
Beaming Books

It's a cheap stopgap for the digital divide: satellite transmission.

By David Talbot

Many of Africa's cities and populous areas are reaping extraordinary benefits from new cellular telephone networks and Internet access. But it will be many years before rural interior areas -- where the majority of Africans live -- follow the cities into the information age. Children there don't even have recent-edition textbooks, much less Web-connected computers.

But help could be on the way in the form of a narrowband but workable technology: one-way delivery of digital information via satellite.

In a test last year at the Mbita Point primary school on the Kenya-Uganda border, 60 youngsters got a taste of what's possible. A Swiss foundation called BioVision installed a satellite receiver at the school, gave out handheld computers running Linux-based software, and downloaded up-to-date curricula from Kenya's education ministry. BioVision says this approach is far cheaper than buying books every year.

Now, the foundation has passed the project, called EduVision, on to a venture capital firm called Bridgeworks, which hopes to turn it into a self-sustaining business. Bridgeworks is in talks with education agencies in several countries about implementing the system on a massive scale; a possible Rwandan project would serve more than 20,000 children in 504 secondary schools.

"Our idea is that it will not be highly profitable but profitable enough to expand," says Matthew Herren, a Swiss raised in Kenya who started the project. He predicts that at least one of the countries now in talks will be using the system within a year.

The satellite bandwidth comes from a Silver Spring, MD, company called WorldSpace, which operates two geostationary satellites, one over Asia, the other over Africa. For several years, the company has transmitted traditional satellite-radio content -- audio feeds from outlets like CNN and NPR. Some African countries, including Kenya, have used the services to transmit audio versions of classroom lectures.

But in the past two years, WorldSpace has opened up some bandwidth for the broadcast of any digital information, delivered at 128 kilobits per second. That's slow by the standards of a Western office worker but sufficient to get text documents through quickly. Photos and videos mean longer wait times, but that's fine for the

periodic downloading of educational materials.

"One of the reasons why African educational systems have fallen behind, particularly in the sciences, is that it's very expensive to update and revise curricula," says Calestous Juma, an international-development professor at the Belfer Center for Science and International Affairs at Harvard University. Remarking on the isolation of Africa's interior, Juma added, "Africa has been waiting for something like this since the time of Julius Caesar."

While the system doesn't provide two-way communication, it can have a big impact on the delivery of educational, health, and agricultural information. In many regions, WorldSpace provides the only service that allows data download to cheap receivers with palm-sized antennas, as opposed to the expensive, high-bandwidth satellite receivers used by governments, says WorldSpace senior vice president Srinivasan Rangarajan.

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