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Does 'Telecentre' Mean the Centre is Far Away? Telecentre Development in South Africa

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Abstract

This article questions the role of telecentres as a vehicle for development in developing countries, particularly in South Africa. The organisation of the emerging Information Age is, in the words of Manuel Castells, 'Global Informational Capitalism'. There are forces that increase the power of a global elite while large numbers of people are excluded. This 'digital divide' puts at further disadvantage many people in poor areas in rich Northern countries and a majority of people living in African countries.

The imagery that surrounds the new Information and Communications Technology speaks of unlimited potential that can bring great benefit to development problems. Historical examples of the telegraph system and the introduction of railways into Africa are cited to show the difference between rhetoric and reality.

In the last few years, there has been great enthusiasm for telecentres as a vehicle for providing access to telecommunications and other information technologies in developing countries. The projects in South Africa and other countries are outlined.

The various possible aims for telecentres are next discussed, concluding that actually they are a weak tool for addressing universal access to telephony, though there are many other objectives they can have. Greater clarity is required in deciding what telecentres projects are aiming to do. If these issues are not thought through, there is a risk that telecentres will either 'fail' and waste money, or will serve to bring the division between the 'information haves' and 'have-nots' into communities - creating a local digital divide. Similarly, more thought must be given to how to move beyond a number of pilot projects (many faltering) towards ways of providing genuine universal access.

Digital divide

The logic of the Information Age is one of exclusion while using the language of inclusion. Information and Communication Technologies (ICT) are increasingly important in most fields throughout the world, and as Castells (1998) says, "IT and the ability to use is, is the critical factor in generating and accessing wealth, power and knowledge in our time."

Many authors extol the wonderful opportunities the new technologies provide, often referring to a revolution or evolution into an "Information Age" (Tapscott 1993). Toffler (1984) was among the first to popularise these ideas. "Being Digital" by Negroponte (1991) continues the trend by expressing great optimism about the impact of these technologies for humanity.

While new networked technologies do have great potential to disseminate information more freely than ever before and can promote democratic linkages between people throughout the world, the real impact

of these technologies can not be seen separately from the social and economic system within which they are used. Skills to use, and access to, Information and Communication Technologies (especially the Internet) offers great advantage to an individual to seek a good job, education, commercial products and more. There increasingly is a division between those who have access to these systems and the information they contain (the 'information haves') and the many who do not (the 'information have-nots'). This division is part of 'global information capitalism' in the phrase of Castells (1996). The majority of the world economy is now deeply linked through networks of corporations, capital, trade and people. The logic of this system is driven less by countries than by the leading corporations. In all countries there are divisions between a number of people who benefit and those who do not. In the countries that are dominant in this environment - North America, Western Europe and East Asia - there are many who benefit (especially a small elite who are largely independent of a home country), though even here there are places that are disconnected from the global economy, such as in some inner city areas.

In countries of the South, especially in Africa, the vast majority of the population have no access to new Information and Communications Technologies, or the training to use them. The move to providing information primarily online disempowers those without access. Recently the Group of 77 (which confusingly represents 133 poor countries in UN and other bodies) appealed for UN information primarily to be provided through radio and not the internet which has limited reach (Deen 1999). Ambassador Samuel Insanally of Guyana, the chairman of the Group of 77, says that 'The introduction of modern information technology increasingly has favoured rich nations and is detrimental to the people of the developing world' (ibid). 90% of the hits on the UN website comes from industrial countries.

However, even in the poorest countries, there is a powerful minority who do have access to these systems. These elites usually have more interests in common with the elites from other countries than with the rest of the population from their own country.

Before considering some implications of this for the development of telecentre projects in Africa, let us look at some examples of previous technologies.

Two Nineteenth Century Technologies

The development of the Internet in the last decade has not been the first time a revolutionary electronic communications technology has made claims to alter the way the world works. In the Victorian age of the nineteenth century, the electro-magnetic telegraph system was developed (both in the US by Morse and in the UK by Cooke and Wheatstone). This was the first reliable way of transporting information faster than a person could travel (by horse or ship) and had great impact in the nineteenth century on business, diplomacy and warfare (Standage 1998).

The first trans-Atlantic telegraph cable in 1858 was hailed as a way to unite continents: "Speed, speed the cable, let it run,/ a loving girdle around the earth,/ till all the nations neath the sun / shall be as brothers of one hearth" (Standage 1998, p 79), and many others expressed the view that the telegraph would help to unite a fractious world: "It is impossible that old prejudices and hostilities should longer exist, while such an instrument has been created for the exchange of thought between all the nations of the earth." (Briggs and Maverick quoted in Standage 1998, p 81). Similarly Field stated, "An ocean cable is not an iron chain, lying cold and dead in the icy depths of the Atlantic. It is a living, fleshy bond between severed portions of the human family, along which pulses of love and tenderness will run backward and forward for ever. By such strong ties does it tend to bind the human race in unity, peace and concord." (Standage 1998, p98).

However, the main uses of the telegraph were different from what these sentiments would suggest. It was primarily used to support business (especially in the United States) and to conduct governmental affairs (especially in Europe). The laying of international telegraph networks was an enabler of centralised control of the British Empire, and played a major role in military conflicts such as the Crimean War and the 'rush for Africa' of the European colonial powers in the late nineteenth century. In short, despite the optimistic rhetoric promising the telegraph would support world peace and unity, the technology was used primarily to support the existing (and developing) capitalist and imperial power structure.

We can also look at the development of railways in Africa in the nineteenth century. The railways were then new technologies that could revolutionise the economy of countries. There was great excitement about introducing railways throughout Africa ('Cape to Cairo' in the expression of Cecil Rhodes), which could bring 'progress' to Africa and integrate the continent more closely into the 'civilised' world.

