ALTERNATIVES TO PRIVATISED TELECOMMUNICATION:

Right2Know's Campaign for a More Democratic Information System in South Africa

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TABLE OF CONTENTS

INTRODUCTION

The purpose of this research paper is to illuminate examples of international alternatives to privatised telecommunications systems and to locate the ways in which South Africa could follow those models. Telecommunications services in South Africa, and much of the world, are largely provided by a handful of private companies in a monopoly, duopoly or oligopoly structure whereas services are heavily commodified and profits for providers are exceedingly high. Unlike other services such as water provision, electricity, waste management and transportation, there is often little to no government or community involvement in the ownership and construction of telecommunications infrastructure. Furthermore, while other services may be seen as "basic" human needs and therefore warranting of public investment and provision, telecommunications services are seen as a luxury and simply privileged to those who can afford them. However, this is contrary to the United Nation's declaration that broadband is a basic human right as well as the South African constitution's mandate to uphold freedom of expression and right to information. While South Africa has yet to directly challenge the prevailing practice of private telecommunications provision at the expense of upholding these aforementioned rights, a rich history of civil society involvement and a willingness to put pressure on government and private industry to uphold these rights offers prime conditions for the country to incubate an alternative to privatisation in telecommunications delivery. This research, therefore, provides an overview of international case studies to argue for the efficacy and feasibility of an alternative telecommunications model in South Africa that is both democratic and economically sustainable. The research further explores the Right2Know Campaign's efforts to democratize communications in South Africa through advocating alternatives that uphold democratic *principles* in telecommunications delivery and how those principles can be utilized as a framework for analysing the various components of the cases covered in this report.

A Brief History of the Right2Know Campaign's Communication Reform Efforts

Understanding Right2Know's activist activity in the telecommunications space as it relates to the subsequent case studies is important as the Campaign has thoughtfully outlined a set of criteria for determining effectively how *democratic* existing alternative models are and what components of those models could be implemented to transform telecommunications in South Africa

Three years into the Right2Know Campaign's broader activity on access to information issues in South Africa, a leg of the Campaign was launched called *Vula 'Ma Connexion* (Open the Connections) to address disparaging conditions amongst the majority of South Africans' experience trying to access information and communications technologies (ICTs). South Africans struggle with both affordability of and access to the internet. The World Economic Forum (2014) ranks South Africa at 91 out of 144 countries in fixed-line internet prices and 71 out of 144 in international bandwidth. Meanwhile, most South Africans can only access the internet through mobile broadband networks. Telecom providers have grown these networks substantially in the last five years and have clearly indicated that this is their future market. However, the growth has been hardly regulated, and incredibly unequal. While telecoms have seen their revenues from data increase exponentially, costs have hardly gone down and poor areas are adopting access much slower than wealthy areas.

The Right2Know Campaign has put forth an overall critique of the heavily privatised telecommunication sector's failure to address the disparate availability of ICTs in South Africa — effectively a communications Apartheid where poor black and coloured township residents struggle to access basic voice communication technology and predominantly white middle class suburbs and commercial centres are serviced with high-speed broadband. The Campaign has featured on-going activity to address the inequities in telecommunications such as marches on major telecom providers, engaging media around telecommunications issues, facilitating community workshops to educate local activists in communication rights advocacy and participating in the South African Communications Ministry's ICT Policy Review. The latter Policy Review resulted in Right2Know's *Preconditions for a Democratic Broadcasting and Telecommunications System* (Right2Know Campaign, 2014). While the future of the ICT Policy Review remains uncertain within the Department of Communication, Right2Know has decided to promote its *Preconditions* document as part of the *Vula 'Ma Connexion* agenda.

This report will conduct case study analysis of several alternative models to privatised telecommunications using the principles outlined by Right2Know as a framing reference. The principles adopted by Right2Know attempt to exemplify a more democratic approach to telecommunications by focusing on community access to decision making around ICT development, public ownership of networks, progressive approaches to the convergence of digital technologies and an overall rights based approach of freedom of expression and right to privacy online. A democratic communication system as specifically articulated by the Campaign accomplishes the following:

- Secures community ownership of networks
- Provides universal service and democratic use
- Protects digital rights of privacy and freedom of expression
- Utilizes convergence for efficient digital delivery
- Enshrines the practice of net neutrality
- Acquires capital for network growth and economic sufficiency
- Maintains a vision of forward-thinking technology

These principles will be expanded on later in this report and will be utilised as the basis for analysing the effective democratic approach of the reviewed case studies and apply the lessons learned from these case studies towards imagining an actual democratic communications system in South Africa.

ALTERNATIVE PATHWAYS TOWARDS BASIC SERVICE DELIVERY: THE CASE FOR LOOKING OUTSIDE THE MARKET

There is a rich collection of literature that explores the argument for an alternative approach to privatised service delivery and the need for a reinvigoration of the public after decades of neoliberal pressure. The following review of literature will provide a theoretical and practical definition of an alternative to privatisation for the purposes of this research. Subsequently an additional review of the theoretical underpinnings of the political economy of information will be provided to argue against the aggressive capitalisation of ICTs and the need for further discourse on the use of alternatives in the telecommunications space; a discourse this research will provide as it relates to South Africa.

Why Alternatives to Privatisation?

The current economic arrangement in most industrialised countries is a neoliberal form of capitalism that heavily favours the marketisation of nearly every aspect of life. This has greatly influenced the role of the private sector and decreased the once active level of government in the delivery of basic services such as water, sanitation, electricity, healthcare and education (Larner & Laurie, 2010). Despite the near ubiquity of neoliberal policies worldwide, entire geographic locations exist as incubators for alternatives to privatisation and have reinvigorated the public sector in basic service delivery (McDonald & Ruiters, 2012). Taking place at various scales (municipal, regional, national, etc.) these alternatives have either been instigated as a direct opposition to privatisation or simply as an alternative that ambiguously rejects the profit-taking motive and market involvement in basic service delivery. Regardless of how these models came into fruition, they offer more than just an ideological critique to privatisation; they offer an operational alternative that in many cases achieves the efficiency of a market driven approach with the principled position of equity, justice and universality that the private sector often neglects.

Looking at this principled approach is key to understanding what an alternative to privatisation actually is. The arrangement of public and private is often understood as dichotomous and adversarial where state-oriented models directly oppose market forces. This suggests that an alternative to privatisation is merely a fully state-oriented approach; however, recent analysis of alternatives complicates this dichotomous understanding through demonstrating that the public sector and not-for-profit sector can likewise experience the same pitfalls of compromising principles that are inherent in the private sector. For instance, Eskom, the state-owned electricity utility in South Africa is far more an example of State-capitalism than it is an alternative to privatisation (McDonald, 2009). With that in mind, locating what an alternative *is* exactly is not simply a public vs. private debate, but more or less a debate about which principles are elevated within the model: principles of market sovereignty or principles of social justice.

