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Behind the digital divide

Mar 10th 2005
From *The Economist* print edition

Development: Much is made of the "digital divide" between rich and poor. What do people on the ground think about it?

Reuters

IN THE village of Embalam in southern India, about 15 miles outside the town of Pondicherry, Arumugam and his wife, Thillan, sit on the red earth in front of their thatch hut. She is 50 years old; he is not sure, but thinks he is around 75. Arumugam is unemployed. He used to work as a drum-beater at funerals, but then he was injured, and now he has trouble walking. Thillan makes a little money as a part-time agricultural labourer—about 30 rupees ($0.70) a day, ten days a month. Other than that, they get by on meagre (and sporadic) government disability payments.

In the new India of cybercafés and software tycoons, Arumugam and Thillan, and the millions of other villagers around the country like them, seem like anachronisms. But

just a few steps outside their section of the village—a section known as the "colony", where the untouchables traditionally live—the sheen of India's technology boom is more evident in a green room equipped with five computers, state-of-the-art solar cells and a wireless connection to the internet. This is the village's Knowledge Centre, one of 12 in the region set up by a local non-profit organisation, the M. S. Swaminathan Research Foundation (MSSRF). The centres, established with the aid of international donor agencies and local government support, offer villagers a range of information, including market prices for crops, job listings, details of government welfare schemes, and health advice.

A conservative estimate of the cost of the equipment in the Embalam centre is 200,000 rupees ($4,500), or around 55 years' earnings for Thillan. Annual running costs are extra. When asked about the centre, Thillan laughs. "I don't know anything about that," she says. "It has no connection to my life. We're just sitting here in our house trying to survive."

Scenes like these, played out around the developing world, have led to something of a backlash against rural deployments of new information and communications technologies, or ICTs, as they are known in the jargon of development experts. In the 1990s, at the height of the technology boom, rural ICTs were heralded as catalysts for "leapfrog development", "information societies" and a host of other digital-age panaceas for poverty. Now they have largely fallen out of favour: none other than Bill Gates, the chairman of Microsoft, derides them as distractions from the real problems of development. "Do people have a clear view of what it means to live on $1 a day?" he asked at a conference on the digital divide in 2000. "About 99% of the benefits of having a PC come when you've provided reasonable health and literacy to the person who's going to sit down and use it." That is why, even though Mr Gates made his fortune from computers, the Bill & Melinda Gates Foundation, now the richest charity in the world, concentrates on improving health in poor countries.

The backlash against ICTs is understandable. Set alongside the medieval living conditions in much of the developing world, it seems foolhardy to throw money at fancy computers and internet links. Far better, it would appear, to spend scarce resources on combating AIDS, say, or on better sanitation facilities. Indeed, this was the conclusion reached by the recently concluded Copenhagen Consensus project, which brought together a group of leading economists to prioritise how the world's development resources should be spent (see articles). The panel came up with 17 priorities: spending more on ICTs was not even on the list.

Still, it may be somewhat hasty to write off rural technology altogether. Charles Kenny, a senior economist at the World Bank who has studied the role of ICTs in development, says that traditional cost-benefit calculations are in the best of cases "an art, not a science". With ICTs, he adds, the picture is further muddied by the
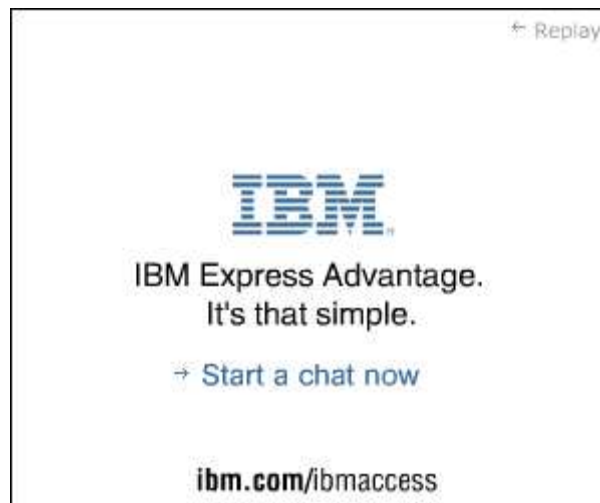
newness of the technologies; economists simply do not know how to quantify the benefits of the internet.

The view from the ground

Given the paucity of data, then, and even of sound methodologies for collecting the data, an alternative way to evaluate the role of ICTs in development is simply to ask rural residents what they think. Applied in rural India, in the villages served by the MSSRF, this approach reveals a more nuanced picture than that suggested by the sceptics, though not an entirely contradictory one.

Villagers like Arumugam and Thillan—older, illiterate and lower caste—appear to have little enthusiasm for technology. Indeed, Thillan, who lives barely a five-minute walk from the village's Knowledge Centre, says she did not even know about its existence until two months ago (even though the centre has been open for several years). When Thillan and a group of eight neighbours are asked for their development priorities—a common man's version of the Copenhagen Consensus—they list sanitation, land, health, education, transport, jobs—the list goes on and on, but it does not include computers, or even telephones. They are not so much sceptical of ICTs as oblivious; ICTs are irrelevant to their lives. This attitude is echoed by many villagers at the bottom of the social and economic ladder. In the fishing community of Veerapatinam, the site of another MSSRF centre, Thuradi, aged 45, sits on the beach sorting through his catch. "I'm illiterate," he says, when asked about the centre. "I don't know how to use a computer, and I have to fish all day."

