

OPINION/IDEAS

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Third World first

The rise of cellphone banking in India highlights a new trend: technology developed in the Third World is flowing back to the First.

By Jeremy Kahn | January 20, 2008

NEW DELHI - Bapi Das, seated next to an open sewer in a teeming slum on the outskirts of this Indian city, combs his hand through his hair, smooths his moustache, and prepares to enter the global financial system.

Das, a 42-year-old commercial painter, grins as a worker for a local micro-finance group frames his face with a digital camera and zooms in. It is an important moment. His photo will adorn a smart card that, with help from a mobile phone and a fingerprint reader, will allow Das to store money electronically, make small cash withdrawals, and send money to his family on the other side of the country. It is the first bank account he has ever had.

This might seem like a classic example of the Third World struggling to catch up with the First. After all, people in the United States and Europe have been using ATM cards and the Internet for years to perform the simple banking tasks Das is only now able to do. But look again: The technology used to bring slum-dwellers like Das their first bank accounts is so advanced that it isn't available to even the most tech-savvy Americans - at least not yet.

Soon, however, it may help you purchase groceries, withdraw cash from an ATM, or ride the T. Already in the past year, Citigroup has taken a mobile banking system it pioneered in India and brought it to the United States. And a host of other companies, from Ford to Microsoft, are following suit: piloting new technologies and ways of doing business in the developing world, and only then bringing these products and services to wealthier consumers in more mature markets.

This represents a stunning reversal of the traditional flow of innovation. Until recently, consumers in the Third World also had to tolerate third-rate technology. Africa, India, and Latin America were dumping grounds for antiquated products and services. In a market in which some people still rode camels, a 50-year-old car engine was good enough. Innovation remained the exclusive domain of the developed world. Everyone else got hand-me-downs.

But today, some emerging economies are starting to leapfrog ahead. Why build a network of telephone wires out to remote areas when you can go straight to a cutting-edge mobile network at a fraction of the cost? Why burn fossil fuels for electricity and cooking if cleaner - and in some cases cheaper - alternatives, like solar and biogas, are available? Why electrify rural villages with incandescent bulbs if longer-lasting, environmentally friendly options like LEDs or new fluorescent bulbs exist? In many cases, it is mature markets like the United States and Europe, tethered to older systems, that find themselves playing catch-up.

There are numerous industries in which the new new thing is being designed for the developing world, and only later reaching the United States or Europe. Motorola's Motofone, designed with emerging markets in mind, is thinner than its popular Razr, gets up to 400 hours of standby on a single battery charge, and has a screen specially designed for text messaging that works using reflected light, with no need for an internal lamp. Oh, and it will retail for just \$30. Intel has begun field tests of a new wireless broadband standard that could connect billions in the developing world to the Internet cheaply - and, if it works, will probably become the standard for the rest of us. Cheap combination drug therapies that are easier for poorer, less educated patients to follow are pioneered in the developing world before arriving in our medicine cabinets. Improvements in water treatment and clean energy - for instance, producing biogas from household waste - are also emanating from the developing world.

To achieve the growth rates and returns their shareholders demand, companies have increasingly begun chasing what C.K. Prahalad, a business professor at the University of Michigan, has called "the fortune at the bottom of the pyramid" - the vast aggregate purchasing power locked away in the 4 billion people who make up the world's poor. And as they do, companies are confronting the unique challenge of making high-tech products cheaply enough to make a profit. In some cases, this means shifting jobs for talented designers and engineers to the developing world - not just to save labor costs, but in order to better understand the markets they are now trying to reach.

"Developing markets offer the best opportunity for global firms to discover what is likely to be 'next practice,' as contrasted with today's best practice," Prahalad has written. "The low end is a new source of innovation."

Kanta, a stooped, middle-aged woman in the Delhi slum of Harsh Vihar, works part-time helping her children in their shop. What little she earns is mostly spent on food. Any money she manages to save, she hides in her apartment or on her person, where it could easily be lost or stolen. She earns no interest, of course. There are no commercial bank branches or ATMs in Kanta's neighborhood. (Like many Indian women in this area, she uses only one name.) Most banks wouldn't want her business anyway: it would cost them more to service her account than they could make off her small transactions.

The same is true for most of Kanta's neighbors, many of them migrant laborers from rural parts of India. Some have no documents to verify their identities and current addresses; others are illiterate, unable to fill out even simple account application forms, deposit slips, and checks.

Throughout India and the developing world there are at least 2.5 billion people like Kanta without any access to financial services - the "unbanked," as they are known in the business. They exist in an all-cash economy, where savings are hidden in mattresses, loans are available only from black-market money lenders at exorbitant interest rates, and sending money to relatives back home means paying high fees or entrusting cash to unreliable, informal networks.

The Harsh Vihar slum may not have banks, but it does have cellphone coverage. And that has made its residents ideal candidates for a novel experiment in combining microfinance and mobile banking. Basix, an organization that specializes in bringing microloans and other financial services to India's poor, has teamed up with Axis, an Indian commercial bank, to begin offering accounts to workers in Delhi's slums. Its approach relies on a combination of high technology and old-fashioned shoe leather.