However, the introduction of railways had marginal benefits for the majority of African people for the first few decades. They were primarily built to link the mines and plantations to the ports (especially in West Africa). Their main purpose was to make the extraction of commodities from Africa to Europe more efficient, and to strengthen the hold of the colonial powers over their African 'possessions'. The railways were financed almost exclusively by European companies and governments, and so we should not be surprised that they were the primary beneficiaries. Later, especially after independence, with the railways under the control of Africans they could be developed primarily to serve the interests of the country and not of colonisers. (Muller 1980)

These two examples illustrate a very simple point: while new technologies can potentially have many different impacts in a society, the primary effects of their introduction is usually to strengthen the power of the organisations investing in the technology.

History and definition of Telecentres

Brief history of telecentres

In the last few years, telecentres have become a catch-all term for various projects aiming to provide access to Information and Communications Technology (ICTs), particularly in developing countries. Below (section 2.2) we look at the meaning of the term, while here we sketch the development of this idea.

The first telecentres were established in the early 1980s in Scandinavia (particularly Denmark) as 'social experiments' in promoting the use of advanced Information and Communications Technology (Cronberg et al 1991). These experiments usually had three years of public funding. They were seen largely as learning experiences and were useful for letting people experiment with different ICTs, especially farmers. Soon after these first Scandinavia centres, similar projects were established in other parts of Europe (including the Manchester Host in the UK) and North America. These centres in developed countries mainly aimed to bring access to ICTs for people who normally would not access them. The focus was very much on computer and online applications, less on basic telephony.

The UN body responsible for telecommunications is the International Telecomms Union (ITU). Since the early 1980s, they had been concerned with bringing access to telephony throughout the developed world. The term used was ‘Universal Access’, and the issues were highlighted in their study ‘The Missing LINK’ (1984), known as the Maitland report. This report looked at the differences in telephone access between rich and poor countries and established the objective that "by the early part of the next century virtually the whole of mankind should be brought within easy reach of a telephone". In 1992, the

ITU held their conference in Buenos Aires, and a major issue was how to meet the Maitland objective. Some of the activists from the early European projects presented telecentres as the means of achieving this, and Johan Ernberg and others of the ITU happily adopted this approach. This went into the Buenos Aires Action Plan number 9 which aims to "develop best-practice, sustainable and replicable models of ways to provide access to modern telecommunication facilities and information services, particularly to people in rural and remote areas. To this end pilot projects are implemented in a number of countries in different regions, at different stages of development and with different geographical, social, economic and cultural conditions", particularly telecentres (Ernberg, 1998)

Throughout the 1990s, the ITU has been establishing and supporting telecentre projects in developing countries. Since the mid-1990s, many other international donors have joined this trend, and there now are a plethora of projects. For example, the ITU has developed Multipurpose Community Telecentres (MCTs) in 24 countries. Another major programme is run by the International Development Research Centre (IDRC), called PAN in Asia and Latin America; and in Africa called Acacia. Acacia funds pilot telecentre projects as part of a program aimed at advancing "the access of disadvantaged communities in Africa to modern information and communication technologies and to apply them to their own development priorities."

Many reports have looked at how access to ICTs is skewed towards those already with higher incomes and education, and a new term of "digital divide" has been coined. The Human Development Report of 1999 (UNDP, 1999) focused on how new technologies have supported globalisation which greatly benefits a few in the ‘global loop’ while leaving a majority further disempowered.

The ITU World Telecommunications Development Report of 1998 (ITU 1998) focussed on Universal Access being a more realistic goal for developing countries than full Universal Service (a phone in every home), and that telecentres can play an important role in national strategies for achieving this. Johan Ernberg puts the case for telecentres most clearly and relates it to providing universal access to telecommunications (Ernberg 1998). Assuming a capital cost per telephone line of US$1,000, the minimum annual revenue per line expected by telecommunications operators for profitability is estimated at US$ 330 - 400 (Teleconsult 1997). This figure is higher than the average annual GDP per capita in most low-income countries - and therefore a telephone in most people’s home is completely unrealistic in the near future (on present assumptions). The position is made worse when it is remembered that in most rural areas the cost of telecomms provision is higher than average while the wealth of most residents is much lower than the national average. This leads Ernberg to consider telecentres as a vehicle to provide Universal Access rather than Universal Service.

Similarly, many development agencies have seen providing telecommunications and other ICT infrastructure as of vital importance. For example, the World Bank devotes their 1998 World Development Report to ‘Harnessing Information for Development’, and they devote much attention to telecentres, describing them as "a powerful engine of rural development and a preferred instrument in the fight against poverty" (World Bank 1998).

The UN Economic Commission on Africa has chamapioned the developing of an ‘African Information Society Initiative’. Several conferences have been help on this, and telecentres have been praised as a means of making nw technologies accessible. An example of the high profile being given in Africa to the use of technology for development is the 'African Connection' rally of early 1999. Jay Naidoo, the then South African minister of communications, led a team on a drive from Tunisia down to South Africa, stopping at telecentres in all countries they crossed.

With this great interest, many conferences have been held discussing telecentres and related issues of universal access to ICTs. These include:

- Information Society and Development, Midrand South Africa, May 1996.
- Empowering Communities in the Information Society, Helderfontein South Africa, May 1996.
- Global Knowledge, World Bank, Toronto, June 1997.
- Africa Telecomm, Johannesburg, May 1998.
- 'Partnerships and participation in Telecommunication for Rural Development' Conference, University of Guelph, October 1998.
- 'There are no Boundaries' NTCA Conference, Washington, December 1998.
- ITU Telecentre Seminar for Eastern Europe, Budapest, December 1998.
- 'Building the Information Community in Africa', Pretoria, February 1999.
- ITU Telecentre Seminar for North African countries, Tunis, March 1999.
- Telecentre Evaluation Workshop. IDRC, Far Hills Canada, September 1999.
- ITU Telecentre Seminar for Arab Countries, Damascus, October 1999.
- African Development Forum, Addis Ababa, October 1999.

