

People-Centered ICT

Improving the Lives of Millions and Creating New Business in Emerging Markets

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Introduction

Information and communications technologies (ICT) have the potential to improve the lives of millions of people in disadvantaged communities. But in spite of ICT corporations' good intentions, deep pockets, and technology, the global ICT market remains largely untapped—5 billion people do not have access to the Internet.¹

The Cisco® Internet Business Solutions Group (IBSG) asserts that to realize ICT's potential to help communities and develop the global ICT market, ICT corporations need to revolutionize the way they do business. Corporations' and governments' worthy efforts to help disadvantaged communities through charity and international aid generally have not achieved large-scale, sustainable impacts. Continuing with the same approaches will not change results. Instead, we recommend that corporations and governments build “peer” partnerships with organizations that have local knowledge and a record of success in working with disadvantaged communities.

These “local” organizations (meaning they operate at a local level, while working in locations across the globe) understand the mindsets, incentives, language, and behaviors of disadvantaged communities. This knowledge—or “people software”—provides them with the know-how to make things work and unlock business opportunities in these communities. In this Point of View, we define people software as:

- An understanding of how communities work, and how to work collaboratively with them
- A focus on local enterprise, generation of profit, and support to the local economy
- A learning loop to iterate solutions that work, scale, and sustain

This paper shows how an increasing number of organizations, old and new, that act “locally” have already developed, deployed, and scaled “bottom-up” solutions for the benefit of millions of people. These capacities, still unknown to most people, are essential both to unlock new markets and to transform lives.

In our view, only by matching ICT corporations' good intentions, money, and technology with the right people software will millions of people in disadvantaged communities exploit ICT as a tool to improve their lives. We see partnerships among corporations, governments, and “local” organizations as mutually beneficial and sustainable: they deliver social impact while serving companies' interests in tapping into “bottom-up” innovation and unlocking business opportunities in emerging and developing countries.

A Changing Landscape

Corporate profits and new business opportunities greatly depend on companies' capacity to harness resources all across the world. The changing global landscape requires them to tap into the innovation and diversity of talent available in emerging and developing markets. It also means that today, three-quarters of the poor live in middle-income countries such as China, India, Pakistan, Indonesia, and Nigeria—not in low-income countries, as in the past.² This new reality provides ICT corporations with the unique opportunity to focus on dynamic, new markets while also helping improve the lives of millions of disadvantaged people.

ICT corporations often have the upper hand in partnerships with “local” organizations, an imbalance of power that does not fully capture the value of these groups. Only if the partners collaborate as peers—with ICT corporations open to working in new ways—will they learn how to identify opportunities, develop products, satisfy clients, motivate staff, handle distribution, and manage pricing in emerging and developing country contexts. “Local” organizations, meanwhile, will gain access to relevant resources—human, ICT, and financial—to help them innovate and scale solutions.

Success Through “People Software”

BRAC (Bangladesh), SERP (India), and CDI (Brazil) are pioneering organizations. Their technologies and services have benefited millions of people in disadvantaged communities, and their impact continues. This section has been produced thanks to the kind collaboration of BRAC, SERP, and CDI staff.

The remarkable success of these organizations can be explained by many factors. In our view, what differentiates them is that they efficiently deploy their people software, the common elements of which include:

- **Focus on people, not on technology.** Understanding what makes a community tick and how to engage communities such that they are the key decision makers is the difference between success and failure. Technological issues are secondary.
- **Supporting livelihoods of local people and the local economic ecosystem.** Rigorous development and implementation of business plans and local employment are critical for sustainability.
- **Learning from mistakes.** The organization embraces failure and hones its capacity to determine what has worked, what hasn't, and why. Admitting mistakes is difficult for any organization, and even more so for organizations that depend on outside funding. Nevertheless, the capacity to iterate on solutions is essential when facing complex problems.

BRAC

One of the organizations best positioned to show us the importance of people software and a new way of doing business in disadvantaged communities is BRAC (www.brac.net, www.bracusa.org), which started 38 years ago as a relief effort in Bangladesh and is now, by some counts, the largest development organization in the world. Today, it employs 125,000 people, operates in 10 countries, and provides key services to 138 million people. BRAC finances 70–80 percent of its activities through the profits of its own entrepreneurial activities, a large share of which is derived from the financial services it provides.³

BRAC has many worthy claims to world recognition, including one that saved hundreds of thousands of lives: distributing an oral rehydration therapy to treat cholera and diarrhea. The oral rehydration therapy was ranked as the second-greatest health advance in the past 150 years in a poll conducted by the *British Medical Journal* in 2007.