To exemplify that implementing an alternative model is more than simply repositioning service delivery back into the realm of the state, we can look to Brenner and Theodore's (2002) analysis of "actually-existing neoliberalism". Actually-existing neoliberalism describes "'socially interventionist and ameliorative' forms of neoliberal planning" (Peck & Tickell, 2002): 388-389 cited by (McDonald, 2009: 18) where the state plays an active role in formulating policy to promote neoliberalism (this is all contradictory to free-market ideology that

neoliberalisation means the removal of the state from the market). Therefore, alternatives cannot simply introduce the state into market-occupied service delivery as the state is already there, actively coordinating policies for the market to take hold. Alternatives must instead disentangle the collusion of state and market in service delivery by providing pathways for citizen involvement. The alternatives highlighted in this research will exemplify the ways in which citizen involvement is directly or indirectly procured.

Given the complexities of the public-private relationship in actually-existing neoliberalism, it is perhaps more advantageous to move beyond the critique of the neoliberal state, as if "neoliberalism was a tap that could be turned on and off," (Fine & Hall, 2012: 55). Instead, opponents of the neoliberal state must also provide a set of viable alternatives (and more than likely struggle for alternatives) as a means of de-rooting neoliberal practices out of every aspect of society. These alternatives would serve as a space where the market is no longer able to act with impunity, as market sovereignty would compromise the values of social justice, equity and universality lifted up in the alternative framework. Above all, a truly alternative model cannot simply incorporate the state in opposition to the market, but must recognize (either consciously or through external analysis) that the market will inevitably fail in achieving social justice, equal access and universal delivery regardless of economic, geographic, social or political disposition.

Operational Alternatives in Basic Service Provision

There is an overwhelmingly strong argument to de-privatise basic services (McDonald & Ruiters, 2012; Olsen & Skytte, 2002). As discussed previously, the proliferation of neoliberal ideology into everyday life has led to the private sector's insertion into the delivery of basic services. The private sector's presence in basic service delivery is problematic in that it overwhelmingly commodifies basic functions of life in modern society, from water and electricity access to health care and our basic right to communicate with each other. The commodification of services naturally leads towards inequality in the sense that only those who can afford to purchase those commodities within the marketplace will be privy to the benefits they provide. An alternative approach to basic service delivery would be to remove this level of commodification, ensuring that the market is not the only institution where these services can be accessed.

Some instances of looking beyond the market for basic service provision have occurred because local governments have taken an active stance against the liberalisation of basic services. Latin America is region where there has been historic opposition to neoliberal principles (Chavez, 2012; Grugel & Riggirozzi, 2012), exemplified by Argentina, Bolivia and Uruguay cancelling private water contracts and returning service delivery back to the State. The State is not the only active player in water provision in Latin America, however, as municipalities and the non-profit sector have also collaborated to remove water services from the private sector (Spronk, Crespo, & Olivera, 2012). Alternatives in electricity provision are also provided by case studies on the African continent as well, which primarily exist as vertically-integrated state monopolies (Namibia, Botswana and Mozambique), but also include non-profit cooperatives (Kenya, The Gambia and Cameroon) as well as consumer cooperatives (Hathaway, 2012); although the latter have become increasingly privatized much as they were in Europe (Olsen & Skytte, 2002). However, rural electricity cooperatives remain strong in the United States (of which the relationship to rural broadband access will be explored later in this report).

When it comes to alternative models of basic service provision, infrastructure financing

remains one of the biggest challenges. However, infrastructure development is an area where alternative forms of financing are desperately needed. Private sector funding of infrastructure tends to result in visual examples of re-colonisation and draconian practices of service delivery (i.e. prepaid electricity and water). In terms of infrastructure development, infrastructures for the delivery of basic services often resemble colonial lines of geographic movement, from electricity lines mimicking colonial rail transport to trans-national fibre optic lines resembling colonial shipping lanes (David A. McDonald, 2009). This is important for recognizing the geographic movement of exploitation whether that is extracting mineral wealth for electricity in mineral heavy economies, or for extracting data and information for the further development of a knowledge-based economy. The importance of the latter demonstrates the need to look beyond ICTs as a luxury item in modern economies.

The Argument for ICTs as a Basic Service

As ICT access becomes more and more essential to the activity of day-to-day life, the argument is increasingly being made for telecommunications to be included as a basic service. Ostensibly, with the redefinition of ICTs as a basic service, the aggressive presence of the private sector in the provision of telecommunications will become increasingly problematic. This problem-scenario paves the way for the discussion of a need for alternative models of provision in the telecommunications space, as evidence shows that competition within the private sector will not be enough to support ubiquitous high speed internet deployment (Teppayayon & Bohlin, 2009). It is important, therefore, to establish that there is precedence amongst scholars, activists as well as local, national and transnational governing bodies to concretely define ICTs as a basic human right.

First of all, there exists substantial scholarship on the use of ICTs as a reproduction of capital accumulation, connecting telecommunications to the overall critiques of neoliberal activity over the past few decades. Stevenson (2009)the Department of Commerce's Falling Through the Net reports can be read as a 7-year ideological project to legitimize U.S. government's deregulatory policies. This article analyzes the "digital divide" as rhetorical trope in a neoliberal ideology, which placed responsibility for social and economic success in the emerging global information economy at the level of the individual and not the system, effectively foreclosing on any class-based analyses of the problems associated with the transition from a Keynesian welfare state and industrial economy to a neoliberal and globalized information economy. Unpacking the discursive significance of the "digital divide," with special focus on public libraries and projects of the Gates Foundation, illuminates how it foreclosed on the possibility of alternative problem definitions by making the problem a technical and administrative one rather than an issue of historic class struggle. The article draws on open-source projects in developing countries to offer an alternate frame for formulating policies for equitable access to information and communication technologies (ICTs cites that the digital divide will always remain so long as the approach to ICT provision mimics historic class struggles for equity. This digital representation of class struggle provides a framework for a political economy of the internet where information is exploited for capital gain through private ownership of communications systems (Castells, 2010; Mosco, 2009). McChesney (2013) further adds that the influence of capital is fundamentally undermining the true potential of the internet.

