well as theft of equipment. Additionally, poor policy and regulatory reforms, poor management of universal service programs or financial constraints, or all of the aforementioned have placed heavy limitations on the usage of telecentres in rural and semi rural areas. These limitations with respect to both fixed and mobile Internet access creates a scarcity in communications and information access in such domains.

In comparisons to developed countries, developing countries have found it very difficult to promote universal service reforms, through telecentres, and a number of debatable controversies and theoretical issues have been raised (see figure 1). For instance, [8] acknowledges that "The results of international experience for Internet and Information and Communications Technology (ICT) are much less clear than in the case of telephony to date. In fact, there is a mixture of success and failure and very few developing countries are yet able to confidently report a fully successful strategy".

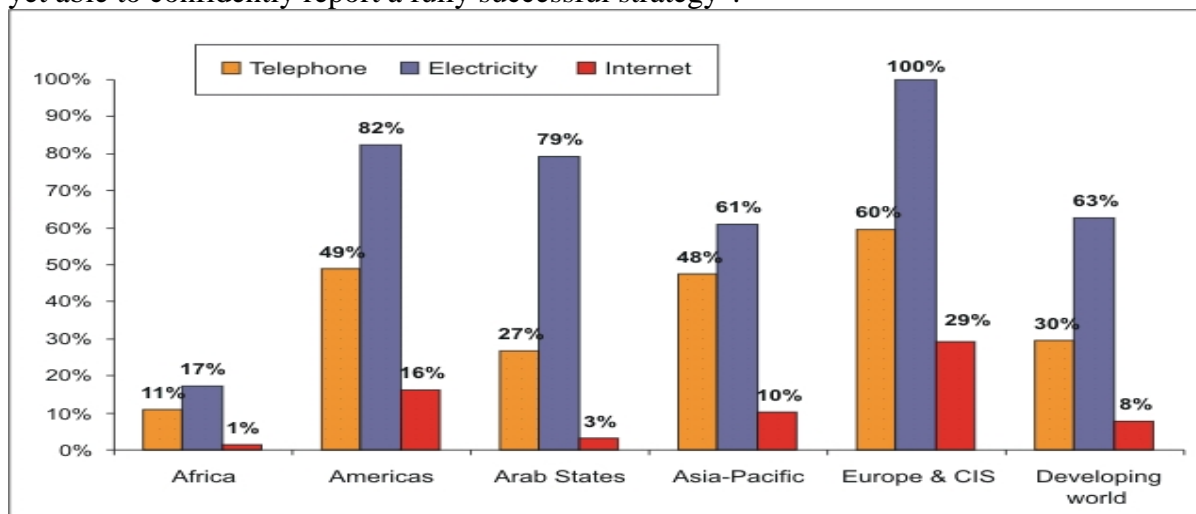


Figure 1: Availability of ICTs in Villages [10]

Even under such difficulties and uncertainty of success, however, governments of developing countries and legislative bodies in such countries still continue to find means and ways of promoting universal service/access. Pakistan [11] and India, for example, have all promoted universal service and access in rural areas or their underserved regions even under increasing difficulties. The People's Republic of China, through the Village Access Programme (VAP) and the Village Informatisation Programme (VIP), has extended its universal service and access obligations to its underserved regions or populations that could not be served commercially.

This paper highlights the various issues faced by the sustainability of telecentres from a developing country perspective, and an array of constraints that exist in terms of the economics, policy and management of such telecentres. The objective is to draw lessons that would facilitate in improving the sustainability of telecentres and to propose any solutions thereof. This paper is organised as follows: Section 2 presents the methodology used in carrying this research. Section 3 analyses universality and policies in Southern

Africa (in this case Zambia and South Africa). Section 4 highlights a case study and the constraints which telecenters face. We analyze, in Section 5, the critical issues and put forward the possible solutions that may be of help in sustaining these telecentres. Section 6 concludes this paper.

2. Methodology

The sources on which this research is based were field work surveys that were conducted in Zambia and South Africa that aimed to investigate the nature of: Urban and rural internet usage. Additional information and statistics were retrieved from the Ministry of Communications and Transport of Zambia (MCT) and Department of Communications of South Africa (and the related institutions in charge of designing and monitoring the universal service and telecommunication policies). Finally, a series of in-depth interviews were conducted with users and telecentre owners to ascertain the nature of telecentre failures.