ClickDiagnostics: Maternity Care with a Click⁴

"We told BRAC that we would be a long-time partner with them. We weren't just a vendor to provide training and software, and then leave. Our goal was to change the business process and people's incentive structure to make the system sustainable over the long run, and not just the technology."

Mridul Chowdhury, CEO, ClickDiagnostics

BRAC's maternal and child health system is a community-based approach that enables various levels of community stakeholders and healthcare providers to provide care to mothers, neonates, and infants. One level consists of community healthworkers (CHW), known as Shastho Kormi (SK), who are trained in basic antenatal, post-natal, and infant care, as well as family planning. They conduct door-to-door visits and provide these services. Visit information is recorded manually, through paper-based processes, and data is entered into a database a few weeks later.

One of the key challenges is the need for timely reporting of patient status and early intervention. Data takes time to reach decision makers, and often is not comprehensive enough to make accurate decisions (for example, patient medical history might not be available). Another challenge is managing the health workers more efficiently. Visits are not focused on high-risk patients, meaning there is scope to allocate these resources more effectively using available patient data. Lastly, quite often, patients require counseling and support during emergency situations. In the current system, patients are provided with three mobile phone numbers and are required to call any or even all of them in case of emergency. Since there is no single point of responsibility, emergency case management becomes difficult to track and follow up.

ClickDiagnostics (<http://www.clickdiagnostics.com>), an organization funded by BRAC, the Alliance Forum Foundation, and the Rockefeller Foundation, uses the mobile phone to guide BRAC CHWs to provide healthcare and collect real-time patient data to help doctors and healthcare providers make decisions and provide personalized services based on patients' health needs and risks.

How it works: ClickDiagnostics provides BRAC maternity health workers with a mobile phone installed with a ClickDiagnostics application. The system requires only that health workers can read Bangla and complete a half-day training. The health workers input data during their patient visits by answering a few simple questions, and they also take a picture of the patient. Based on this data, the system categorizes patients into three risk levels. The health worker receives automated advice based on the risk status of the patient. Doctors may also send a custom advice to the health worker after diagnosing the patient's condition. Moreover, health workers receive an automatically generated daily work schedule that helps guide their workflow. All data is sent to a central database and reports are created in real time. Lastly, patients are given a single number to call during an emergency. An agent mobilizes health workers and ambulances, and informs the necessary medical facility.

Social impact: ClickDiagnostics provides real-time data so that women and children with the highest risk can have better access to needed healthcare. Doctors can focus on making decisions based on individual patient records rather than aggregated data. Also, health workers and their supervisors have much more time to focus on patient care. ClickDiagnostics worked closely with pregnant women and involved them in the design of the system to make sure that the processes suited their particular needs. ClickDiagnostics respected the social order of the community, and ensured that appointed elderly individuals were called during times of emergency to support the community.

The future: ClickDiagnostics is using BRAC's network to scale its technology among 6 million people living in urban slums over the next year. The organization plans to cover the whole rural area of about 140 million people. The United Nations' mHealth Alliance is now advocating for other organizations to replicate the BRAC-Click model for maternal/child healthcare in helping support the Millennium Development goals for the maternal healthcare market.

Richard Cash and David Nalin published evidence on the effectiveness of oral rehydration in the medical journal *The Lancet* in 1968. However, Cash soon realized that discovering this technology was the easy part. The difficult part was turning this scientific discovery into a technology that was embedded in local communities.

Cash understood that technology couldn't be parachuted into disadvantaged communities. BRAC and a local research organization spent the next 10 years creating the people software to embed the use of the oral solution in people's behaviors and homes across Bangladesh. This is how use of this technological solution reached 70 percent, the highest adoption rate in the world.⁵

BRAC's success in transforming a simple salt and sugar solution into a home remedy that reached all of the households in Bangladesh—at the time, 12 million—demonstrated that technologies, including ICT, can benefit disadvantaged communities when they are accompanied by the right people software. Success was achieved by a single-minded focus on tailoring solutions to local cultural norms, values, and practices. This required understanding the needs of the local community and the way it works, and ensuring that BRAC interventions became embedded in the community. BRAC's people software did not require it to get everything right at the outset. Instead, success was based on BRAC's unique capacity to understand what's happening on the ground and to adjust quickly to this learning. "Embracing failure" allowed BRAC to identify what worked, what didn't, and why—unlike almost all other development organizations in the world.