Second of all, international governing bodies such as the United Nations and the International Telecommunications Union, not to mention numerous NGOs and civil society organisations, recognise the need for ubiquitous and universal access to ICTs. At a smaller geographic scale, local municipalities and national governments have repeatedly commented on the need to

connect all citizens to telecommunications networks, including in South Africa. In fact, the communities that have effectively incubated alternative forms of telecommunications delivery were successful, in part, because of a staunch governmental commitment to universal access to next-generation ICT networks. All of the above argue for the assumption that the internet is a basic right entitled to all. There are discrepancies within this argument, however, as most rights-based arguments for internet access simply piggy back off existing rights such as freedom of expression and freedom to access information. The case is being made, however, for the right to the internet to be a stand-alone right citing the overwhelming promotion of ubiquitous internet access in UN Millennium Development Goals, Human Rights Committees and Special Rapporteurs, as well as the International Telecommunications Union and other State governing bodies (Tully, 2014).

BROADBAND AND THE CITY: MUNICIPALISING TELECOMMUNICATIONS SERVICES

To begin the analysis of different alternative approaches to telecommunications delivery, we now look to the municipal broadband model and the many examples of communities coordinating what is known as Municipal Area Networks (MANs). The motivation for and the principles behind municipal networks vary, but underlying most networks was recognition that the private sector was not providing sufficient services to the community. In the case of Stockholm, Sweden, the city was taking an active opposition to the liberalisation that was happening across Europe, whereas in rural parts of the United States, the decision to municipalise was taken out of necessity due to the neglect of the private sector for rural communities. Regardless of the reasons behind municipalising, there are ample case studies that represent the effectiveness of looking beyond the private sector for municipal telecommunications services. This section of the research will explore two types of municipalisation: citywide fibre optic and rural cooperatives. This section then locates the City of Cape Town's efforts to provide municipal fibre and how this relates to the discussion of municipalising telecommunications in South Africa.

A Departure from the Norm: Sweden's Opposition to Liberalisation

Swedish municipal network Stokab has a 20-year legacy of provide public fibre infrastructure to the City of Sweden and the surrounding region. Launched in 1994 as a wholly publicly owned enterprise, Stokab was initiated as an open-access network, where the service, network and infrastructure providers of fibre-optic broadband operate as separate entities over a diffused and equally accessible network. Acting as a public provider of infrastructure, Stokab has connected 90% of households and 100% of enterprises in the surrounding region and has an extensive backbone network connecting industrial areas, urban centres and healthcare facilities, providing ubiquitous service within the municipality and serving as a connecting node within the broader region (Forzati & Mattsson, 2013). The founding of the Stokab model was in contrary to the rest of Europe where the prevailing model of internet service was the dominion of private telecom operators. In fact, a piece of critical motivation for deploying a publicly owned infrastructure network was providing direct opposition to the liberalisation of public services occurring throughout the rest of Europe. Furthermore, Stokab was able to establish itself as a public entity before European Union State-Aid regulations were put in place to limit public involvement in service delivery as part of an overall neoliberal strategy in the late 90s (Troulos & Maglaris, 2011).

Stokab itself may be a public infrastructure project, however it is not funded through taxpayer money. The initial funding came through publicly-backed bonds and has since been supported by user fees (Van der Wee, Beltrán, & Verbrugge, 2014). This resembles the funding structures for many U.S. based municipal broadband projects, which will be discussed below. This funding model does take away from a true democratically sourced model in the sense that it involves the heavy influence of private finance at the inception and early construction phases. Outside of Stokab, other municipal initiatives, such as the one found in Zurich, have somewhat circumvented this issue of private finance by at least holding a city-wide vote for the construction of municipal networks (Troulos & Maglaris, 2011). It is important to consider the mechanisms for funding and citizen participation when discussing the principles associated with a true alternative model to privatisation.

Scholars have found abundant benefits in Stokab's approach to publicly owned broadband infrastructure. Forzati and Mattson (2013) discussed how Stokab decreased the cost for Stockholm's private internet service providers (ISPs) to lease Stokab's network (dark fibre leasing costs in Stockholm are less than a 1/10th of that in New York for instance), and how ubiquitous fibre connections had broader socio-economic benefits such as improved perceived quality of life, individual health conditions and more transparent interaction with government administrations. Alternatively, Feltan (2012) likes to look at the increased activity of tech innovations taking place in Stockholm and the business-friendly IT sector that Stokab has provided. While these enhanced economic activities have been beneficial to the private sector, it is important not to conflate economic attractiveness to the IT industry with widespread social, political and economic growth amongst the citizenry. That is why Rezende, et al. (2014: 111) cite the importance of municipal networks such as Stokab promoting "an alternative at lower cost to the final user and [allow] the construction of a universalization model which propitiates the modernization of public administration, digital inclusion in all levels, social inclusion of citizens, enhancement of local digital economy, cost reduction of communication services and the general economic reinforcement of the municipality."

Optimising Infrastructure: Electric/Telephone Utilities and Existing Knowledge of Service Delivery in the U.S.

Telecommunications in most cities and regions in the United States are dominated by very large and profitable private companies. Perhaps more than any other place in the world, the U.S. Has predominantly depended on the market to connect its citizenry. However, the market will inevitably follow profits, and therefore incumbent private telecommunications providers have left large gaps in services, particularly in rural communities. The communities left wanting have looked towards existing publicly owned electric and telephone utilities to include telecommunications in their mandate and provide services to areas where the private sector determined it was not profitable to operate. These public utilities have operated individually or have formed cooperative networks to create a larger regional telecommunications footprint and have largely been financed through public bonds or federal grants.

At a municipal level, the city of Chattanooga, TN provides a case for municipally owned fibre optic networks in the city's Electric Power Board (EPB) — a public electric utility that began offering internet services in 2003. In the case of EPB, telecommunications services where enhanced by the institutional knowledge of basic service provision as the company had decades of success as a municipal power provider. Moreover, the company spent a significant amount of time engaging the community and local government in the benefits of local authority in the provision of high-speed internet (Mitchell, 2012). While not necessarily the cheapest available connection in Chattanooga, the electric utility EPB offers the most affordable high-speed rates in the area. EPB offers 1 Gbps symmetrical speeds uncapped for USD 69.99/month. The closest price by private provider AT&T on the other hand is 250 Gb capped line at speeds of 45 Mbps for roughly USD 65/month. Fellow private provider Comcast offers faster speeds of 105 Mbps, but the cost is substantially higher at roughly USD 95/month (Russo & Morgus, 2014)