Definition of telecentres

There is always a problem of definition with telecentres as so many related terms are used with varying meanings. Colle and Roman (1999) have counted over 30 different names for these kinds of centres. Terms encountered include telecottages, multipurpose community centres, community technology centres, digital clubhouses, cabinas publicas, infocentros, telestugen, community access centres, electronic village halls, telehaus and televillages. Colle and Roman (ibid) suggest that a telecentre is 'a shared facility that provides public access to information and communication technologies'. According to Gaston Zongo of the IDRC's Acacia programme a telecentre "is a place where public access to communication and information for economic, social and cultural development is provided through IT" (Zongo 1999). Steve Cisler proposes that, "A telecentre provides information and communications services needed by the local community".

In the European Union, the term '**Telecottage'** is usually a "community based" facility that is there to assist learning, access to technology, access to work etc. for its local community. The Telecottages movement started in Sweden and the idea has been taken up quite widely, notably in the UK where at the last count there were some 200 telecottages; whereas "**Telecentre**" suggests a more commercially focused facility that has been established for specific commercial purposes, particularly telework. (Simmins, 1999)

Shady Kanfi and Frank Tulus of the IDRC define a telecentre as "A location which facilitates and encourages the provision of a wide variety of public and private information-based goods and services, and which supports local economic or social development." (Kanfi and Tulus, 1998)

For this paper, a telecentre is an organisation offering telecommunication and other information services

to a disadvantaged community. There are many related issues of forms of ownership, technology and business model – which we shall look at in the next section.

Telecentres in South Africa

The legacy of apartheid is as strong in telecommunications as other parts of life. The latest reliable figures that we have come from the household survey of 1997, which shows that 32.2% of households in South Africa have a telephone (fixed or cellular); while 68.1% of the country have access to a phone (either in their house, at a neighbour, communal phone or at shop or clinic).

Universal Service		**Universal Access**	
Total	32.2%	Total	68.1%
African / Black	13.6%	African	59.4%
Coloured	37.2%	Coloured	72.4%
Indian	74.2%	Indian	89.1%
White	84.9%	White	91.5%

The new democratic government in 1994 was committed to addressing the inequalities of the past. The Reconstruction and Development Programme stated that, "The aim of the telecommunications sector will be to provide universal, affordable access to all as rapidly as possible within a suitable and affordable telecomms system" (ANC, 1994).

The main thinking around telecentres in South Africa came from the ANC-aligned structures in the early 1990s, especially the NGO the Centre for Developing and Information and Telecommunications Policy (CDITP). This thinking went into the process of developing the Green and White papers on telecommunications that led to the Telecommunications Act (1996). In this process an Agency was proposed that would work to facilitate access to telecommunications for all South Africans. This was set up in early 1997 as the Universal Service Agency, at the same time as the South African Telecommunications Regulatory Authority (SATRA).

Also, in May 1996, South Africa had held the Information Society and Development (ISAD) Conference, bringing together the G7 countries and 30 developing nations. South Africa prepared a paper for this conference (DACST, 1996) which was the first South African position on how to use these new technologies for national development. One of the main projects proposed was establishing computerised ‘Multi-Purpose Community Centres" (MPCCs) to provide community access. At the same time as ISAD, a separate conference was held explicitly looking at models of community access to ICTs, called Empowering Communities in the Information Society. This looked in some detail at various international models of MPCCs, telecentres and other community IT centres (Berlyn, 1996).

The Department of Communications has produced several documents outlining various projects of extending access to ICTs, such as the Public Internet Terminals in post offices and Internet Labs in previously disadvantaged universities (Department of Communications, 1998).

The Universal Service Agency (USA) was established in early 1997, and quickly came to see its main role as setting up telecentres (though interestingly the Act that set it up does not mention telecentres once). The USA controls the Universal Service Fund, between R10 million and R20 million per year,

which is contributed to by the telecom operators. After early over-optimistic targets of having several hundred telecentres in a couple of years, the first centre was launched in March 1998 and to date around 34 centres have been established, primarily in rural areas. Up to 50 centres should be operational by March 2000.

A full telecentre costs around R200,000. This buys around five phones, Computers (around 4), a photocopier, fax machine, printer, scanner, OverHead Projector, TV & Video and modem. The building also is renovated, with furniture and security being added. A mini-telecentre follows a model developed by the CSIR - a computer in a moveable cabinet with a 3-in-1 (printer, copier, scanner) with phone lines and a modem - costing around R15,000. Some of the existing 18 telecentres are very successful. GaSaleka in the Northern Province is a remote rural area near Botswana. Their telecentre offers telephones, copying, small business services and computing. Their turnover is around R8,000 per month with a sizeable profit. They offer computer training, which is certificated through the nearby Ellisras Technical College. The course costs R1,250 and is in great demand - the first 14 students graduated in September. The only thing you can get for free there is condoms!

Other successful telecentres are in townships, such as the Mamelodi Community Information Service (MACIS) which has developed a community directory and runs a webpage. Some telecentres have technical, billing or organisational problems. One 'problem' is competition which has reduced the turnover of the telecentre in Tembisa greatly.

The telecommunications operators also have license targets for providing access in disadvantaged areas. Telkom is obliged to rollout 1.7 million lines in disadvantaged areas during their 5 year exclusivity period, and the cellular operators have Universal Service Obligations (USOs) Vodacom at 22,000 and MTN at 7,500. Telkom also has to provide 120,000 payphones and lines to 20,000 'priority customers' and 3,204 villages by the year 2002. Vodacom have established 1,500 phoneshops run as small businesses, and MTN have established many community payphones.