BRAC's people software included recruiting "oral replacement workers" from the local area, offering them rigorous training, and introducing innovative, outcomes-based monetary rewards. The incentive was based on how well mothers learned the messages and how well they prepared the hydration solution: "A pinch of salt, a fistful of *gur* (*gur* is sugar from molasses). About 5–10 percent of mothers were independently monitored, and 90 percent of them achieved the highest grades in remembering the main training points and correctly preparing the oral solution."⁶ By changing everyday behavior, BRAC created people software that resulted in the oral rehydration solution technology improving the lives of millions of Bangladeshis.

BRAC was never a typical non-governmental organization or charity. It always emphasized understanding the economic and social factors that cause poverty and applied rigorous business and marketing methodologies to support people's livelihoods. Use of its powerful people software has allowed BRAC to become Bangladesh's largest provider of secular education for the poor and to develop successful integrated businesses in financial services, milk, poultry, agriculture, silk, and crafts that generate profits both for people and for BRAC. Its joint venture businesses also include a commercial bank, a mobile payments company, and a broadband firm.

BRAC is a rare non-governmental organization: one that seeks to work on national scale, employing entrepreneurial approaches to generate income, rather than relying only on traditional charity. BRAC continues to develop innovative approaches that combine sustainable business models with effective use of large-scale philanthropy.

Society for the Elimination of Rural Poverty

SERP (www.serp.ap.gov.in/), the largest grassroots empowerment organization in India, developed powerful people software that has helped it improve the lives of more than 70 percent of the 70 million people in Andhra Pradesh, one of India's largest states. SERP is an autonomous government agency that prides itself on working with the poor as clients—not as beneficiaries. SERP was created by the government of Andhra Pradesh in 2000 with the strong conviction—shared by its former CEO and legendary figure in the self-help group movement, Vijay Kumar—that the poor can come out of poverty only through their own institutions and through the empowerment of women.

SERP's people software involved a gradual process of building institutions of and by the poor. SERP wanted these institutions' norms and cultures to help embed accountability and sound governance in local communities. SERP created a federated structure of institutions that includes more than 1 million self-help groups exclusively managed by rural poor women. Membership totals 11.1 million—more than 95 percent of rural poor households in 36,000 village organizations.⁷

In this system, women come together in groups of 10–15 to collectively save their own money and give loans to their members based on need. Women develop a sense of accountability to themselves and their community through intensive training, practice in day-to-day management of the groups (particularly, good bookkeeping), and rewards for accountability. The repayment of loans by these groups of women and the improvements in bookkeeping have resulted in commercial banks gaining trust and extending loans to these self-help groups to the tune of \$5.6 billion.⁸ The groups have also become attractive clients for insurance companies and large-scale social safety-net programs.

SERP has contributed to large increases in household income, and has allowed women to develop leadership skills that were once unimaginable for most poor and illiterate women—including getting training to become paralegals in their communities. SERP has helped transform poor women into viable earners in their households and respected leaders in their communities.

SERP's people software has also been deployed for the use of ICT to build human and social capital among the rural poor and to transform the quality and efficiency of service delivery. SERP uses branchless banking arrangements and smart-card technologies for making welfare payments; call centers for grievance redress; and management information systems for monitoring. It also is introducing e-bookkeeping for villages, having already reached 5,000 village organizations to record the accounting transactions of more than 100,000 self-help groups. SERP's use of ICT has transformed the micro-insurance sector, with more than 8 million poor enrolled under the life insurance program and 67,000 insurance claims settled through web-based systems, attracting leading players to this market.⁹ India is adopting the SERP approach nationally, and is implementing it across all rural areas of the country. This National Rural Livelihoods Mission aims to directly include 70 million families.¹⁰

SERP E-Bookkeeping: Empowering Rural Women to Manage Their Own Finances¹¹

"The e-bookkeepers, who are self-help group members themselves with minimal education, can handle the device, as well as the software, with ease and comfort. All financial transactions of all self-help groups in the mandal are being recorded with 100 percent accuracy, which has not been possible with traditional bookkeeping systems."