In more rural areas of the U.S., where electric and telephone cooperatives were able to maintain local authority despite decades of privatisation in more urbanised areas of the country, public utilities were essential in developing high speed internet where private telecommunications providers were neglecting communities. These cooperatives had roots in the early days of telephony, when independent operators organized cooperative networks when the private telephone monopoly AT&T refused to bring service to rural communities (Wu, 2011). Today, the

State of Minnesota has exemplified the success of rural cooperatives developing high-speed broadband networks. These networks have either formed as a public-private partnership between local governments and telephone or electricity cooperatives or have followed the vein of Chattanooga's EPB and have elected to launch municipal FTTH utilities. Both instances have either managed to leverage public bonds, levy taxes or acquire federal grants for the construction of local networks (Mitchell & Gonzalez, 2014)

Discussion: Locating the Municipal Opportunities in South Africa

To construct and operate a municipal fibre backbone now would require supporting particular conditions in the city. First of all, many modern municipalities either currently or are soon to have private sector activity in the fibre market. While, arguably, this provides further evidence for the need of public sector involvement in fibre infrastructure in order to not replicate the unequal development that usually follows private sector activity (in fact, public sector utilities more often than not promote ubiquity while private sector players do not (Felton, 2012)), municipalities seeking to invest in large scale infrastructure projects will have to deal with political resistance from the private sector as well as market competition. Were South African municipalities to engage in a similar model of infrastructure development, these conditions would have to be considered as private telecom providers have already made plans for large fibre infrastructure projects, mostly concentrating on businesses and wealthy gated communities. Moving forward, understanding the case of the City of Cape Town's fibre project will be revealing in how a municipal project negotiates the presence of these politically influential and aggressively market-driven private competitors.

Municipality ownership of fibre infrastructure is a viable pathway to large-scale connectivity in South Africa, as has been exemplified in the nascent municipal system in Cape Town. As demonstrated by the municipal case studies above, the municipal ownership of infrastructure is effective when a public holding is created by either an existing public utility (as in electric utilities in the case of Chattanooga, TN) or in the creation of an entirely new public holding developed by the city itself (as in the case of Stokab in Sweden). The City of Cape Town is currently following the latter model and it appears based on the research that this would be the most effective route for urban centres. Urban centres have the existing demand and the necessary political authority to roll out large scale infrastructure projects and large cities in South Africa besides Cape Town should be looking to international models mentioned in this report as a possibility to replicate.

While these models have the potential to be massively successful to urban nodes and their surrounding regions, the challenge will be to extend this model to smaller communities and rural regions of the country. In the United States, rural areas were able to build off of the strength of publicly owned electric utilities that had monopoly service in their small communities. As discussed earlier, these electric utilities formed regional cooperatives to provide broadband service in rural areas where incumbent private operators were ignoring the communities' need to be connected. This model may prove to be difficult to replicate in South Africa. Most electricity services in these regions (much like the rest of South Africa) are provided by State-owned Eskom, a corporatized public company that operates in a heavily privatised fashion (McDonald, 2009). It would make little sense to extend Eskom's reach into the internet provision market for two reasons: First, as stated before Eskom operates much like a private utility provider and it would be detrimental to extend their prepaid draconian practices and aggressive tendencies towards disconnecting citizens from power into internet provision. Second, a parastatal similar to Eskom, Telkom, already operates by corporatized practices

and therefore it would make little sense to replace one profit-driven parastatal with another. The alternative solution in rural areas would be to look into the other models discussed in this report, notably, nationalisation and indigenous cooperatives.

UNIVERSALISING HIGH SPEED INTERNET AT THE NATIONAL LEVEL

Some alternatives do not stop at the municipal level, and work to create a national alternative to privatisation of telecommunications. Some alternatives have emerged because the State has taken an opposition to the encroachment of the private sector in basic service provision, and nationalised broadband networks have simply been a forward thinking extension of anti-neoliberal framing on behalf of the State. Others (such as South Africa) have simply taken State-owned telecoms and corporatized them as for-profit enterprises to earn revenues for the state. The latter examples tend to exist on the African continent and as is the case with Telkom in South Africa, are beginning to be liberalised in favour of market driven approaches. The former example, which will be discussed in this section, highlight the more successful alternatives in Latin America that have combined an active State response to the importance of a connected citizenry with a more community-based and horizontally-integrated deployment of infrastructure to become global leaders in fibre connectivity. This section will discuss the effectiveness and principles behind these state-led initiatives as they have been exemplified in the cases of Uruguay and Venezuela, analysing the experiences of these two countries with that of Telkom in South Africa and locating whether or not a re-alignment of State-led telecommunications could again exist in South Africa.

Venezuela's CANTV: Negotiating Internet Rights in a Nationalised System

In 2007, the Chavez government in Venezuela expropriated key industries from the private sector including steel, electricity and telecommunications, amongst others. As a result the major telecommunications provider in the country, CANTV, was re-nationalized as a state-owned competitor to private telecommunications delivery (Ellner, 2013). Since renationalizing, key advancements have been made by the state-owned CANTV, including: the launch of Venezuela's first satellite, providing internet and other telecommunications services to under-served areas; tariff reductions of fixed-line telephony and internet; and interconnections with neighbouring countries and the linking of a submarine fibre optic cable to Cuba and Jamaica. Additionally, a National Optic Fibre Network connected all regions and state-owned companies to fibre internet as well as increased competition within a stagnant private telecommunications sector (Figure, et al 2012). CANTV has also been successful in re-focusing revenues back to Venezuela. As a private company, while taxes were being paid to the Venezuelan government, most dividends from shares were being directed to the United States, as the major shareholder was transnational telecommunications giant Verizon ("Public Services & Democracy | Venezuela's CANTV," 2010). Venezuela has also been radically transformative in terms of establishing mechanisms for more democratic participation in telecommunications. The government has established *mesas tecnicas de telecommunicaciones,* which are grassroots, community working groups that co-manage telecommunications infrastructure and take an active involvement in the formulation of telecommunications policy.