3. Theoretical Framework: Universality and policies in Southern Africa

In many Southern African countries, the policy of universal telecommunications service consists of an explicit, direct and focused public policy, towards addressing the unavailability of ICT services in rural areas. There is recognition that increasing access to basic information and communication services in rural areas or underserved areas, at a reasonable cost, is essential to Southern Africa's large term socio-economic development [6] [13]. However, the fulfilment of this policy goal requires a well coordinated and implemented programme. Since this sector of the population cannot afford these services at market prices, this must be addressed as part of the process. For this reason, developing countries in Southern Africa (in this case Zambia and South Africa) are proposing telecommunication policies and regulatory reforms, based on international guidelines, in order to promote universality and attempt to span the ever increasing digital divide.

3.1 Universal Policies in Zambia

With respect to the ICT formulation, the MCT and the Zambia Information Communication and Technology Agency (ZICTA) is charged with the responsibility of setting policy and policy direction for the ICT industry and country at large, taking into account recommendations from other stakeholders [12]. The Information and Communication Technologies Act No 15 of 2009 Part 8 [12] states that: "the authority (in this case ZICTA) shall determine a system to promote widespread availability and usage of electronic communication networks and services throughout Zambia by encouraging the installation of electronic communication networks and the provision of electronic communications services in un-served or underserved areas and communities". Lungwangwa makes this remark about the importance of ICTs [1]: "ICT is a catalyst of development in any economy. It is important to ensure that more people have access to ICTs because we are in a knowledge driven environment". For that reason the Zambian government put aside a total of K59 billion under the universal access funds meant to improve ICTs in rural areas.

3.2 Universal Service Policies in South Africa

Most Southern Africa countries have embarked on a road to promoting the availability of ICTS in unserved regions of their respective countries [1] [7]. South Africa, a country that has for a long time been grappling with the ever increasing digital divide, endorsed a number of policy and regulatory reforms for the purpose of moderating the lack of ICTs in the BOP group. Accordingly, the South African white paper on Telecommunication Policy

of 1996 that was adopted by the government states that “the state recognizes the importance of access to telecommunications to the achievement of its social and economic goals, affordable communication for all citizens and business alike throughout South Africa is at the core of its vision and is the goal of its policy”. It continues, citing the paper on broadband policy in South Africa of 2009 [14]: "The nation’s information structure will not be complete until it reaches all locations and populations in the country, and provides reasonable and affordable access to the full range of traditional and emerging information and communication technologies and services, taking into account the different needs among the user population including the considerations of gender age ethnic and linguistic distinctions, and disabilities".

To fulfil the policy objectives as spelt out in the above Acts, the two nations embarked on universal service projects in rural areas with a mandate of meeting or fulfilling the universal service obligations. For example, the MCT and ZICTA (Zambia government bodies) have initiated a tender process for the installation of 36 telecommunication towers in rural parts of Zambia. The main objective of this project is to assist both Internet Service Providers (ISPs) and mobile telephony operators in extending ICT services to rural and underserved areas. Moreover, ZICTA [13] through the Universal Service and Access Fund (USAF) has initiated funding for the establishment of Multipurpose Community Telecentres (MCTs) in Western Province and has completed the installation of seven other community operated MCTs in Mazabuka, Mumbwa, Mporokoso, Mpulungu (two sites), Kabwe, Serenje, and Mongu. The objective of these telecenters is to promote economic empowerment of rural communities by providing ICT based income generating activities and employment and simultaneously improve the quality of life by enabling access to information on health services, business and education opportunities [13].

Similarly, the provision of universal service in South Africa is the mandate of both the Department of Communications (DoC) and its institutional bodies such as the Universal Service and Access Agency of South Africa (USAASA) and the Independent Communications Authority of South Africa (ICASA). Established under the Electronic Communications Act No. 36 of 2005 USAASA has funded (through the USAF) the establishment of 140 telecenters to promote the goals of universal access and universal service in the underserved areas of South Africa. Additionally, universal service promotion in South Africa has been done through the issuance of the Under-Served Area Licenses (USALs) in areas with less than 5% teledensity. With regard to the USALs, about 28 areas were identified by the Minister to receive such licenses and to subsidize such license holders with the funding totalling R15 million over a period of 3 years for each license holder. These license holders were mandated by the agency to fulfil universal service obligations by extending communications networks to under-served areas of the country [14]. However, as in Zambia, some challenges were experienced by some of the telecentres and licensees and this has led to only a handful of them being operational.