E-bookkeeping Annual Report, 2009-2010

Microfinance has spawned a new trend of women's self-help groups that gather to take out and return their loans. While the groups are becoming more financially independent, the women's low literacy rates make them reliant on third-party bookkeepers to keep track of their money. With more than 1 million self-help group meetings every week requiring seven different books, it often takes bookkeepers at least 1½ hours to register the financial transactions for each group. The cumbersome and paper-intensive process means that accounts are often filled with errors. E-bookkeeping encourages women to become professional bookkeepers for their own communities. The program provides the designated e-bookkeeper with a portable computer to record all transactions in an electronic form that can be completed at the point of transaction within 15 minutes.

How it works: One woman in each village is selected to become the e-bookkeeper and is responsible for recording the financial transactions of the self-help groups and village meetings via the portable PC. While most selected e-bookkeepers have never seen a computer in their lives, they are well-respected women who are part of a self-help group and have a high school education. The e-bookkeeper position is seen as a professional job that is paid and receives computer and accounting training. E-bookkeepers attend all self-help group meetings to record the financial transactions in real time on the computer, which replaces all paper-based accounting. With the technology, the e-bookkeeper can provide up-to-date receipts and payment statements, income and expenditure statements, and profit and loss data. The devices also have audio feedback to confirm transactions, which increases transparency. The information from each device is aggregated from the self-help groups to each Village Organization, to the district level, and through to the state.

Social impact: Women were "fish to water" in interest and learning to use computers. Previously, men were the bookkeepers, but through this initiative, they are training women to play this role as well. E-bookkeeping also improves the financial knowledge of women. The groups receive immediate feedback on their financial condition, enabling them to analyze and discuss their financial performance. Moreover, the self-help group's financial performance is available to the public, opening new doors for women to access formal financial institutions that were never available before. The collected data also helps inform public policy decisions by giving the state timely information about the self-help group movement as well as data for launching new programs for rural development.

The future: SERP plans to extend the e-bookkeeping concept beyond the 5,000 Village Organizations reached at the end of 2010 to all Village Organizations in the state of Andhra Pradesh by 2011. The Gates Foundation is also funding through CGAP and the World Bank for further technological innovations in this direction. With a PC in each of these villages, the communities will have the opportunity to deepen their ICT skills to support other aspects of their lives.

Center for Digital Inclusion

The Center for Digital Inclusion (CDI) is an organization that developed its own people software to ensure the social impact of its ICT training. CDI (<http://cdiglobal.org/>) started in 1994 in the favela of Santa Marta out of Rodrigo Baggio's dream of bringing computers to favelas throughout Rio de Janeiro, Brazil.¹² Today, more than 1.3 million people in 13 countries have benefited from ICT training that focuses on building social cohesion and empowerment, and on finding solutions to community problems, rather than simply giving away computers, providing ICT skills, and improving people's job prospects.

Rodrigo is a charismatic leader, and CDI has received support from Dell, Microsoft, and Motorola to deliver ICT training that transforms the lives of people and communities. CDI's people software involves an approach whereby CDI and local communities are equal partners, not the "paper" partners frequently found in charity or international development. In this model, each partner contributes substantially toward the program's success: The local community funds and manages the schools, curriculum, and training, while CDI provides computers, technical support, and public relations support. CDI works under a detailed operational manual, though its people software recognizes that the key ingredient to success is CDI's ability to work closely, as equals, with local leaders who have a passion and commitment to serve their community.

CDI is pioneering an educational program in the United Kingdom by adapting its model to a new context. In Apps for Good, young people learn to create and market mobile applications for Android-based mobile phones. These applications are designed to solve real-life problems that matter to young people and their communities. For example, using StudentVoice, students can get information about lifestyles around universities. As in the CDI model, the young people then become teachers in other Apps for Good centers. Recently, students from Central Foundation Girls' School in Bow, East London—many from the U.K.-Bangladeshi community—successfully pitched their business ideas to executives from technology and media companies.

People Software in Action with ICT

Five relatively new initiatives are deploying people software in innovative ways to improve the lives of people in disadvantaged communities and to create new ways of doing business. These cases show that the benefits of people software are not confined to large organizations that started their work decades ago; rather, people software is quickly becoming the most effective way for social innovators and businesses to achieve results and scale solutions that benefit millions of people.