At a practical and fundamental level, the renationalisation of CANTV has been massively effective. Not only has a nationalised CANTV provide better ICT services and more revenues to the country than it did as a private company, but it has also democratised the ways in which telecommunications are provided in Venezuela. However, these positives can be hard to reconcile with the forms of internet censorship that have taken place in the country. While certainly not a product of an alternative approach to privatisation in telecommunications, these forms of internet censorship are worth mentioning as they cast a shadow on an

otherwise stellar model of telecommunications delivery. As the national provider that controls 90% of the internet market, CANTV, is somewhat implicated by the Venezuelan government's periodic blocking of websites such as Wordpress and Noticerio Digital, which was outwardly critical of Chavez (Warf, 2013). However, censorship is not necessarily endemic to nationalised telecommunications systems, and internet censorship and spying has become a prolific issue regardless of whether a telecommunications provider is publicly held or privately held (see Tully, 2014 and Reporters Without Borders, 2014)

Uruguay's ANTEL Transitions a Nation from Copper to Fibre

ANTEL, the Uruguayan state-owned telecommunications company was founded in 1972 as spin-off of the state-owned electricity company. In 1992, privatisation of ANTEL as well as other State-held companies was attempted, however, a public referendum was held to gauge the response to the increasing encroachment of neoliberalism, and the overwhelming support of the citizenry was for nationalisation. Despite the 1992 referendum, neoliberal proponents would attempt to privatise ANTEL over the course of the next decade, proposing legislation that would allow ANTEL to contract with private capital to create new subsidiaries, particularly to roll out mobile services (Bertino, 2014). However, the left in Uruguay remained strong in their opposition to neoliberalisation and organised to ensure the sanctity of State authority in ANTEL. In the mid-2000s, trade unions and other civil society organizations organised to repeal a law passed in 2001 that forced ANTEL to sell of 40 per cent of its ownership to create a private subsidiary for mobile services (Cosse, 2014).

The result was a decade of strong growth in telecommunications in Uruguay. In particular, ANTEL has made a concerted effort to upgrade existing copper infrastructure to fibre-optic with the political support of the current administration. As of 2012, 40 per cent of households had access to a fibre optic connection, situating the country just above the international average of 39 per cent (Radar, 2012 cited in Cosse, 2014). The ubiquity of fibre optic internet is expected to grow in the country as ANTEL and the national government have actively moved against the polarising impacts of the digital divide witnessed in other countries. ANTEL offers basic internet connections at no cost as part of the universal service program for low-income individuals, *Universal Hogares,* and provides high-speed connections at 20 per cent the cost found in the United States. The resilience against market forces is noticeable as well. ANTEL has succeeded in growing its fibre network despite competing with two transnational telecommunications companies in Uruguay, and is freely upgrading copper connections to fibre optic with the intent of "extending fibre optic based on a socially and spatially inclusive vision that will reach every corner of the national territory" (Cosse 2014).

Discussion: South Africa's History of Nationalised Telecommunications and Recommitting to Citizenry

The experiences of Venezuela and Uruguay are interesting to consider against South Africa's experience of nationalisation. While the two Latin American countries successfully fought off market encroachment in the telecommunications space, South Africa was not able to do so and in 1997, the national telecommunications company, Telkom, sold off 40 per cent of the company to two transnational telecommunications providers. Subsequent years saw a trend towards intense privatisation in the telecommunications space as private mobile providers were given licenses to operate in the sector (Buhlungu, Daniel, & Southall, 2007). It is true, however, that Telkom's nationalisation was always problematic as the state-owned company was deeply imbued with a "gatekeeping, obstructionist mentality inherited from its role as an apartheid-era bureaucracy." (Lewis, 2005: 15).

Despite Telkom's problematic history, the company should play a critical role in moving South Africa forward in telecommunications development, particularly in the realm of infrastructure growth. As demonstrated by the Uruguayan model, a state-owned company committed to widespread access to next-generation networks can go a long way in terms of a ubiquitously connected citizenry. Part of Uruguay's success has been the roll out of large-scale fibre optic infrastructure projects. Access to high-speed, cost-efficient backbone networks (known as backhauling) is essential for the construction of any localised network, particularly in remote and rural areas, and the State can play a big roll in their development. Terrestrial fibre networks already exist in South Africa, predominantly under the control of partially State-owned Telkom. However, the future of backhaul growth appears to be in the hands of private telecoms such as Vodacom, Dark Fibre Africa and other emerging wholesale and retail service providers. This may please neoliberal proponents who believe that a competitive environment will lead to ubiquitous access and affordability of services, however, the ad-hoc approach of the private sector to deliver services based on demand-side economics limits expansion to marginalised communities where minimal resources would not support the expansion of a private network. It is clear the State must play some role in the development of high capacity, open-access backhaul networks, either in the form of entirely publicly funded networks (Sweden) or in the form of a public-private partnership (New Zealand). (See Troulos & Maglaris, 2011; and Van der Wee et al., 2014)

LOCATING DIGITAL SELF-DETERMINATION: AN INDIGENOUS APPROACH TO TELECOMMUNICATIONS

Indigenous communities in North America have achieved perhaps the most radically transformative alternative to privatisation of telecommunications. Geographically, socially, economically and politically marginalised indigenous communities have largely been ignored by the private sector in terms of basic service provision, be it healthcare, education, water, sanitation, electricity and now telecommunications. Moreover, and perhaps more importantly, indigenous communities are indeed sovereign nations that have a fundamental right to self-governance. These forms of self-governance and self-determination are in many ways contrary to market-driven approaches where community decision-making is removed in favour of the invisible hand of capital. It is no wonder, then, that indigenous communities have taken great strides to recapture tribal decision-making away from normative market-based service provision and have created some of the most effective cooperative telecommunications networks in the world. This section will explore indigenous cooperative alternatives to privatisation as a form of tribal resistance to colonialism as well as manifesting indigenous interests in 21st century technologies. A critical discussion will then look to the similarities between indigenous North American communities and black South African communities in terms of colonial experiences and how the indigenous cooperative model of telecommunications can transcend the exploitive, imperial forms of transnational capital in private telecommunications.

K-Net's Critical Role in Advocating Indigenous Networks in Canada

In Canada, First Nations tribes, the constitutionally recognized founding nations of the country, consist of over 600 communities in some of the most remote areas in North America. The Canadian constitution also recognises the right for these sovereign nations to self-determine their own governance, negotiate their relationship with Canada and to own and control their own infrastructure, including ICT networks (Whiteduck, Beaton, Burton, & O'Donnell, 2012). McMahon (2011) contextualises this level of self-governance as it relates to the development of ICT infrastructure and policy in a term he calls "digital self-determination". Digital self-determination is a form of culturally informed and community-driven ICT strategies where indigenous communities retain the right to self-governance in the face of colonial marginalisation over the decision making and ownership of ICTs, including the infrastructure, jobs and opportunities provided by networks. The Keewaytinook Okimakanak communities in north-western Ontario will be discussed in this section to illuminate the ways in which digital self-determination is a powerful alternative to privatisation that incorporates a much more democratic and horizontally-integrated ownership model and decision making process.