4. Telecentres: Constraints Towards Achieving Universal Service

The acceleration of multipurpose telecentres in Southern Africa has not happened mainly due to policy failure, prices unaffordable for ordinary users, combined business solutions that were not particularly innovative and extremely low population densities resulting in isolation and extreme poverty. For Southern Africa, at least three sets of challenges arise from our research conducted between Zambia and South Africa. The main challenges concern incorrect priced services, poor business innovation and lack of proper management structures. Lastly, the poorly institutionalized nature of policy and regulatory process also plays a role in the failure of these telecentres [18]. Our case study in this paper is based on two telecentres which are in Zambia and South Africa namely: Comsol telecentre in Umbumbulu (rural Kwa-Zulu Natal in South Africa) and Kanyonyo Teachers’ Resource

Centre in Mongu Zambia. (See Figure 2) (Note that a number of telecentres were visited in South Africa and Zambia, but we present a select few results due to space.)



Figure 2: Telecentres: (a) Comsol telecenter in Umbumbulu, KZN, South Africa (b) Kanyonyo resource center in Mongu, Zambia

4.1 Pricing Structures Unaffordable for Ordinary Users

The first and ever present constraint in Internet usage (in telecentres) for information, economics and educational purposes in rural areas is the expense. In promoting universal access through telecentres, it is important to assess how issues of pricing relate to service penetration. Do they support or hinder universal service objectives? At present, the cost of using the internet at these two telecentres is still substantially high resulting in most users shying away from this promising technology. For example at Kanyonyo telecentre users are paying ZMK 12,000 or USD 3 for an hour of internet connectivity. Similarly, rural South African telecentres that we visited, charge an equivalent of USD 3 or ZAR 20 per an hour of internet connectivity.

4.2 Lack of Public Awareness of These Telecentres

The second constraint is the lack of publicity by the government about the purpose of these telecentres. Most people in rural areas expressed ignorance about the existence and the purpose or usage of the telecentres. Astonishingly, very few teachers and rural users in Mongu and local rural people in Kwa-Zulu Natal knew about the existence of the telecentres in their own areas.

4.3 Poor Regulatory and Policy Framework

The third constraint is the lack of sustainable policy and regulatory framework. The policies and regulation may be good in most of the developing countries but implementing these "copy and paste" policies is a daunting task for many government institutions. Melody [5] acknowledges that the most difficult challenge is not specifying the policy and regulatory objectives in the new environment, but rather implementing them effectively. In South Africa and Zambia, lack of coordinated policy and regulatory intervention in certain areas of the telecommunication sector, especially internet provision, has left the telecommunication market sector distorted. For instance, the National Regulatory Authorities (NRAs) in these two countries are still heavily controlled by the government making independent regulation intervention difficult.

4.4 Lack of Innovative Business Initiatives

The fourth constraint on the sustainability of telecentres is the lack of business skills apparent for telecentres operators and innovation skills to harness the technology with which the internet brings. Typically, most of telecentres in rural Zambia and South Africa rely, to some extent, on enterprise schemes to supplement income from government sources to meet recurrent expenditure. For example Kanyonyo Resource Centre relies exclusively on self-funding initiatives and arrangements with regional associations such as the local teachers' union. The dominant way of meeting telecentres operational costs in South Africa is through enterprise schemes, local users and University of South Africa students.

5. Key Lessons and Possible Solutions

The management of telecentres and any subsequent sustainability in unserved and underserved regions of developing countries hold much public debate. This debate has taken place along a spectrum that argues, on the one hand, that the market alone will take care of any perceived disparities and, on the other hand, that governments should include telecentres in a broader national development and economic growth policies [18].