These initiatives are:

- **ClickDiagnostics:** An MIT-Harvard and BRAC partnership utilizing mobile devices for timely information and more efficient maternal and child healthcare
- **E-Bookkeeping:** India's SERP initiative empowering rural women to manage their own finances
- **M-PESA:** A Kenyan mobile company enabling people to send money and buy goods over the phone
- **redBus:** India's innovative and largest bus ticketing company
- **ITShed:** Sri Lanka's online platform to link remote villages to markets

For more information on each of these initiatives, please see the "sidebars" in the main body of this paper, as well as those in Appendix 1.

A Call for Peer Partnerships

Cisco IBSG is convinced that peer partnerships between ICT corporations and “local” organizations are essential to unlock the potential of ICT. In the September 2010 *Harvard Business Review*,¹³ Bill Drayton and Valeria Budinich from Ashoka, the global association of the world’s leading social entrepreneurs, also advocate the value of a similar partnership.

Drayton and Budinich propose that the time is ripe for a new alliance for global change—a collaboration among for-profit businesses and mission-driven individuals and organizations to create and expand markets, especially to reach the 4 billion people who are not yet part of the world’s formal economy. Drayton and Budinich argue that this alliance and the creation of hybrid value chains are becoming a standard operating procedure for businesses, and that not thinking about it will soon constitute “strategy malpractice.” These alliances will allow successful companies to reach large, new markets and gain competitive advantage from new business models and first-mover benefits. The *Harvard Business Review* article presents a number of examples of successful partnerships of this type.

Similarly, the examples we have studied and presented in this paper suggest that the most effective way to realize the potential of ICT to improve people’s lives and to develop the largely untapped ICT market is to partner ICT corporations with organizations that have developed proven people software. We propose that ICT corporations and organizations team up to develop projects jointly, as peers, and co-produce solutions that can scale the benefits of ICT to millions of people as well as create new market opportunities.

In these partnerships, ICT corporations will bring scale, world-class business and ICT expertise, and easy access to cheaper capital. “Local” organizations will bring market intelligence, reach, lower cost structures, community knowledge, and community trust. As a result, these partnerships will deliver large-scale social impact and greater profits, and support the development of business knowledge and entrepreneurial talent.

As a first step, ICT corporations should ask themselves if they have the right mindset to apply this new approach¹⁴ (see Figure 1). Appendix 2 includes a simple tool for organizations to assess their people software capabilities.

Figure 1. A New Mindset: From Top-Down to Bottom-Up

Technology Focus	➔	People Focus	Desired Learning
What can ICT/ computing do for people?	➔	What do people choose to do with ICT/computing to improve their lives?	ICT awareness and link to economic and social advancement
How do we teach people to use ICT?	➔	How can people teach ICT corporations the potential of ICT to improve their lives and deliver new products relevant to them?	People as both consumers and producers of ICT: to support / maintain, develop content; identify opportunities to apply ICT to solve problems and innovate

Corporate / ICT-Driven	➔	Local / Demand-Driven	Desired Learning
Imposing developed-world context / ideas for ICT	➔	Seeing where local people are in terms of ICT awareness, capacity	Need proper starting point and people-readiness to chart the right path to desired outcome. Even if ICT "can" do something, doesn't mean it should.
Making the technology work	➔	Ensuring technology is "owned" by community and sustainable	Build people's capacity to sustain, scale, spot opportunity
Private sector as vendor; primary role in products and services	➔	Private sector as catalyst to build demand	Start where communities are; range of corporate assets can add value and lay foundation for future products and services

Source: Cisco IBSG, 2011

Beyond mindset shifts, these partnerships will require that ICT corporations and "local" organizations adjust business behaviors. For example, ICT corporations are frequently accustomed to having the upper hand when dealing with "local" organizations, while "local" organizations tend to be the junior partners and say what they believe corporations want to hear. If the proposed partnerships are going to be effective, both parties need to act as equal partners.

Finally, ICT corporations and local organizations need to build dedicated teams to support these peer partnerships, and they must be ready to experiment and learn from their partnering experiences. This is new territory and will be hard work; however, we expect that these partnerships will succeed because the commercial rewards in new markets, new business models, and in improving the lives of millions of people are substantial. Moreover, as Drayton and Budinich note, it would be strategic malpractice not to take advantage of these opportunities.