An important study was conducted by Aki Stavrou and Khumbulani Mkhize for SATRA (Stavrou and Mkhize, 1997). This study looked at categories of 'Needy people' that could benefit from telecomms subsidy (the phrase 'need people' comes from the wording of the Act). The study indicates that in South Africa, 36% of all households fall under the minimum Household Subsistence Level. From this can be calculated that with up to 2% of household income allocated to telephony and an expenditure of R30 as a benchmark, then 44% (3.8 million) of all households are unable to utilise a telephone at home. This percentage rises to 69% or just over 6 million households if monthly expenditure is set at R70. This means that 60% of all households would not even be able to afford to rent a telephone at R49.59p.m. Thus, on currently available data, only 3.7 million households (42%) can afford to install and maintain a telephone without assistance. The study looks at various groups, such as those in poverty, the disabled, students and care workers, and considers mechanisms for providing subsidy to these groups.

In South Africa, there are approximately 9 million households (Statistics South Africa, from the 1996 census). Around 3 million of these have a telephone, and 6 million do not. From the projections in Stavrou and Mkhize's paper, many households would not be able to afford to run a phone (at current prices) even if there was complete network coverage. Therefore, providing Universal Access (access to public telephony) is the focus of most projects in community telecommunications in South Africa. In the longer term, as prices come down and living standards go up, then there is a greater chance that South Africa could move towards higher household penetration levels.

In 1998, the USA commissioned the CIET Research organisation to conduct a baseline study for the impact of their telecentres (CIET, 1998). This study conducted over 12,000 interviews in 103 sites in the Northern Province, Eastern Cape and Northern Cape. There were three main findings:

- Hardware alone is not enough: Half the respondents in the three provinces said they never made a telephone call in spite of the high coverage of telephones. Reports of 24 hour telephone access including street phones was 85% of the sample in the Eastern Cape, 95% in the Northern Cape and 75% in the Northern Province. Provision of the hardware is but the first component in increasing ICT access. The second and considerably more challenging component is a communication strategy – promotion and training to address the weak or absent tradition of connectivity.

- Telecentres are part of the service industry yet service is not a high priority. A review of 29 telecommunications centre operators at the sentinel communities (only three were USA telecentres) revealed low service standards. One third of managers of these centres said they had no knowledge of the needs of its customers while the other two thirds said they did not develop services to meet user needs.

- Telecentres must be linked to real needs: For telecentres to work they must be linked to community needs.

Some work has been published by Vodacom on their phoneshops (Carrim, 1999), which shows that most of the 1,500 are successful small businesses. These phoneshops tend to be in townships, rather than remoter rural areas. They cost around R20,000 to set up (most franchisees take loans for this) and the majority of them are in township areas. They are run by individual entrepreneurs, and now there are 760 franchisees, several owning multiple franchises. These phoneshops now make around R8 million per month. Some of the phoneshops are starting to expand into fax and photocopying services.

The differing experiences of the USA supported telecentres and the phoneshops tends to question the model for universal access that is being carried out in South Africa. The question of which models most effectively can provide community access must be addressed so that available money is spent on viable projects.

Telecentre examples from elsewhere

Many countries now have telecentres and other projects for universal access to ICTs. This section quickly reviews some of the different models in other countries.

In Africa

Mike Jensen (1998) has reviewed various Telecentres in Africa. In Africa, 75% of the population is rural, with very low income and access to telecomms. There is one phone per 200 people in Sub-Saharan Africa, and one internet user per 9,000. Jensen describes two main models: firstly the smaller demand-driven Telecentres; and secondly, supported Multi-Purpose Telecentres - UNESCO / IDRC / ITU projects in Benin, Mali, Mozambique, Tanzania, Uganda (working with local PTOs and community centres, libraries, municipalities, community radio, business, ministries); Tunisia (about to launch national tender for 100 telecentres).

A consortium of donors, including the International Telecommunications Union, International Development Research Centre and UNESCO has funded a number of telecentres in Mali, Uganda, Tanzania and Mozambique. These are the most reported telecentres.

Nakaseke in Uganda is an impressive example of a locally based project, where the community has been actively involved in planning the project Through local collections the community has constructed a big

telecentre building (Mayanja 1999). However, Nakaseke has received a large amount of attention and around US$ 500,000 funding international donors and Uganda Telecom Limited and the Public Libraries Board. While this is admirable, this level of support is unlikely to be repeated in many other communities. Others (Opuku-Mensah 1999) have questioned whether these services that are charged will make any difference to the lives of the many poor in Uganda, and Dahms (1999) questions whether the centres will be only of benefit for the educated.

Others of the centres were set up largely at the instigation of an international development worker, such as the centre at Wa in Ghana developed by a US Peace Core volunteer (Bruning, 1999).

Other of the major telecentres have been established at Timbuktu in Mali (Scharfenburger, 1999) and in Mozambique (Gastor, 1999). The Timbuktu centre is doing quite well and is planning to become an Internet Service Provider in the area.

Several telecentres were established during the African Connection rally in early 1999 when then Minister Jay Naidoo drove through Africa, visiting a telecentre in each country visited. In late 1999, Claire Sibthorpe (2000) visited 4 of those newly established centres in Zambia, Tanzania, Egypt and Tunisia and found very mixed results. Some of the centres were very well used, though economic sustainability was a question with all. In Egypt the centre is still awaiting a phone line, and in Zambia the centre requires an expensive direct leased line to the capital due to poor local infrastructure. There were weak management skills in most of the centres.