But surely technology can provide information for the likes of Thuradi, even if he does not sit down in front of the computers himself? Among other things, the centre in this village offers information on wave heights and weather patterns (information that Thuradi says is already available on television). Some years ago, the centre also used satellites to map the movements of large schools of fish in the ocean. But according to another fisherman, this only benefited the rich: poor fishermen, lacking motorboats and navigation equipment, could not travel far enough, or determine their location precisely enough, to use the maps.

Such stories bring to mind the uneven results of earlier technology-led development efforts. Development experts are familiar with the notion of "rusting tractors"—a semi-apocryphal reference to imported agricultural technologies that littered poor countries in the 1960s and 1970s. Mr Kenny says he similarly anticipates "a fair number of dusty rooms with old computers piled up in them around the countryside."

That may well be true, but it does not mean that the money being channelled to rural technology is going entirely unappreciated. Rural ICTs appear particularly useful to the literate, to the wealthier and to the younger—those, in other words, who sit at the top of the socio-economic hierarchy. In the 12 villages surrounding Pondicherry, students are among the most frequent users of the Knowledge Centres; they look up exam results, learn computer skills and look for jobs. Farmers who own land or cattle, and who are therefore relatively well-off, get veterinary information and data on crop prices.

Outside the Embalam colony, at a village teashop up the road from the temple, Kumar, the 35-year-old shop owner, speaks glowingly about the centre's role in disseminating crop prices and information on government welfare schemes, and says the Knowledge Centre has made his village "famous".

"I'm illiterate," says one fisherman. "I don't know how to use a computer, and I have to fish all day."

He cites the dignitaries from development organisations and governments who have visited; he also points to the fact that people from 25 surrounding villages come to use the centre, transforming Embalam into something of a local information hub.

At the centre itself, Kasthuri, a female volunteer who helps run the place, says that the status of women in Embalam has improved as a result of using the computers. "Before, we were just sitting at home," she says. "Now we feel empowered and more in control." Some economists might dismiss such sentiments as woolly headed. But they are indicators of a sense of civic pride and social inclusiveness that less conventional economists might term human development or well-being.

A question of priorities
Given the mixed opinions on the ground, then, the real issue is not whether investing in ICTs can help development (it can, in some cases, and for some people), but whether the overall benefits of doing so outweigh those of investing in, say, education or health. Leonard Waverman of the London Business School has compared the impact on GDP of increases in teledensity (the number of telephones per 100 people) and the primary-school completion rate. He found that an increase of 100 basis points in teledensity raised GDP by about twice as much as the same increase in primary-school completion. As Dr Waverman acknowledges, however, his calculations do not take into account the respective investment costs—and it is the cost of ICTs that makes people such as Mr Gates so sceptical of their applicability to the developing world.

AFP

Indeed, Ashok Jhunjhunwala, a professor at the Indian Institute of Technology in Chennai (formerly Madras), argues that cost is the "deciding factor" in determining whether the digital divide will ever be bridged. To that end, Dr Jhunjhunwala and his colleagues are working on a number of low-cost devices, including a remote banking machine and a fixed wireless system that cuts the cost of access by more than half. But such innovation takes time and is itself expensive.

Perhaps a more immediate way of addressing the cost of technology is to rely on older, more proven means of delivering information. Radios, for example, are already being used by many development organisations; their cost (under $10) is a fraction of the investment (at least $800) required for a telephone line. In Embalam and Veerapatinam, few people actually ever sit at a computer; they receive much of their information from loudspeakers on top of the Knowledge Centre, or from a newsletter printed at the centre and delivered around the village. Such old-fashioned methods of communication can be connected to an internet hub

Now that's what I call antivirus technology

located further upstream; these hybrid networks may well represent the future of technology in the developing world.
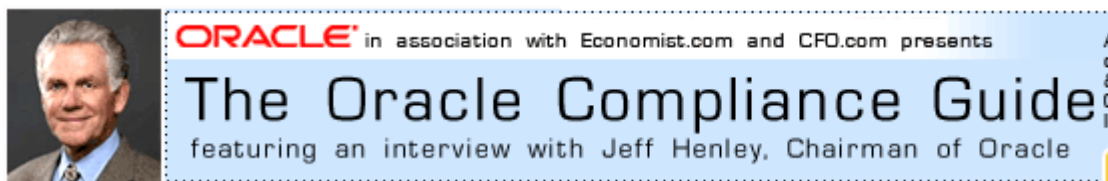
But for now, it seems that the most cost-effective way of providing information over the proverbial "last mile" is often decidedly low-tech. On December 26th 2004, villagers in Veerapatinam had occasion to marvel at the reliability of a truly old-fashioned source of information. As the Asian tsunami swept towards the south Indian shoreline, over a thousand villagers were gathered safely inland around the

temple well. About an hour and a half before the tsunami, the waters in the well had started bubbling and rising to the surface; by the time the wave hit, a whirlpool had formed and the villagers had left the beach to watch this strange phenomenon.

Nearby villages suffered heavy casualties, but in Veerapatinam only one person died out of a total population of 6,200. The villagers attribute their fortuitous escape to divine intervention, not technology. Ravi, a well-dressed man standing outside the Knowledge Centre, says the villagers received no warning over the speakers. "We owe everything to Her," he says, referring to the temple deity. "I'm telling you honestly," he says. "The information came from Her."

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