Endnotes

1. Source: www.internetworldstats.com/stats
2. "Global Poverty and the New Bottom Billion: Three-Quarters of the World's Poor Live in Middle-Income Countries," Andy Sumner, Institute of Development Studies, September 2010, <http://bit.ly/aVIJ2t>
3. Source: Interview with Susan Davis, CEO of BRAC USA, August 2010.
4. Source: Telephone interview, May 13, 2010.
5. "A Simple Solution: Teaching Millions to Treat Diarrhoea at Home," Chowdhury, AMR and Cash, RA, University Press Ltd., Dhaka, 1996.
6. Ibid.
7. Sources: SERP Interview, January 2011; <http://www.serp.ap.gov.in/SHG/dashboard.jsp>
8. Ibid.
9. Sources: SERP interviews and <http://www.serp.ap.gov.in/SHG/reportsgeneral.jsp>
10. Source: National Rural Livelihoods Mission interview, December 2010 (T. Vijay Kumar, Joint Secretary).
11. Sources: "E-Bookkeeping Project in Bibinagar Mandal, Andhra Pradesh, EGov—Asia's First and Only Monthly Print Magazine on E-Government, April 1, 2010; SERP, E-Booking Annual Report, September 2010.
12. Rodrigo Baggio, an Uncommon Hero, Brings Technology and Computers to the Favelas," YouTube, <http://www.youtube.com/watch?v=ecpYn17nZIU>
13. "A New Alliance for Global Change," Bill Drayton and Valeria Budinich, *Harvard Business Review*, September 2010, <http://fec.ashoka.org/content/request-copy-new-alliance-global-change>
14. Cisco IBSG will put in place an online community to share good practices, and lessons learned in designing and implementing People-Centered ICT approaches.
15. Part of an economy that is not taxed or monitored by any form of government, or included in gross national product (GNP), unlike the "formal" economy. Source: http://en.wikipedia.org/wiki/Informal_sector

Appendix 1

M-PESA: Money Transfer Without a Bank

"M-PESA is an innovation that clearly dominates its money-transfer predecessors on virtually all dimensions. Users say it is faster, cheaper, more reliable, and safer, and a very large majority report that they would suffer significant negative consequences if it were to be shut down."

William Jack and Tavneet Suri,
Authors, *Mobile Money: The Economics of M-PESA*

Without a bank account, the rural poor often must wait for several months to receive money, when family members living in cities can travel to their rural homes. M-PESA, launched in Kenya, has completely changed this picture by providing a money transfer system that allows people to deposit, send, and withdraw funds on their mobile phones, without the need of a bank account. The service is used by all rungs of society to buy goods and services and to send remittances to family members far away. M-PESA has more than 7 million subscribers (about 38 percent of Kenya's adult population), and more than 10 percent of Kenya's GDP passes through the system.

How it works: M-PESA is like a simple, virtual bank that allows users to transfer money from one mobile account to another. After customers register for an M-PESA account with their Safaricom mobile number and ID card, they can deposit cash, send money to other mobile phone users via SMS, and withdraw cash from agents. Safaricom holds virtual currency under the customer's name. Depositing funds is free, but there is a charge for withdrawing money from Safaricom dealers. Customers can also use M-PESA's network of more than 12,000 agents across Kenya to deposit and withdraw cash from their account for a commission. The M-PESA application is preinstalled on most SIM cards, so even those without a computer can access the service.

Social impact: M-PESA has become a convenient replacement for formal bank accounts (half of M-PESA's customers do not have a bank account). Even those who do frequently must travel for hours to the nearest branch in the city. Women are one of the largest beneficiaries, because they are often responsible for managing money in the informal sector.¹⁵ Since users can store money in the system indefinitely, M-PESA has become a safe, convenient way for the poor to save money instead of hiding it in their homes.

The future: M-PESA is beginning to provide a wealth of affiliated services, such as government social payments and international money transfer. Recently, Safaricom and Equity Bank introduced a product called M-Kesho, whereby customers take out loans and earn interest on their M-PESA account. Safaricom is also partnering with community organizations to use M-PESA's services. A local community organization is collaborating with Grundfos Lifelink and Safaricom to develop a solar-powered water vending system for rural areas; consumers can pay a small fee for accessing clean water using M-PESA's system.