Below we discuss whether certain objectives, policies and pricing structures are relevant in the sustainability of telecentres. In this section we will also discuss possible solutions to the challenges raised in the previous section. The following dominant lessons and possible solutions follow:

5.1 Possible Solutions to Pricing Challenges

Critical analysis and interviews conducted with the locals strongly suggest that pricing and billing structures are one of the many hindrances, to the usage of the internet. Without competitive pricing strategy that sparks internet usage in rural areas, while promoting technology diffusion and economic growth, telecentre sustainability in rural areas is stalled. Generally, a competitive pricing structure that promotes social economic development requires the involvement of various interest groups. According to Prahalad [2] the underserved regions can be served by using new price-performance strategies or a new value propositions that can promote the consumption of such services. From our survey we found that pricing is directed related to the Willingness To Pay (WTP) of a customer and is a function of his/her income. Consequently, we argue that competitive pricing strategies, such as urban-rural cross subsidies, can be used to subsidize the telecentres in rural areas or underserved areas [6]. Alternatively, and in the same vein, government through sector-specific regulation intervention, NRAs can affect the rural telecommunications market structure in issues such as pricing and subsidization [3].

5.2 Possible Solutions to Policy and Regulatory Challenges

Specifically, the policy makers and regulators in South Africa and Zambia face problems of how to exploit good public policy and the regulatory framework for the promotion of universal service obligations, information and communication services and economic growth. According to [4] and [5] regulation intervention is important in enhancing allocative efficiency for the sustainability of telecentres especially where market failure is recognized. Specifically, a good public policy and regulatory framework can either promote or constrain technology innovation or economic activities in various ways. We therefore posit the following:

1. A good telecentre public policy is the one that sets the vision for the promotion of economic growth and involvement of all stakeholders to promote sustainability by supporting a rural regulated market or liberalized market composition.
2. To promote social and economic growth through telecentres, regulators and policymakers must select and adapt the most appropriate policy approach, or approaches to price and billing solutions which will facilitate the usage of communication and information services at a lower cost.

5.3 Possible Solutions Towards Competitive Business Solutions

If utilized properly the internet can change the social economic lives of the BOP people through constructive information and communication ideas. Evidence from our surveys points out that telecentres fail because of lack of collaboration from all stakeholders such as educational institutions, Government departmental support, business institutions, and the local people.

Here, I shall suggest that one way of accelerating social and economical growth is through the promotion of entrepreneur initiatives and the reconceptualisation of the current business models. For instance governments and business institutions can introduce what is known as the rural e-Bay, e-conservation, and e-tourism. However, such innovative ideas cannot be done without collaboration from learning institutions, government departments and the local communities. In our opinion, a typical working business model must be such that the telecentres, through collaboration with institutions, must create a need for a broader range of activities such as education and training, health information, a broad range of individualized government services, and expanded business opportunities to anyone, anyplace, anytime (see Figure 3).

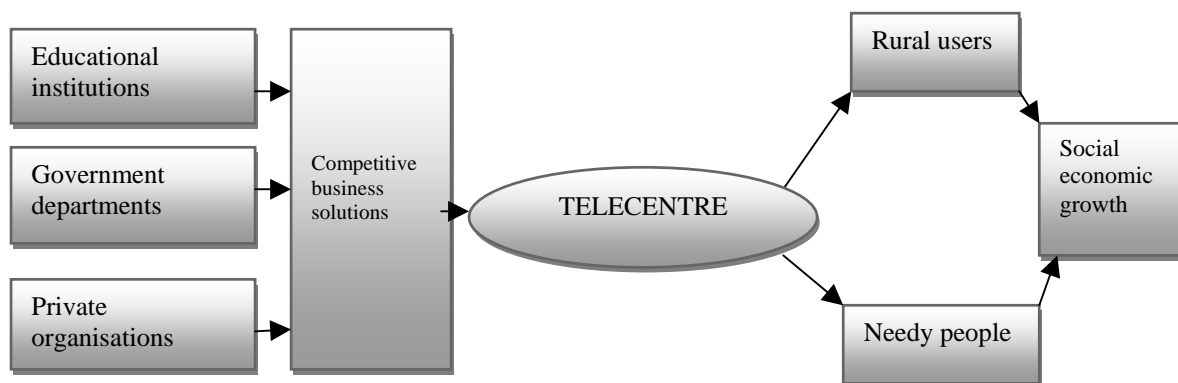


Figure 3: Sustainable Telecentre Competitive Business Solutions

6. Conclusion

By drawing on the new institutional economics, this paper argues that the sustainability of telecentres will depend among other things: the pricing structure, business and entrepreneur initiatives, policy and regulatory framework of countries in which these telecentres exists. Moreover, the actual progress toward self sustaining telecentres that will promote social economic development and fulfil government obligations will depend on the collaboration of all stakeholders, good pricing solutions, specific institutional endowments and sustainable innovative and business solutions.

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