The Kuhkenah Network (K-Net) began in 1995 as a community-based project of the Keewaytinook Okimkanak Tribal Council, representing six First Nations communities. K-Net immediately implemented a joint ownership structure whereby individual communities own the local loops and last mile infrastructures while a cooperative of the involved communities jointly own and control the wider regional network. Unlike a private network, K-Net Services has an "extra obligation [...] to render network services on the basis of social equity" (Fiser & Clement, 2008:2). Operating on a not-for-profit model, the effective goal of K-Net is not simply to provide broadband services to tribal communities, but to also support the building of an holistic eCommunity whereby "broadband and ICT is a cross-sectorial network supporting the many essential community services and activities that make up the social economy" (Beaton, Seibel, & Thomas, 2014: 6). This network also supports a local workforce, and utilises

the eCommunity model as a mechanism for skills advancement in the regional economy (Carpenter, 2010).

Critical to the success of K-Net is the concept of the "First Mile" approach (see McMahon, Gurstein, Beaton, O'Donnell, & Whiteduck, 2014; Philpot, Beaton, & Whiteduck, 2013). The private telecommunications sector tends to consider the lines that connect users directly to the internet as the "Last Mile" and the final piece of infrastructure to be deployed. The last mile tends to follow where the profit lies, and therefore private internet service providers will only connect communities that are wealthy enough to demonstrate profitability. Private ISPs hold to the argument that they need to have a business case in order to provide services to poor or remote communities. The "First Mile" principle has been incorporated by First Nations communities to instead focus on the importance of connecting communities for the purposes of supporting sustainable and locally-driven services (Kakekaspan, O'Donnell, Beaton, Walmark, & Gibson, 2014). Historically, infrastructure has been provided by commercial enterprises at the behest of the Canadian government, but these initiatives soon failed as government funding ceased. However, when the initiatives are locally-owned, managed and self-determined as in the case of K-Net, the seed funding from government has been much more effective (Beaton & Campbell, 2013). It is in that sense that the "First Mile" approach has become a bottom-up, community-driven grassroots approach to building sovereign networks that effectively circumvents any need or reliance on the private sector.

Broadband in the Arctic: Building Local Authority Against Colonial Extraction

Despite the constitutionality of self-governance of First Nations peoples, indigenous communities in Canada are often forced into partnering with corporate institutions and private sector service providers to deploy internet services to First Nations communities (Philpot et al., 2013). Given the urban-centric priorities and the fundamental concern for profit of private service providers, First Nations communities are assumed to rely on the benevolence of the corporate sector and the State to bring services to remote communities. Moreover, the history of resource extraction from tribal lands in northern Canada demonstrates that the corporate sector and the State tend to only show interest in bringing infrastructure to First Nations communities if and only if some level of benefit can be achieved. Telecommunications networks are similar in that the connectedness of First Nations communities is only considered a priority of the State and private sector if the information extracted from these communities over networks is deemed valuable. Information itself, if distributed in an asymmetrical fashion, replicates colonial forms of repression by placing information systems in the hands of elite institutions such as large, private internet service providers (Duarte & Yaqui, 2014). Building local authority and digital self-determination into networks in areas of the Arctic which have experienced historical forms of colonial extraction is a way for remote First Nations communities to connect themselves in a culturally relevant way and disrupt patterns of dependency on colonial actors.

The K'atl'odeeche First Nation (KFN) people in the Northwest Territories began a process of decolonizing information systems in 2007 when they started operating a local wireless network on top of private provider Northwestel's infrastructure. In 2009, the KFN Community Network further challenged the notion of colonial dependency by building its own community owned fibre infrastructure to connect community facilities including First Nation administration offices, healthcare centres and schools. After experiencing bottlenecks with connecting to existing copper networks in the region, in 2010, KFN Community Network received funding to build an additional fibre backhaul link, which also included opportunities to train local

community members as technicians to operate the network (McMahon, Hudson, & Fabian, 2014). The KFN Community Network model not only provides autonomy through local network ownership, but it has also demonstrated that indigenous communities can sovereignly hold the means of production of network construction, maintenance and operation. This reverses the longstanding practice of colonial extraction in remote and rural First Nations communities as it relates to information systems.

Discussion: Digital Self-Determination in South Africa: The Case for Indigenous Principles in Telecommunications

The indigenous cooperative model may be the most applicable alternative in a South African context in principle it. Practical challenges of funding and implementing the model, however, would be difficult to translate from North American experiences. The decolonisation rhetoric and principles of digital self-determination could in fact resonate and inspire marginalised black and coloured community groups in South Africa due to the similar experience of colonial extraction. Like South Africa, much of the wealth in Canada is extracted from traditional First Nations lands. The existing relationship in Canada between government and First Nations is that of "settler colonialism" (Beaton & Campbell, 2013), and the majority of South Africans experience arguably the same relationship. Despite removing themselves from the yoke of colonial Dutch and English rule, gaining access to a political process post-Apartheid, most South Africans still find themselves marginalised under white domination. Moreover, townships are effectively indigenous reservations. While indigeneity is not a commonly identifiable principle as say in Australia, New Zealand and North and South America, the same disastrous consequences of colonialism are experienced by black and coloured South Africans. More tellingly, racial segregation systemically removed black and coloured South Africans to social and economic peripheries, which experience echoes through indigenous populations in other countries, as well as places of colonial extraction of labour power and mineral resources. The shared colonial experiences between indigenous communities in North America and poor, working class black and coloured populations in South Africa endorses an indigenous framework of digital self-determination in constructing next generation information systems in South Africa.

However, practical challenges remain in implementing the indigenous model of ICTs in South Africa. Despite aggressive attempts at genocide and continued marginalisation of indigenous communities in North America, First Nations tribes have nonetheless effectively organised the principled and legal argument that the acquisition of tribal lands from indigenous communities requires recompense owed to First Nations communities from the Canadian government. Due to the treaty arrangements with the Canadian government (and the moral and legal right of self-governance), First Nations have the authority to self-determine the use of these payments. This arrangement between sovereign first nations communities and the Canadian government has provided pathways to fund the construction of indigenous networks. South Africa currently lacks the same institutional pathways to funding despite experiencing the same level of colonial control. Moreover, black and coloured communities are not necessarily considered sovereign entities in the same way as indigenous communities in North America, and therefore cannot negotiate in the same way with the South African government. While social and political organising is strong in South African townships where the legacy of the anti-Apartheid movement is carried on to present-day political action, there is yet to be a concentrated effort to create a sovereign technological network specifically for the use of connecting townships in South Africa. However, the efforts undertaken by indigenous communities in North America can be used as a model for constructing networks that actively restore local authority to persistently marginalised communities.

