

DIGITAL BUSINESS

## Waking up to a laptop revolution

By Ian Limbach

Published: March 28 2006 16:30 | Last updated: March 28 2006 16:30



"We are too poor not to invest in information and communications technology." This is how Meles Zenawi, prime minister of Ethiopia, explains his government's plan to spend hundreds of millions of dollars on next-generation broadband networks that will bring telephony and internet to nearly every village in Ethiopia within two to three years. "ICT is the fastest way to end our isolation," he says.

To some, the plan is just another grandiose African infrastructure project that will burn massive amounts of cash – one official said the investment would reach close to 10 per cent of Ethiopia's annual gross domestic product – while more basic needs are neglected. In Ethiopia, nearly half the population is undernourished and only a quarter has reliable access to clean water.

But Mr Meles is adamant that the investment will bring lasting change: "The first mental block to overcome is that ICT is for the rich. Our development programmes have been among the most pro-poor. This choice is a continuation of that." He also said that the project was self-funded and did not rely on multilateral loans.

The priorities of Ethiopia's investment are getting the public sector online and improving access to education.

"It became clear that the quality of education that we could provide would be sub-standard for a long time because of a lack of resources unless a short cut was found. ICT could provide that short cut," the prime minister said.

Today, students in nearly all of the country's 600 secondary schools watch e-learning videos broadcast over internet protocol networks to wide plasma televisions. Sometimes these schools lack mains electricity and use a petrol generator to power the system. Mr Meles said that the quality of teaching was improving dramatically as a result.

But besides educational TV and a few IP video conferences between government officials, not much else is travelling over Ethiopia's multi-gigabit backbone network.

Mr Meles said: "We are simply building good roads and using government vehicles to test the road. The idea is to show people that it is open." He added that he expected the Ethiopian diaspora to be the leaders in developing the applications that will fill the bandwidth. "We will do whatever it takes to get them to contribute, such as tax breaks," he said.

Another ambitious development vision based on broadly accessible technology is the One Laptop Per Child initiative, which aims to produce sub-\$100 portable computers for the world's poor children.

The non-profit OLPC organisation, led by MIT Media Lab chairman Nicholas Negroponte, has already raised \$24m to design and trial the devices. The group hopes to begin producing 1m units per month for pilot projects in seven emerging markets at the beginning of 2007.

Unlike most education initiatives, OLPC will not seek to teach children but simply provide a tool with which they create and also learn.

Mr Negroponte explained: "OLPC is not about learning something, it is about learning learning. Children make things with their laptops, they explore and communicate. When a child, even in the most remote and poorest part of a developing country, is given an electronic game, the first thing he or she will do is discard the manual. The second is use the machine. The speed with which this child will acquire the knowledge to use the device is so astonishing, you risk thinking it is genetic."

Which is why Mr Negroponte believes that giving each child an individual computer is better than providing them through shared facilities. "Give each child a pencil and the child then uses it to draw, to write, at school, at home, for play, for study, for making music by beating it, and on and on. Likewise the laptop," he said.

The key to the OLPC vision will be scale, which is why the group will initially make the computers available only to governments that place bulk orders of more than 1m units. The seven launch countries are expected to order up to 10m units in 2007.

With time, this will change. "After the 2007 launch, as little as eight to 10 months later, we will open this to all non-governmental organisations, countries, states within countries, right down to school districts," said Mr

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Negroponete, adding that OLPC's goal is to bring connected laptops to 500m in five years.

And Mr Negroponete's vision goes beyond this: "I hope that in 10 years every child on the planet will be connected."

But some development and aid experts caution against putting too much trust in technology or giving it priority.

Duncan Green, head of research at UK charity Oxfam, said: "There is a good role for IT but I am worried that people are looking for a magic bullet. There are no short cuts in development."

Gib Bulloch, director of the Accenture Development Partnership, agreed: "It's not about building an advanced fibre network in Ethiopia and hoping it will end poverty. Technology is an enabler but needs to come with an understanding of the applications."

But as grand as Mr Negroponete's laptop plan sounds, it does rest on the fundamental concept that a country's development occurs at the individual human level. Which is why so many ICT development initiatives focus on education. Change in this manner may be subtle, often even humble, but it can also be powerful.

Hala Gidami, an educator at the Foreign Trade Training Centre in Cairo, is applying a curriculum developed by HP to teach Egyptian entrepreneurs the ICT-based business skills needed to access export markets. She said: "There is often a high resistance to technology, especially from older people. But if approached correctly, they see how it can help them. We have trained people who were not exporting before and then began to do so after the course. The results so far have been marvellous."

In Kenya, the African Medical and Research Foundation is working with the Accenture Development Partnership to develop an 80-hour e-learning curriculum to bring 2,000 nurses quickly to diploma-level certification. Mr Bulloch said: "Up to now, there has been a real capacity constraint in nurse training. With the usual means, this project would have taken 100 years; e-learning can short circuit that down to five years."

Many of the Navajo indigenous people also find themselves living in a sort of developing world right in the middle of the US: they face extreme poverty, the unemployment rate on the reservation runs at 50 per cent and many of them lack access to running water and electricity.

To fight this isolation, the Navajo Nation recently connected all of its community Chapter Houses and schools using a combination of broadband satellite and optical fibre. Distance learning is giving some people access to university education while silversmiths and craftspeople are now selling their products online.

Joe Shirley Jr, president of the Navajo Nation, said: "Shops at the border towns were buying our wares at a really minimal price. Now 600 of our artisans sell their crafts online via Overstock.com. They are getting good prices; they're making a good living."

And the internet could bring even richer rewards thanks to online gambling services. "There's the potential to reap hundreds of millions of dollars for the Navajo Nation's coffers," he said.

But Mr Shirley also believes that technology can strengthen the Navajo culture.

He said: "We have our kinship, our language, our sacred land to preserve. Our clan grandmothers and medicine people are teaching the young children over the internet from Head Start education centres.

"We're also using it to reconnect with our people in the metropolitan areas. They can continue to be a Navajo in New York City."

Yet, despite these ICT success stories, some thinkers feel that the current discussion on technology and development is too narrow.

Jeremy Rifkin, president of Foundation on Economic Trends, the public policy group, said: "The essential technology to help the third world take off is electricity. People talk about a connected world but one third of humans have no electricity. They're powerless in the global economy, literally.

"This needs to be coupled with environmental priorities such as clean water and access to land, at least for subsistence; everything else is secondary."

Mr Rifkin sees the world's dependence on fossil fuels as inherently unfair, condemning poorer countries to increasing exclusion no matter what ICT technologies the west provides them with.

"The energy regime that we set up in the last couple of hundred years is an elite system that takes huge capital investments. Some 89 countries are worse off than they were 15 years ago, largely because they can't afford the price of oil. What we're not paying attention to is that as energy prices go up,

the marginalised are being left further behind. And we know that the price of oil is never going down again," said Mr Rifkin.

The answer, he believes, is cheap, distributed, renewable energy. "We need to have a third industrial revolution based on renewable energy from hydrogen fuel cells," said Mr Rifkin, who has long advised leaders in advanced economies to subsidise research into alternative energy aggressively through large-scale public-private partnerships.

"Hydro cells are an ideal energy base for the third world. They will be the real beneficiaries once these technologies get to scale. This will be the starting-off point for a decent life."

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