Distinct from these externally funded centres are many thousands of much smaller phone shops in several countries that have been set up by small entrepreneurs, usually in the major cities. In Senegal, there are no public phones, but there are 7,000 ‘telecentres prives’, some with fax, and 70 with internet. In Egypt there is a similar phenomenon with thousands of small phone bureaux. In Ghana where there is a joint venture between the Post Office and an Internet Service provider that offers free email addresses and 30,000 Ghanaians signed up in 3 months to send/receive email.

In Other Developing Countries

Grameen Phone in Bangladesh: Bangladesh is a very poor country in South Asia, with 26 phones per 1,000 people in 1996. Grameen Bank is the best known ‘micro-lender’ in the world - giving very small loans to support 2.1 million micro business (especially through women entrepreneurs in disadvantaged areas). Since 1998 Grameen Phone has been using the same principle in creating small telephone businesses. They lend enough money to a woman who applies to buy a cell phone that is used as a payphone (with a stop watch and calculator to work out the costs). 500 village phones are now in place, with 1,000 expected by the end of 1999. The village operators keep around US$2 profit per day (twice the average per capita income). Of these 500 phones businesses, not one has proved unsuccessful. Selection criteria are that the home must be at the centre of the village, one member of the family must be literate and numerate and that there is a friendly attitude for the business service. Studies have shown an improvement in health services and business opportunities in villages with these phones. This scheme works with a cellular operator Grameen Phone (in alliance with Norwegian Telenor) in extending the cellular network in Bangladesh.

Peruvian Telecentre Franchises: The Peruvian Scientific Network (RCP) has established telecentres to provide access to computers and internet. They use a franchise model, with three different levels:

- ‘Mother Infocentres’ are operated in major cities and are owned directly by the RCP and usually have a lab of around 50 computers. There are 25.

- Telecentre franchises in smaller towns usually have 20 computers. Equipment, training and general support is offered by RCP, and the local owner runs the business and pays around US$1,000 per month to RCP. There are around 300.

- 'Monocabinas' with one computer, printer, phone & modem serve rural areas. They are about 250.

The network as a whole develops information for all the telecentres to use - such as health and education content from the ministries and business opportunities. This has been so successful that El Salvador has asked the RCP to set up a network in their country.

Telecentres in Mexico: Scott Robinson (1999) reports on two telecentre programmes that generally have failed (5 now operating out of 20 set up). The main problems have been lack of funding and backing (from governments, university and the telcomm company). This is traced to a political centralisation that does not encourage a sharing of information that telecentres could provide.

India: In India telecentres also give public access to the internet, but with a focus on business over the net. Loyola Joseph (1999) runs a network of 150 telecentres around Tamil Nadu. The local centres are privately owned franchises, with the network providing internet connections and information services. The focus is on providing telecommuting jobs in over 50 fields (writing, translating, computer technical, data entry) and each telecentre has provided around 50 jobs.

In Developed Countries

There are many telecentre-type centres in Europe, North America and Australia, with the focus is usually on computer and internet connectivity rather than telephony. As Steve Cisler (1998) points out, even rich cities have poor people who lack ICT access.

Europe: Falch (1998) reports on telecentre (Multi-Purpose Community Information Centres) in Europe. There are two main types: those concentrating on local businesses; and those primarily educational, training, social and cultural activities. He lists centres in different countries: UK (160), Germany (47), France (10), Sweden (25), Denmark (10), Finland (40), Norway (all closed), Ireland (10), Austria (12), Belgium (1), Spain (6), Italy (2), Estonia (32), Hungary (50), E Europe (11 in 9 countries), USA (260), Canada (5), Australia (70) - though there are great differences (some very large in France, to v small in Hungary). Most telecentres have similar main objectives: to support regional cohesion; provide access to IT & telecomms; diffuse IT knowledge; train in IT and related qualifications; provide access to IT related business services; and create local employment. Some have integrated with other organisations (libraries, support for unemployed). A successful model has been to remain independent but provide public funded services (e.g. training, local info point). Other funds can come from business services (consultancy, IT support, accounting), charged public provision of IT access, centre for telework (especially in UK). Basic lesson - telecentres must generate their own income as public funds for start-up does not last long. Most successful model of independent body linked to development projects generating funds from own activity and some funded public services.

In Wales there are 45 telecottages (Moindrot, 1998) that offer access to equipment and some employment opportunities through telework. The centres must have enthusiastic staff – who work for love and occasionally money! The centres are cheap to start (US$3,000 - $8,000), and should aim to be profitable within 2 years.

There are over 50 telecottages (Ervin, 1998) in Estonia, and they started in 1993 based around the village movement. The main motivation came from the poor postal service. They received support from existing centres in Sweden and Finland. The main users at the start were schoolchildren and students,

and now farmers and business people are also active users. One successful strategy has been to combine the wisdom of retired people with the energy and computer skills of schoolchildren. The paper described some uses, such as supporting agriculture and linking with local government. An appendix gives a two-page outline of a business plan for a new telecentre.

In North America: In the USA, there are many hundreds of Community Technology Centres (Cisler, 1999), mainly operating as computing centres in poorer inner city areas. These are organised in an effective CTCNet that produces a useful newsletter, holds regular conferences and produces support materials for the centres such as a detailed manual and training guides.

Fuchs (1998b) describes the starting of telecentres in Canada as technology promotion centres in more remote areas, such as Newfoundland. In Canada there also are Community Access Point (CAP sites) that are publicly funded internet access centres in many towns and cities, often staffed by student volunteers.