NEGOTIATING PRIVATE SECTOR INVOLVEMENT: PUBLIC-PRIVATE PARTNERSHIPS IN TELECOMMUNICATIONS

While not entirely an alternative to privatisation, Public-Private Partnerships (PPP) do offer some pathways towards providing a greater sense of democratic participation within the telecommunications industry. However, because of heavy involvement with the private sector there are also many pitfalls within this model that may lead to corporate co-optation of a public telecommunications vision and turn a large-scale public works project into a mechanism for cementing incumbent monopolies. Regulation around PPP is currently either out-dated or lacking entirely, especially PPP that involve transnational corporations (McKinlay, 2012). Furthermore, the lack of cohesion around international governance of telecommunications creates murky environment for private telecommunications companies, particularly transnational telecommunications firms, to operate with impunity. It remains unclear, then, whether PPP indeed carry with them an inherent public oversight of taxpayer funding utilised by private players for monetary gain. Despite these drawbacks, it is important to understand the nature of PPP in telecommunications for the purposes of advocating for or against them in the policy space and for modifying the model to include principles of other alternative approaches. This section will focus on PPP through the case of New Zealand's Ultra Fast Broadband (UFB) plan. A discussion will then analyse an alternative approach to PPP through the case of Village Telco, a social enterprise mesh network in South Africa.

Co-Funding of Large Scale Fibre to the Home Projects in New Zealand

In the mid-2000s, the New Zealand government committed NZD $1.5 million for the expansion of a nationwide open access FTTH network with the aim of reaching 75% of the country's population. The government provided the seed funding to build the network and was responsible for the initial deployment and management of services with the intent of selling off a stake in the network to private providers. When the network was built, tenders were offered to four private service providers to provide access to the network, and in this sense the PPP was in some ways was reversed to allow for the movement of ownership to pass from the State to the private sector (Van der Wee et al., 2014). At first glance, the UFB plan was a success in that it immediately enhanced competition in the telecommunications sector, improved the regulatory environment, increased high speed internet and mobile broadband use, and revived a sense of political will to move the country forward in fibre infrastructure development. However, as private carriers captured the broadband space, internet prices remained considerably high and data caps surprisingly low, suggesting that while the government has focused on universal deployment, the reality remains that universal service (particularly service to low-income communities) is not a priority of the UFB plan (Winseck, 2014).

The conflict of the successes and setbacks of New Zealand's UFB plan hint at the fundamental conflicts in the PPP model. While PPP may sound good in theory and are much easier to push through a neoliberal political system because of the shared risk of the State and private sector as well as the assumption that they combine the social welfare concerns of government with the efficiency of business, the reality is that in the telecommunications sector, the democratic vision of universal service is polluted by the profit concerns of the private sector. The rationale is that the public-goods related argument and the competition-related argument are compatible in a PPP (Sadowski, Howell, & Nucciarelli, 2013). An analysis of PPP, however, demonstrates the opposite. Marks (2013) found that PPP threaten to undermine the integrity of the public sector actor and too greatly infuse public sector mission priorities with commercial interest. The

result is a co-optation of a public works project with the priorities of profit-taking and market capture of the private sector.

Discussion: Enter the Social Enterprise: A New Kind of Public-Private Partnership in South Africa

This section discusses the social enterprise model in telecommunications. While not technically a PPP in the sense that the State does not necessarily play a role, a social enterprise does merge the public-good related argument usually championed by the State in the PPP with the business-related practices of the private sector. An example of a social enterprise initiative in the telecommunications space is Village Telco, an organisation launched in 2008 in Cape Town aiming to provide a low-cost alternative for mobile communication. The result was the development of a "Mesh Potato" network. The mesh potato network uses low-cost hardware to connect to the local telephone network and convert a landline signal to a digital signal for use by any cellular phone. The hardware is all open-source and the development is completed by an ad-hoc network of volunteer developers worldwide (Innset, 2014). While Village Telco has managed to set up these low-cost mesh potato networks across Africa, Asia, Oceania and Latin America, the inherent business-minded approach of the model attracts the same pitfalls of the PPP. Those pitfalls are complicated by the inclusion of the NGO sector, which especially in South Africa, threatens to operate as appendages of neoliberalism and voluntarily privatise services as opposed to upholding truly democratic and universal forms of service delivery (Xaba, 2014).

DISCUSSING ALTERNATIVES FOR SOUTH AFRICA USING R2K'S *PRINCIPLES* FRAMEWORK

While each of the alternatives discussed above are comprehensive in scope and application it is difficult to situate any one of the alternatives as the ideal model for South Africa based off of the political and economic context of the country as well as the specific principles outlined by Right2Know's *Preconditions for a Democratic Broadcasting and Telecommunications System*. However, the utility of R2K's principled framework is that is that it allows for the location of democratic values within each of the models reviewed. Table 1 below measures the models against Right2Know's principles to analyse which components could be imbued within an ideal democratic communications system in South Africa. This section will expand on Right2Know's principles and discuss the ways in which the different models reviewed in this research embody those principles.

Principle 1: *Secures Community Ownership of Networks*

This precondition is critical in terms of establishing democratic control of telecommunications as it directly establishes the means of production within the community as the community owns the physical infrastructure of the network and decision-making is determined through democratic mechanisms. Both municipal and nationalised systems have created community control over their networks through different mechanisms. The obvious mechanism of ownership is in the form of a publicly controlled company, but several examples of national and municipal telecommunications companies have also included community participation and consultation in the decision to establish the public network as well as the on-going operation. A critical example of community participation is CANTV's use of *mesas tecnicas de telecommunicaciones,* the grassroots and community-based telecommunications working groups in Venezuela.

Perhaps the model that most embodies this precondition, however, is the indigenous cooperative model. Both K-NET in Ontario and KFN in Northwest Territories have established strictly community-owned and operated networks. The community holds all infrastructure and decision-making and the networks themselves are considered extensions of the sovereign principles of the First Nations in these areas. On the other end of the spectrum, while the PPP model secures some public oversight of networks, the loose relationship between the public and private entities involved in the model situate too much control and ownership within the private sector.