Kanta got a bank account after meeting with a Basix field agent who scouts for potential customers. The field agent helped her fill out a simple application. With help from a colleague, he also scanned her fingerprints and took her picture. All this information winds up on a smart card that Kanta can then use for banking.

To make a deposit or withdrawal, the agent checks Kanta's fingerprints as a form of ID, then uses a specially equipped mobile phone to access the account information on the card. If she wants to make a withdrawal, the agent enters the amount on the phone, gives her the cash, and uses a hand-held printer to spit out a receipt.

Kanta's neighbors, migrant workers who come from the rural Indian state of Bihar, located some 600 miles east of Delhi, can also use this system to send remittances back to their families. Most banks in India charge a 5 percent fee for remittances and people in rural areas often have to travel long distances to collect the money. Basix does it for less than 2 percent, and its workers will visit homes in villages to complete the transactions, said Preeti Sahai, who heads the Basix pilot project in Delhi.

Beyond the 4,000 people that Basix has registered in the first four months of its pilot project, burgeoning numbers elsewhere in India and throughout the developing world now rely on some type of cellphone system for much of their banking.

In the Philippines, Kenya, and South Africa, hundreds of thousands of cellphone customers can already deposit and withdraw cash at the same shops where they buy airtime for their prepaid cellphones. They can also send money to other people through text messages - a service that is only just beginning to arrive in the United States.

Mobile banking is a prime example of the way in which the flow of technological innovation has been reversed, and its potential is vast. There are now more than 3 billion cellphone subscribers on the planet - the last billion having been added in just the past two years, largely due to explosive growth in India, Africa, Latin America, and Asia. More than half of all cellphone users now live in developing countries, making it the first electronic technology to garner more users in the Third World than the First.

"The mobile telecom revolution has gone out to far more people far further down the income stream than the banking system ever has," said Stephen Rasmussen, who manages a mobile banking pilot project in Pakistan for the Consultative Group to Assist the Poor, a public-private partnership focused on expanding financial services to the poor.

As mobile banking expands, many of the innovations that make it possible are starting to find a place in systems targeted at the world's rich as well.

Take the use of biometric data instead of signatures or PIN codes for banking security. Citibank experimented with a biometric ATM first in India - where a customer uses a fingerprint instead of a PIN for security. Then in Singapore, it introduced a biometric credit card. A customer simply registers his or her fingerprint with the bank and uses the print to

make transactions, without any need for a card at all. Now this technology is likely to see use in the United States and Europe, said Satish Menon, who runs the Asian operations of Citigroup's growth ventures and innovation team.

India is also becoming the proving ground for mobile phones equipped with what's called near-field communications, the system that lets the Basix phone share information with the smart card. Citibank is starting a pilot project in Bangalore this month that will enable workers in business parks to pay for meals and purchase items from shops using their mobile phones. This system, too, may eventually find its way to New York or Boston.

Ironically, the developed world has fallen behind in adopting new technologies precisely because its existing systems work well. Mobile banking is less attractive in a world where there are plentiful bank branches and ATMs, not to mention Internet access for online banking. In America, mobile banking is just another channel. For the world's poorest, it may be the only channel.

"Necessity really is the mother of invention in this case," Menon said.

Nowhere are the needs greater than in the Third World, and serving those needs is forcing companies to radically rethink how they design products and services.

In a globalized world, people in emerging markets want first-class products - but at prices they can afford. Meeting that demand, particularly in countries where basic infrastructure is weak, requires more creativity than designing a product for a more advanced, affluent market. As a result, companies are shifting not only their marketing focus, but their engineers and designers, toward places like India, Indonesia, and Brazil.

For example, to produce the Nano, the groundbreaking \$2,500 car India's Tata Motors unveiled two weeks ago, Tata had to discover ways of removing costs from every part of the car's design. It's a feat no other car company in the world has matched. No surprise that Ford has announced it will soon move its worldwide small car development hub to India, where the market for inexpensive, small cars is greatest. GM, Suzuki, and Hyundai are also moving more design and engineering jobs to India - not because the engineers are cheaper, but because they better understand the needs of developing world consumers.

Two of Unilever's six global research centers are now in the developing world (China and India). Similarly, two of Microsoft's five worldwide research labs are also in India and China. Cisco just signed an agreement with Indian networking integrator Wipro to work jointly on penetrating markets in India, Africa, and the Middle East. As part of the deal, Cisco is opening a new engineering facility in Bangalore.

This is not to say that technological innovation in the developed world will cease. Consumers here continue to demand more and better products and services. This is particularly true for luxury items, where the First World is unlikely to relinquish its lead any time soon. And the developed world is likely to continue to lead the way when it comes to customization and specialization - anywhere in which selling at vast scale is less important to the business model.

But the First World will have to share the stage with the Third World in a way it never has before. For centuries, the world's standards were set in its most advanced nations and poorer ones emulated and imitated. But now, it is likely to be the developing world that dictates many of our technological platforms and sets the pace of change. It has the numbers - and in aggregate, the money. It's inevitable that innovation's center of gravity will ultimately follow.

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