In Australia: Australia has established many telecentres, most in the Australian Rural Telecentres Association, comprising over 70 organisations which provide information technology services and training to support rural communities, local businesses, distance education and information access. Short (1998) of the Telecentre Support Unit describes the socio-economic impact of 59 telecentres in Western Australia (a large area with a small population). In 1991 educational centres become hubs for nationally supported telecentres, with a focus on distance education (especially used by women). Now there are 59 centres with managers, and 8 staff in a regional support unit. There are computers, teaching video link (1 way) and local call internet in all centres. All centres provide access to a labour market, education, community newspapers and DTP programmes. There is a long list of others projects, such as websites, tourist information, art gallery, agribusiness centre, youth club, joblink, and a women's centre. Benefits include creating 150 jobs, and keeping money in the community. Anecdotes of success include helping find jobs, starting small business, and building the community. The keys for success have been: community ownership and a rigorous process including needs survey and business plan. This is quoted as a big success story.

What are telecentres for?

Telecentres for universal access to telephony

What are telecentres for? The answer given by the Universal Service Agency of South Africa is typical of many of the national programmes: telecentres are a means of providing universal access to telephony and other telecommunications and information services. While this is an excellent aim, in at least two ways telecentres are a poor tool for doing this.

Firstly, telecentres are overkill for simple telephony. As mentioned above, standard telecentres in South Africa typically cost around US$ 40,000 to establish. They often provide between five and 10 phone lines, five computers with internet access, a fax machine, a photocopier and perhaps other related equipment. This is an extremely large and expensive package for meeting basic telephony requirements. For providing reasonable access to a telephone for everyone (referred to as Universal Access), other mechanisms are much cheaper and more effective (see below).

Secondly, as yet there is no mechanism for using telecentres to provide universal access. Due to their relatively large start-up cost (combined with a paucity of evidence of ability to meet ongoing costs), nowhere yet is there a mechanism for setting up the many thousands that would be required to provide universal access to everyone in South Africa or similar countries. A number of countries, including South Africa, have been looking for mechanisms to do this in the last three years. However, in no country are there more than a few telecentres. Many of these projects are impressive, such as at

Nakaseke in Uganda and Mamelodi in South Africa. However, these successes have received a very large amount of funding, support and international interest and should be seen as interesting demonstration pilot projects. As yet, they do not represent a reproducible model that can bring benefit to the majority in a country in the next few years.

So telecentres are not good at providing universal access to telephones.

There is a very real momentum to provide basic telephony services to all areas as soon as possible. This goal of universal service can be traced to the Maitland Commission (1984) report entitled 'The Missing Link' which stated that, "We believe that by the early part of the next century virtually the whole of mankind should be brought within easy reach of a telephone and, in due course, the other services telecommunications can provide". Mechanisms other than telecentres can be used for this. Payphones are the obvious example, normally run by the largest telephone company in the country. However in many countries micro businesses offering telephone services have sprung up in the last five years and have been very successful. The International Telecommunication Union refers to these as Public Call Offices. In Indonesia they are known as 'Wartels', in Chile 'taxi-phone' systems have sprung up and in Senegal there are over 5,000 "Telecentres prives" that are heavily used. A particularly interesting example comes from Bangladesh, where Grameen Telecom is working to establish 68,000 Village Pay Phones (VPP) using cellular technology that will provide access to over 100 million poor inhabitants. It will cost US$450 per VPP that is being financed by the Grameen Bank SMME loans, and is very successful. The Grameen loans are given to women who run the cellular payphone as a small business. These Public Call Offices have grown greatly in several countries with very little or no state or international support - Grameen runs loans and does not give donations. The larger telecentres require much greater infrastructure (equipment, building, facilities), organisation and finances. There are examples of telecentres resenting being undercut by normal payphones and opposing their introduction in the vicinity (as in the Pescodia telecentre outside Kimberley in South Africa).

In South Africa there is an additional reason to provide universal telephone access as soon as possible. The legacy of apartheid has left a completely distorted pattern of telecommunications, with state-of-the-art services in mainly white urban areas and quite poor to non-existent services in overwhelmingly black rural areas. The latest reliable statistics from 1996 show 89% of white households have a phone while only 11% of black households do. In South Africa this situation is fast improving with the roll-out plans of the different telephone operators. However, it is an unanswerable political point that the majority population should be provided with access to telephony as fast as reasonably possible. However, as stated above, telecentres are not a good tool for this end. The needs of universal access are for a reliable, financially sustainable approach that can be rolled out on a mass scale - such as with payphones and Public Call Offices.

Telecentres as a multi-factor experiment

Part of the difficulty of determining the nature of telecentres is that the term has recently been used so frequently with real differences of meaning that are not clarified. It could be said that it has been agreed that 'telecentres' are a 'good thing' without really examining the claim that they represent a way of providing a wide range of (sometimes conflicting) developmental services.

Telecentres are generally agreed to be tools and not ends in themselves. The end is usually stated as the support of services in areas such as education, health care, local democracy and small business support.

This means that there is a primary end and a number of intermediate stages: telecentres are an organisational form that can provide access to Information and Communication Technologies that can offer development services in a number of areas that can assist in the development process.

Telecentres → Access to ICTs → Provide services → Assist development

This is a quite complex chain, and each stage is open to question. Also, a problem earlier in the chain (e.g. problems with the organisational form and funding of telecentres) means that elements later in the chain do not really come into question (e.g. can the Internet be of benefit to rural development).

The task of telecentres is made particularly difficult as at the same time they are experiments in many different ways.

- *Services:* What services can telecentres provide that will be of use to the communities they serve;
- *Equipment:* (Technique in Muller's model) What Information and Communications Technologies will work in rural and poor areas (for example trials of Internet radio between the Centre for Scientific and Industrial Research in Pretoria and a telecentre in the neighbouring Mamelodi township);
- *Organisation:* What ownership and management is appropriate to create a dynamic, socially acceptable and sustainable centre. Experiments include franchises, community cooperatives, privately run small businesses, and government service centres (e.g. attached to a school, post office or library);
- *Financing:* How much is required to establish a viable telecentre, and how can ongoing costs be met.

