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MIT's NextLab: Designing Technology for the Next Billion Mobile Phone Owners

Eva Reg rdh 3/31/10

Fighting illiteracy in Indian villages; facilitating local health reporting in Mexico; creating a mobile logistics app for truck drivers in Colombia. These may sound like projects run by a big non-governmental organization like the United Nations Development Program, but in fact they are three examples of MIT NextLab projects run mainly by MIT students and local organizations in the respective countries.

"Traditional aid does little for the very poor," says Jhonatan Rotberg, founder and director of the NextLab program. "Only a fraction of the donated money trickles down to those who need it most. But with a mobile phone, poor people can get ahead. For countries in the Third World, a smart phone is the perfect tool for creating local progress in a society."



Rotberg's vision is that one day we could all have an open-source smart phone, running an operating system such as Google's Android that can easily be adapted to the need of different user groups. These phones will be able to do basically anything a computer can do today, but anytime, anywhere, and much more cheaply. They will bring content, applications and services to the people of the developing world, reducing friction in economic transactions and helping people to be more effective in their everyday lives.

Already, over 4 billion mobile phones are in use in the world today. Markets in the Western world are near saturation. The next billion new users, Rotberg says, will be spread out in the developing countries, mainly in Africa and Asia. Many of them are poorly educated and live in rural areas. That means builders of mobile devices and mobile applications need to bring a different mindset to their work, he says.

"The big challenge is not technical, it is about usability," Rotberg says. "Getting people to use and understand the applications is a daunting task."

Rotberg, who gave the opening address at Xconomy's recent *Mobile Madness* forum, is a lecturer in MIT's Engineering Systems Division. Before coming to MIT four years ago, he spent years developing new business models for Telmex, the largest Latin American telecom company. At MIT, he has studied how technology, especially mobile communications, can be used to enhance quality of life in the developing world, and has worked with students and local partners to create joint MIT-industry programs that spin off promising mobile technologies for use in developing countries.



"The idea was to get access to MIT's large intellectual capital and use it for the benefit of emerging markets," explains Rotberg. "Together with MIT Media Lab, we worked out the concept for the MIT Next Billion network".

After that project was completed in 2009, Rotberg says, he felt no wish to go back to his old job. On the contrary, he wanted to continue the MIT work and formed NextLab, the next generation of the Next Billion Network. The idea with NextLab is to address global challenges by developing Web-based, open-source mobile platforms and applications that they can be picked up and used more widely.

"Instead of giving money, the traditional way of developing aid, we develop software tools that give users ways to become micro-entrepreneurs within their own environment—to become more efficient, to make business, find sources of income and make their life easier," Rotberg says. "We collaborate with local partners and organizations, many of them NGOs."

After discussion with these local partners in countries such as the Philippines, Venezuela, and Vietnam, NextLab members, who include a mix of graduate and undergraduate students at MIT and other



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universities, develop the software needed for a specific global challenge. Often surrounding technology must be developed too, like near-field communications and sensor systems.

Rotberg says NextLab deals with four areas of human need:

- Income generation—apps for job search, mobile banking and commerce.
- Health—services that automate data collection and updates for health records, or diagnostic systems that send medical pictures, videos, and x-rays for remote interpretation.
- Civic engagement—apps for disaster management and crime reporting, for example.
- Education—enhancing literacy, especially in remote villages.



In one project, NextLab developed a mobile app for monitoring and tracking the growth of forests in northern Vietnam, where trees grow fast but can only be harvested after 6 to 7 years. By taking a camera-phone photo, marking the GPS coordinators, entering a reading, downloading the information to a PC, and pinning the information to a Google Map, tree farmers can keep much closer track of their crop.

It's unclear whether NextLab's mobile projects are yet producing measurable results in emerging economies. But Rotberg says the program's goal is simply to get change started.

"Our job is not to engage in large-scale projects," says Rotberg. "Our job at MIT is to push the envelope of innovation—to show the world what can be done, to open up a toolbox to the developing world, facilitating for them to become their own bosses, their own health care providers, more active citizens, more literate. In short, more entrepreneurial, healthier, better citizens, and better educated. All through this Trojan horse called the cell phone."

Eva Redh is a tech journalist from Sweden. She is an Innovation Journalism Fellow 2010 at Stanford University and is working for Xconomy during her fellowship.

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