Information Technologies to Serve the Poor
How Rural Areas Can Benefit from the Communications Revolution

Georg Caspary

Modern information and communications technologies (ICTs) hold great promises for developing countries. However, if they are to benefit the poor their introduction must be carefully examined. This article shows several models of affordable access to ICTs which have been tried in various parts of the developing world.

Common wisdom has it that the advent of modern information and communication technologies (ICTs) such as telephony or the internet hold unprecedented opportunities for developing countries. Academics, policymakers and entrepreneurs alike frequently claim that ICTs represent one of the most powerful tools in the struggle against poverty.

There appear to be good reasons for such claims, too. After all, there are a number of ways – some obvious and some not-so-obvious ones – in which ICTs may serve the development process. For instance, private entrepreneurs benefit because ICTs help to improve access to markets or supply chains and provide a broader base for decision making, thus making risk more calculable. Moreover, many local communities have experienced that ICTs have increased civil society participation in political decision making processes and may expand the reach and accessibility of government services and public infrastructure. In the Indian state of Andhra Pradesh, Internet-based Integrated Citizen Service Centres allow for electronic bill payment, issuing of certificates, permits and licenses; or access to public information.

Nevertheless, a word of caution is in order. There is as yet little systematic empirical evidence of the supposed enormous ‘developmental’ impacts of ICTs. Moreover, in many – especially rural – areas of developing countries, the private sector is so far less than keen to invest in ICTs because of lack of experience with rural developing-country markets or low purchasing power of the local population. This means that, if ICT access is to be expanded, public money will have to be spent – which in turn means that there are important trade-offs to be considered. In many areas, there are serious questions about how much money policymakers should spare for the build-up of ICTs instead of investing further in education or health care.

Given such trade-offs, there is a need to identify which kinds of ICT access deliver the best value for money in developing countries, and how the limited resources that can be spent on it can be made to best suit the particular needs of the poor. A number of ‘models’ for affordable access have so far been tried.

One of the most famous projects ones is the Grameen Village Phone system, undertaken by Grameen Telecom (a member of the Grameen Group). The project aims at ultimately spreading phone access to the over 100 million inhabitants of Bangladesh who are so far ‘unwired’, made possible by combining the Grameen Bank’s expertise in village-based micro-enterprise and
micro-credit with the latest digital wireless technology. The aim is to have selected member borrowers of Grameen Bank purchase the phones under a lease programme and make the phones available to all users in the village on a fee-paying basis.

**Benefits to rural households**

Recent research by the consulting firm Telecommons Development Group has shown that the Village Pay Phone Programme yields significant positive social and economic impacts, including relatively large consumer surpluses and immeasurable quality of life benefits. The consumer surplus for a single phone call from a village to Dhaka, a call that replaces a physical trip to the city, ranges from 2.6 to 9.8 per cent of mean monthly household income. The cost of a trip to the city ranges from 2 to 8 times the cost of a single phone call, meaning real savings for poor rural people of between 132 to 490 Taka ($ 2.70 to $10) per call.

Another model of ICT provision in rural areas of developing countries, and one which attempts to combine phone access with access to other ICTs (in particular the Internet), is that of so-called telecentres. A telecentre is a common point of access for multiple users (often an entire community), providing a range of ICT services including Internet, fax, word processing, and even specialised information retrieval or applications (e.g. distance education).

Telecentres have been established widely in the developing world, and vary in their service provision and means of funding. In Peru, the establishment of numerous ‘Cabinas Públicas’ has lead to one of the highest concentrations of public internet access and a significant reduction in prices. Nevertheless, the experience with telecentres has so far been a mixed one. In numerous cases, usage, particularly of PCs, has been lower than expected or commercial viability was not attained. Of the over 70 Community Telecentres established since 1997 by the South African Universal Services Agency, only 40 per cent remain open today, with only 3 per cent making enough money to cover costs. Many other telecentres failed to serve their particular target groups (some telecentres are, for instance, being used disproportionately by tourists).

Telecentres exist in various kinds, each with their respective merits. First, one might distinguish between small, private sector telecentres on the one hand and bigger, donor-funded telecentres on the other hand. Smaller, privately-run telecentres are often financially self-sustaining – but are thus usually restricted to areas where they expect to be viable (usually urban centres) and are usually neither within physical nor financial reach of the poor. They are also unlikely to be able to provide local content. – By contrast, larger, often externally funded telecentres are rarely financially sustainable but can focus more on specific ‘development’ – aspects, including access specifically targeted at rural communities and the poorest in general, as well as a focus on training.