Colle and Roman (1999) describe the following as different dimensions of telecentre development:

- Public / private sector
- Publicly or privately funded
- Commercial (fee-based) / free
- Urban / rural
- Narrow focus / multi-purpose
- Independent / networked, grouped
- Community-based / establishment
- Stand alone / attached
- Profit / service
- Thematic / universal

With so many variables, it is very difficult to be clear what is being evaluated in a telecentre project. It can be useful to compare the current work on telecentres in countries of the South with the original telecentres.

Relooking at the early telecentres

As mentioned earlier, the first telecentres were developed in Scandinavia in the 1980s. They were seen largely as learning experiences and were useful for letting people experiment with different ICTs, especially farmers. One of the conclusions from these Danish telecentres was that a precondition for a successful social experiment is that the technical tools involved in the process must be tested in advance - they were social and not technical experiments (ibid). These first telecentres in Scandanavia did not provide general access to telephones. It is noticeable that the 1980s telecentres were established in countries already with over 90% of households having telephones (the usual definition of universal service) (ITU 1998). At a risk of over-emphasising the point, the first telecentres had nothing to do with universal access to telephony.

The original Scandanavian centres used fairly stable advanced Information and Communications equipment, with the focus of the experiment on developing new social uses. The organisational model was a lesser part of the experiment. Clearly it was hoped that some of the centres would keep functioning and find a useful role, but the key issue was the generation of interest and new local services. If the centre closed, that was accepted as part of the lesson of the experiment and was not seen as complete failure. In particular, the telecentres rarely were seen as providing long term access to the technologies. (However some centres, for example in Wales, have developed in the 1990s to provide long term access, especially as points for teleworking).

It is interesting to see how the 1980s Scandinavian telecentres have been reinvented in the 1990s as a model for countries of the South. For example, Ernberg (1996) refers to the Scandinavian telecentres "as a means of improving access to telematics in rural and isolated areas" without making clear that telematics here explicitly does not refer to the basic telephony that is most needed in poor countries.

In Africa and other countries of the South, telecentre projects have different aims from those Scandinavian social experiments. It is usually an assumption (often tacit) that the telecentres are for long term infrastructure delivery, which is taken to mean they must be able to generate their own ongoing funding, as no donor or government can supply revenue funding to thousands of centres offering infrastructure. This means there is great pressure on the managers of telecentres: they are effectively in charge of an experiment which is not certain to be successful, they are expected to generate their own funds for at least running costs, while also delivering a social service. How to make the delivery of social services profitable is exactly the problem that states have been attempting to deal with in the last decade of neo-liberalism. Pushing this onto telecentre managers does not solve the problem of governance.

So what are telecentres for?

There are a number of useful aims that have been stated for telecentres. The basic point is that a telecentre by itself is of limited use - the services are more important if (and only if) they are relevant to local community.

Telecentres can provide:

- *Universal access to telephony:* As discussed, telecentres are poor at this.
- *Information services:* Developing local information (as information producers) such as local directories and many techniques from development communications (see The first mile of connectivity by Don Richardson 1999). Participatory techniques can be adapted from library science to find the information requested, and then use many techniques (public meetings,

individual meetings, posters, newsletters and electronic) to disseminate.

- *Other developmental services to meet basic needs:* Telecentres can useful provide services in education, health care, small business support, agricultural extension, link to government and community projects. The real issue is determining what is of use to people in the area and delivering an appropriate service.

- *Education in 'Information Age' skills:* Telecentres have been seen as a way of providing many people with information literacy skills (such as computer use, web page design, programmers, network engineers and technicians) to develop the economy. Telecentres can partly serve this training role, but not through full individual fees (people will not pay in hope of jobs that do not yet exist). Telecentres will need to be subsidised (by donor, government or potential employer) to do this.

- *Local telephone connections:* Telecentres could become the hubs for local telephone exchanges, possibly run on the cooperative model promoted by the National Telecommunications Cooperative Association of the USA, specially using Wireless Local Loop technology. This would require major training programmes and financial assistance, which could follow the model of the Rural Electrification Authority which supported the wide diffusion of telephony in the USA in the 1950s.

Requiring telecentres to be immediately or quickly profitable without subsidy might be possible, but only through concentrating on those who can pay for services (or getting large contracts, for example from government, which is akin to subsidy). Focusing on those who can pay will mean less attention on providing services to the already disadvantaged, particularly women. However, as many development studies have shown, building the capacity of women is fundamental to overall development.

Telecentres could serve to bring exclusion into a rural community. In the exclusionary effects of Global Informational Capitalism mentioned above, the primary line of division is between rich Northern Countries and poorer countries of the South. However, there is also division between the elites and the poor in most countries, in Africa this is shown in the differences between the urban and rural areas. The risk is that telecentres will be the vehicle for bringing this exclusion into rural and disadvantaged communities. Whereas before the whole community was outside the web of the global electronic economy, now an advantaged few are inside and others (the already disadvantaged) are further excluded.

For telecentres to be sustainable in the longer term, and be appropriate for mass rollout, methods must be found for their longer term financial security, much of which may come from internally generated revenues. In the debate around telecentres, a few key themes have become clear. The key one is the business model – put simply, should the centres be economically self-sufficient, or must they rely on external funding of one kind or another.

Fuchs (1998b) and others argue for public funding of centres, as a "public good" similar to libraries and schools. However, in developing countries there is much less money available for such things, and some argue (Richardson 1998) that these projects should be run by self-sustaining entrepreneurs – anything else encourages incompetence and dependency. Barr (1998) argues for a profit-focused approach to providing rural telecomms, recognising that this will lead to ‘ "least profitable - highest loss" areas being served last’. "The rural telecommunications network must be operated as a commercial, entrepreneurial, profit-focused and profitable enterprise. It is this ‘mind set’ that will motivate the service provider to continually seek to maximize revenues and minimize costs."