Sources: "M-Pesa Launches UK-to-Kenya Mobile Money Transfer Service," Finextra, Nov. 3, 2009, <http://www.finextra.com/news/fullstory.aspx?newsitemid=20686>; "Mobile Money: The Economics of M-PESA," with Jack, William, Working Paper, November 2009; "M-Kesho, Equity Deal a Wake-up Call," *The Standard*, May 18, 2010, <http://bit.ly/al2vHA>; "What You Don't Know about M-PESA," Morawczynski, Olga, CGAP Technology Blog, July 14, 2009, <http://technology.cgap.org/2009/07/14/what-you-dont-know-about-m-pesa/>; "Why Has M-PESA Become So Popular in Kenya?" Rosenberg, Jim, CGAP Technology Blog, June 17, 2008, <http://technology.cgap.org/2008/06/17/why-has-m-pesa-become-so-popular-in-kenya>

redBus: India's Largest Bus Ticketing Company

"I don't believe in giving deep discounts or giving away free technology. redBus works because the business model is adding value to the bus drivers and is simple to use. The bus operators are willing to pay a premium for this service."

Phanindra "Phani" Sama, Founder and CEO

Bus ticketing is a highly decentralized, manual process that requires passengers to go to different travel agents and involves long wait times. The bus industry has seen little innovation, despite being used by millions, because it is low-cost transportation. redBus has revolutionized the purchasing process by launching India's first centralized online bus ticketing system.

How it works: Customers can book tickets and choose their seats ahead of time on the web, by using mobile devices, and through other convenient outlets such as the post office. The system also allows customers to buy a return bus ticket. With one click, customers now can buy tickets from 15 states, across 10,000 routes, through a network of 700 bus operators. Travel agents receive a fixed 10 percent commission from selling redBus tickets. The company generates its revenue from the commission it earns on each ticket.

Social impact: The key beneficiaries of the system are bus operators and users. Money usually stays with the travel agent for weeks, which creates problems for bus operators. Many shut down because of this working capital funding problem. With the redBus system, all of the cash changes hands in real time. redBus is also helping bus operators become more entrepreneurial. They can learn about demand trends based on data, and then take more risks and offer new routes. The redBus technology has transformed the lives of thousands of bus operators.

The future: redBus aims to work with the entire bus industry. Bus operators are eager to become part of the redBus system. The company plans to go public after three years in order to raise more capital. The company's great success has taken place through word of mouth, but redBus is now working on a marketing plan to increase customer awareness about its services.

Sources: "RedBus Is Set to Be India's Biggest Bus Service Aggregator," Chaudhary, Deepti, Livemint.com, November 3, 2009, <http://bit.ly/21dUb4>; "Exploring India the Redbus Way," Jain, Anita, *Travel Biz Monitor*, January 20, 2010, <http://www.travelbizmonitor.com/exploring-india--the-redbus-way-9385>; "Yes, You Can Build a Web Company in India. Here's How," Lacy, Sarah, TechCrunch, March 24, 2010, <http://tcrn.ch/dHNaBR>; telephone interview, April 16, 2010.

ITShed: Linking Isolated Rural Communities to the Market

"Each centre was designed to work as a single and autonomous entity owned and run by the villagers . . . and at least 50 percent of the activity is by women."

Osama Manzar

Founder and Director, Digital Empowerment Foundation,
Chairman of Manthan Award

Farmers from remote villages are generally aware only of the production levels of their own farms, not their village. The lack of information on their own village production levels and external market information limits the capacity of rural farmers to negotiate prices. ITShed provides a village-owned website to aggregate the production, consumption, and villager skill sets at the village level to give a greater voice, market power, and information to rural communities. This information is provided to the private sector to facilitate links with buyers who did not have good access to and information about these remote villages in the past. The ITShed portal contains similar information for all villages, but it is fully managed and designed by each individual village.

How it works: Each village has its own information center that runs independently from the others. Villagers—often the youth—attend workshops to learn how to use the Internet, design websites, and collect data. The villagers then survey the village on a regular basis to gather information, including production levels, best practices, skills available, and data about job seekers. The villagers upload the survey information to the ITShed website and design the website based on the villagers' needs. The experienced villagers organize themselves as community professionals and provide training and management oversight for the website. Villagers access the site to learn best practices, as well as email each other to plan their production and marketing strategy. Buyers from the city access the website to communicate directly with villagers to make purchasing decisions.