Table 1: Review of Case Studies in Relation to Preconditions

		Secures community ownership of networks	Provides universal service and democratic use	Protects digital rights of privacy and freedom of expression	Utilizes conver-gence for efficient digital delivery	Enshrines the practice of net neutrality	Acquires capital for network growth and economic sufficiency	Maintains a vision of forward-thinking technology
NATIONALISATION	ANTEL *Uruguay*	✔	✔		✔	✔	✔	✔
	CANTV – *Venezuela*	✔	✔			✔	✔	✔
MUNICIPAL FIBRE	EPB – *Chattanooga TN, USA*	✔			✔	✔	✔	✔
	Minnesota *USA*	✔			✔	✔	✔	✔
	Stokab *-Stockholm, Sweden*	✔	✔		✔	✔	✔	✔
INDIGENOUS COOPERATIVES	KNET - *Ontario, Canada*	✔	✔	✔	✔	✔	✔	✔
	KFN – *Northwest Territories, Canada*	✔	✔	✔	✔	✔	✔	✔
PUBLIC - PRIVATE	Ultra Fast Broadband Plan *New Zealand*				✔	✔	✔	✔
	VillageTelco *South Africa/ Global*				✔	✔	✔	✔

Principle 2: ***Provides Universal Service and Democratic Use***

Again, the indigenous cooperative model best exemplifies this principle. Likewise, both Venezuela and Uruguay have taken steps to ensure universal access to networks. Uruguay most notably established the universal services program *Universal Hogares* to ensure low-income access to networks. At an infrastructural level, Stokab has established universal access to its network, however, there appears to be no universal service obligation. The other models, in principle, strive for universal service, however, especially in the case of EPB in Chattanooga, the cost of accessing high-speed networks remains inaccessible to the poorest members of the community.

Principle 3: ***Protects Digital Rights of Privacy and Freedom of Expression***

It is difficult to establish whether any of the models reviewed in this report protect these rights due to the systemic issues of surveillance across the entirety of the global internet. Furthermore, in the cases reviewed there was no clear indication that measures were being taken to protect against these systemic issues. It can be gleaned, however, from the 2014 "Enemies of the Internet" report, that the country of origin of these networks may predispose certain models to the threats against right to privacy. Any model located in the United States, for instance, may imply a questionable track record with regard to this principle, alongside Venezuela's noted efforts to censor certain activity online. From the perspective of freedom of expression, it is important to note that the indigenous networks were specifically developed to protect and enhance cultural forms of communication. Along with the relative autonomy of these networks, this aspect of cultural expression would put indigenous networks the closest to upholding this principle.

Principle 4: ***Utilizes Convergence for Efficient Digital Delivery***

Each of the models highlighted in this report embody this principle in one way or another. Generally speaking, the idea of convergence is the recognition that forms of communication are continue to move towards a digital format over data networks (i.e. the internet). Municipal models in the United States and Sweden and ANTEL in Uruguay are utilising fibre infrastructures to not only provide internet service, but telephone and broadcasting services as well. K-NET offers several services over its networks including tele-health services, videoconferencing, voice-over-internet-protocol (VoIP) and mobile broadband. In the United States, incumbent operators put forth opposition to many of the expanded services offered by alternative networks, however, strong public support for local networks (particularly in the case of EPB in Chattanooga) set strong precedence for public utility services to extend beyond the initial provision of high-speed internet to mobile telephony and broadcasting as well.

Principle 5: ***Enshrines the Practice of Net Neutrality***

Net neutrality is the principle that all data is treated equally over the internet; meaning that there is no discrimination in terms of speed, cost or accessibility for certain types of data regardless of the size, popularity or source of the data. As threats against net neutrality tend to come from the private sector, at surface level, all of the alternatives discussed in this report appear to support the principle of net neutrality. However, it is necessary to add some complexity to this analysis as net neutrality so far appears to be a principle upheld within civil society rhetoric and has not yet been cemented in any national policies. That being said, alternatives that have opened their networks to private internet service providers, such as is the case in New Zealand's PPP, could see an encroachment of the private sector in dismantling net neutrality unless specific regulations are put in place to uphold the principle.

Principle 6: ***Requires Capital for Network Growth and Economic Sufficiency***

This principle is included specifically because the assumption is that only the private sector can operate in an economically sustainable way and that public spending tends to be wasteful and inefficient. The overwhelming proof from this research, however, is that all of the models reviewed here have demonstrated effective mechanisms for obtaining the initial capital for constructing the network as well as establishing models for sustainability as well as growth and expansion. The case for alternatives is further supported by the fact that these models have no shareholders to answer to. Without the need to prove to shareholders that exponential growth in revenues will continue, these models only need to look to reinvesting any revenues into the network themselves, keeping their mandate to the people as opposed to the shareholders.

Principle 7: ***Maintains a Vision of Forward-Thinking Technology***

Like the previous principle, the assumption in the telecommunications sector is that the only way to drive innovation in ICTs and ICT delivery is to support the profit motive. The contrary is demonstrated by the fact that the models outlined in this report are not only innovative in their approach to telecommunications governance, but many of the models have actually managed to exceed the technological capacities of the private sector. This is best demonstrated in the wide spread use of FTTH in the alternatives outlined in this report. Specifically in the U.S., where the private sector was failing to provide sufficient and affordable fibre capacity, EPB was able to achieve world-class standards in speed and affordability in constructing its FTTH network. Similarly, ANTEL in Uruguay has been able to blend principles of universal access with technological progression. If ANTEL's success continues, Uruguay may be the first nation in the world to achieve universal fibre access.

CONCLUSION

The issue in many countries, including South Africa, is that policy is too narrow when considering options for ICT development. The alternative models highlighted in this report prove that there are other approaches outside of the market that can more effectively bring telecommunications to a broader swath of the population. While Venezuela and Uruguay have demonstrated how to apply alternative principles at a national level, their approaches need not be mimicked perfectly in order to incubate an alternative approach to telecommunications; cities, municipalities and urban regions can work at a more local level to establish models for a more democratic approach to telecommunications. National policy will inevitably have to play a role, however, as one of the key aspects to developing alternative models is establishing a robust national network that local networks can connect to. It is only sensible that this national network be as open and widely available as well as decomodified as possible. Moreover, national policy is critical in building political will to push progressive telecommunications projects forward. The most fundamental lessons learned from this research is that the private sector has left massive gaps in service around the world and that more democratic governance of internet infrastructure is needed to provide more equitable development of telecommunications moving forward.

The broader conclusion from this research is that the discussion needs to be opened up in South Africa and the rest of the world to include alternative approaches to telecommunications as a viable option. Alongside a rights-based approach to ICTs, these operational alternatives provide practical examples of how we need not look to the profit motive as a mechanism for internet growth. South Africa has missed substantial opportunities to incorporate alternative models into national policy, however, with ICT policy currently in review, a place for alternatives in the discussion could be secured. The future of alternatives, however, ultimately depends on the people's willingness to press the issue. In South Africa, as well as the rest of the world, broader civil society must actively organise to ensure that the future of telecommunications is not permanently located within the private sector.

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