The London based PANOS institute has raised concerns that telecentres will only be of benefit to the

few in a developing country with the money to pay for them. Referring to the telecentre being planned in Nabweru, Uganda, it describes the general excitement there is in the community in anticipation of the telecentre opening, but points out that the services will be charged for, "Their sustainability depends on them being run on business lines and charging enough money to users to keep the operation sustainable. That may not be a bad thing but perhaps they should call a spade a spade and not raise expectations that these services will be affordable to everyone" (Opoku-Mensah 1998).

While there is much talk in international conferences of them, there are not many successful MCTs in developing countries. This has led to a great interest in the few that do exist, with a large number of international visitors and researchers visiting. Nakaseke in Uganda and centres easily accessible from Johannesburg in South Africa, such as in Mamelodi, Tembisa and Daveyton, are very much on the tour. In fact, it has been suggested that the few successful telecentres could make more from charging international visitors a fee than from their telephone charges.

Conclusion

There have been many telecentre pilot projects launched in the last couple of years. The most high profile ones in Africa have been funded by external donors, and in South Africa the Universal Service Agency has established around 30. These projects are funded because there is a basic feeling that left to themselves, market forces will not create a fair world, and inequitable access to ICTs will become a defining feature of those who will prosper in the new millennium and the many who will be further disempowered.

While many people have worked hard on these telecentres projects, and some useful lessons have been learnt, most of the funded telecentres do not show a model that can be rolled out to have a major impact through Africa, or South Africa. Pilot projects can produce real learning, but are only really useful if they show a model that can be reproduced more widely.

In summary, a few points can be drawn out:

- There is a risk that telecentre projects will either fail (wasted money and project closed) or act as groundbreakers for exploitative Global Information Capitalism, unless there is an explicit aim of running the telecentres under local social control.

- Telecentres are not good at providing universal access to telephony. Universal access to telephony is an important goal, and is better met by payphones or micro enterprise Public Call Offices. Programmes can assist directly, as Grameen Telecom has done, and through training, awareness and other small business support services.

- We do not yet know how to provide access to advanced Information and Communication Technologies on a large scale in countries of the South. Accepting this means the focus should be on experiments and learning, not on mass rollout. Franchises and other systems of top-down control can efficiently and profitably deliver through stable technology. However, they are inappropriate with multi-dimensional experiments where the key is local assimilation and capacity building.

Looking at the existing projects, some of the telecentres at best are covering operating costs (which may include salaries). However, the author knows of no projects that are able to cover depreciation (e.g. computer upgrades in a couple of years), let alone repay initial capital expenditure. There is a place for well-directed subsidy to promote equitable access to systems that are shaping the world. However, it can be much better targeted than at present. Externally funded projects will never, by themselves, change the

reality for the majority in developing countries. There just isn't the money, even if there weren't worries about the dependency this would create. So efforts should go towards models that can be reproduced – but acknowledging that there are different ways this can happen.

There are at least three ways that centres can be developed to provide access to ICTS.

1. **Straight commercial:** As Don Richardson, Andy Dymond and others have argues, there are many more areas that can be economically reached than previously through, especially with new technologies reducing the investment required. Projects should consider all (hidden and external) costs, and be able to convince others to invest in this kind of project. Evidence of the economic returns, as with the Vodacom Phoneshops in South Africa, should be investigated to promote investment.

2. **Subsidised:** Long-term donor funding is not sustainable, but there is a case for local public funding for some projects, as with schools, clinics and libraries. However, rarely should the funding be 100% (use all the economic lessons from group one above). Secondly, most governments in developing countries have very tight finances, and in many areas the state is tending to withdraw (including from education, health and public libraries).

3. **'Step-up migration':** Several people have pointed out the anomaly in telecentres – there are a few very well funded big projects that are struggling, while there are several thousand unsupported small micro-enterprises that are flourishing being run by entrepreneurs (e.g. Telecentres prives in Senegal, Phoneshops in South Africa, Wartels in Indonesia, etc – the ITU calls them public call offices). Mostly the smaller ones offer basic telephony, though a few are starting to install faxes and even internet. An effective way of increasing access to ICTs would be to support this migration. (Though these PCOs are largely in the cities rather than in rural areas).

Each of these three methods of extending models can work, but they require different sorts of research. (1) requires economic return information to persuade investment; (2) requires evidence of wider social impact sufficient to encourage public funding; (3) requires experience to minimise local risk and make the migration easier. These three are not exclusive categories – a range of external commercial funding, public funding and smaller entrepreneurial activity can work together. But they do require different forms of evidence from the experience of other projects. In particular, there is less work on the 'step-up migration'. Support through guides for the thousand of micro-entrepreneurs why & how to offer fax, messaging, internet and information services; micro-loans (using the model of Grameen phone?) for faxes and computers; low cost training courses; computer recycling for small businesses; e-commerce toolkits; networks and newsletters.

In the years since 1996 when South Africa developed its telecentre and phoneshop models, many new and innovative projects have started in other countries, such as Grameen Phone in Bangladesh and the Peruvian Telecentre franchises. This experience can be built upon in South Africa. Research into methods of providing universal access have either been run by well-meaning donors, wishing to show a beneficial impact without really considering the cost; or by private sector operators nervously seeing if there is a viable market for telecommunications in disadvantaged areas.

The current wave of enthusiasm for telecentres in South Africa could end soon as people see that several projects are failing and they are having a limited impact. For a possibility of success, there must be clarity in what they are aiming to achieve (they cannot provide universal access to telephony); and in how the lessons coming from the few existing sites can be applied more widely.

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