A second distinction one might make between telecentres is according to the institutional context they are embedded in. This often has a significant influence on the ‘developmental impact’ of telecentres. Commercial telecentres and commercial franchises (usually resembling Internet Cafés of the kind that exist in many industrialised countries) are usually closest to commercial viability but, as mentioned, are unlikely to have an impact on rural areas and on the poor. Telecentres run by or with the involvement of developmental NGOs are more likely to target poor and marginalised communities and focus on much-needed additional services (training, content creation, provision of public goods) without which ICT access provision would be of limited developmental use. Telecentres in schools and universities have the significant advantage that for their establishment an existing physical infrastructure only has to be extended to accommodate the telecentre, and some of the ICT-relevant training can be cost-effectively integrated into the mainstream curriculum of the educational institution. At the same time, telecentres in universities have obviously little impact on those with little formal education, and hence on the mass of the rural poor. Moreover, most universities in developing
Countries are in urban areas. Generally, it is important to connect these types of telecentres with the rest of the community, e.g., by opening their doors to the public at the end of the school day. Finally, community telecentres are usually not attached to any outside institution and can thus focus on access and training to targeted marginalised communities. At the same time, however, they cannot benefit from the same synergies as telecentres in schools and universities.

---

**Electronic mail systems for individual villagers**

The ‘Village Phone System’ and Telecentres are possibly the two most famous but not the only promising examples of low-cost ICT access. One further idea are Virtual Telephones or village voice mail systems, as have been set up in Brazil. These can provide individuals with their own telephone number and access to a voice mailbox. In other words, the individual need not possess a telephone but can receive calls to a voice mailbox using his/her personal PIN. Extending this idea to text e-mail access, a South African company assigns e-mail addresses to every Post Office box address in the country, thereby providing electronic mail indirectly to around eight million South African households through public internet terminals located in post offices which users can access with a personal identification number. Finally, Internet Kiosks are are small stores fitted with phone lines. Individuals visit a kiosk and dictate an e-mail message over the phone to the closest telecentre against a fee payable to the kiosk owner (who will, in turn, have to pay the telecentre). Some telecentres even provide voicemail services for 24-hour access, and provide a service in which incoming e-mail services are dictated back over the phone to the kiosk owner, to be delivered to the appropriate customer. E-mail is therefore available to anyone with access to an internet kiosk, and small operators can enter the telecentre business with a minimum investment. When a kiosk scheme was set up in India, around 50 telephone booth operators enrolled in it. However, the scheme has hardly been a roaring success so far. The end-users seemed to find it difficult to adapt to voicing an e-mail message on a telephone. Traffic volumes did not achieve expectations, and of the 50 original subscribers, around 10 remain in the scheme, servicing only a handful of messages weekly.

Whatever the model chosen, there are a number of features pertaining to those ICT access projects that are particularly successful from a ‘developmental’ viewpoint (even though of these features can probably be more easily implemented with some access models than with others): The overriding and most general of these features is that successful ICT access projects have managed to extend service in a meaningful way. This means, for instance, to somehow convey the relevant (local) content provided through internet access to the largely illiterate rural populations of developing countries in local language. The Kothmale Community Radio in Sri Lanka is exceptional in this respect since it has combined community radio and Internet access. It has a leased line connection to the Internet, and in the so-called process of ‘radio browsing’ programme presenters browse the Web in the studio on behalf of listeners (who provide requests/input through phone or post). Relevant ‘experts’ from the community (lawyers, doctors etc.) then interpret the information for listeners. – A particularly good example of the creation of relevant local content are the ‘Infoshops’ in Pondicherry, India. After information requirements had been identified during a trial period, volunteers from the village created a local database comprising government programs for low income rural families; cost and availability of farming inputs such as seeds and fertilisers, grain prices in different local markets; a directory of insurance plans for crops and families; pest management plans for rice and sugar cane; a directory of local hospitals, medical practitioners and their specialities; a regional timetable for buses and trains; a directory of local veterinarians, cattle and animal husbandry programs.
A second important feature of successful ICT access programs is the link between the access program and more general assistance to the community concerned. A particularly interesting case of this is the link some projects make between ICT access and microfinance programs, thus reaping synergies between the two kinds of projects.

Need of training

Finally, the successfulness of an ICT access project to a large extent depends on the inclusion of an element of training. Luckily, training in ICT access points can usually capitalise on the multiplier effect through training of future trainers, as long as the trainers be equipped to keep up with rapid developments in the field. One example of an ICT access project that contains substantial training aspects is the MS Swaminathan Research Foundation (MSSRF). Here, work in village telecentres includes the training of villagers, especially young people and women, in how to operate the telecentres and training in the production of locally relevant material from generic information.

All this means that it is highly probable that ICTs do hold some significant potential gains for the development process, leading to a widely-perceived risk of some developing countries being bypassed by the ICT revolution if they do not invest into this sector. Yet, just as great is the danger of exaggerated expectations from ICTs for development leading decision-makers to expend scarce public resources where this little hard evidence to justify such steps. Until further systematic evidence on the precise developmental impact of different ICTs on different communities exists, or until there is substantially more private investment in this sector, maximising the use from ICTs for developing countries will require an understanding not only of the opportunities ICTs present, but also of the trade-offs involved – and of the particular ways in which ICT access has to be tailored if any developmental benefits are to be reaped.

Georg Caspary is a Policy Analyst at the Organisation for Economic Cooperation and Development (OECD). The background research for this article was conducted at the OECD Development Centre.