Social impact: ITShed has increased farmer productivity through better knowledge sharing as well as increased economic activity with access to more buyers. The training programs have closed the digital gap for the youth, who are able to design and manage websites and learn business skills. ITShed is also improving public policy and academic research by providing information about the poor.

The future: ITShed will be adopted across the country by Sri Lanka's government website. The website will also expand the services available, including counseling, improving English language skills, and listing local cultural activities.

Sources: "Gemidiriya's Manthan Award—a Tribute to Rural Communities," *Sunday Observer*, October 26, 2008, <http://www.sundayobserver.lk/2008/10/26/fin06.asp>; "Manthan Award: South Asia 2008 Award Winners," The Manthan Award: India's Best E-Content Practices 2008, http://www.manthanaward.org/section_full_story.asp?id=648; "ICT Activities," Swarnalatha, Samanmalee, Telecentre.org, November 7, 2008, <http://www.telecentre.org/profiles/blogs/ict-activities>

Appendix 2

BRAC-Cisco People Software Self-Assessment

Purpose: Assess your organization's people software capabilities to successfully implement ICT programs in disadvantaged communities. Developed jointly by BRAC and Cisco, this tool is a starting point and will continue to evolve.

Instructions:

- Distribute this tool to key leaders and stakeholders of the ICT program (for example, the ICT organization; local organizations; users and providers of content, training, support, maintenance, and equipment; funders). Each stakeholder should answer individually.
- Collect all data and highlight areas that reflect:
 - Overall strengths and weaknesses in your organization's people software capabilities
 - Areas of disagreement among stakeholders.
- Meet to discuss the results. This dialogue is intended to bring out best-practice sharing and address misalignment in ICT programs.

Time: 10 minutes to fill in tool; 1-2 hours to discuss results with stakeholders, with follow-up sessions as appropriate to align all stakeholders.

Figure 2. People Software Capability 1: Focus on the People

Question	Answer	Points
To what degree do we understand cultural norms, values, and social structure of the community?	Weak: We have done some secondary research and spoken with the local community.	1
	Moderate: We live in the local community.	2
	Strong: We're a trusted member of the community.	3
How is the role of ICT determined in addressing the community's needs?	Weak: We have developed a low-cost technology aimed at solving a community need.	1
	Moderate: We have assessed the community's challenges and understand how technology plays one part in the overall solution to solve community need.	2
	Strong: We co-created the technology solution with the community.	3
What is the role of the community in implementing ICT?	Weak: We conducted some surveys and research with the community.	1
	Moderate: We have a local office to manage the implementation.	2
	Strong: We empowered the community to manage the technology.	3
Focus on the People Score:		

Source: Cisco IBSG, 2011

Figure 3. People Software Capability 2: Support Local Economic Ecosystem

Question	Answer	Points
How does our program contribute economically to the community?	Weak: Our program is indirectly linked to improved livelihoods in the community (for example, training, productivity improvements).	1
	Moderate: Our program generates meaningful revenue within the community.	2
	Strong: Our program results in new business enterprises and jobs being created, empowering the community to generate new sources of income.	3
How does our program contribute to community's ICT capacity?	Weak: Our organization goes to the community to "train the trainers," who then provide training courses. Teacher support is face-to-face or over phone.	1
	Moderate: Our program provides initial in-person training and curriculum for both trainers and students, and ongoing online support is available.	2
	Strong: Our program has a training organization with instructors capable of serving the needs of their community.	3
How is our approach financially sustainable?	Weak: Revenue does not fully cover operating expenses; requires supplemental funding that must be renewed in less than 5 years.	1
	Moderate: Operating expenses are mostly funded from revenue and/or dependable sources (government, donors, private sector, etc.).	2
	Strong: Our program revenue fully covers operating expenses.	3
How does our approach reach other communities (scale and grow)	Weak: Program scales in an ad-hoc manner (such as when it receives funding, interest from external stakeholders). "Push" model.	1
	Moderate: Program includes creating awareness for other communities and lessons learned to support this use of ICT.	2
	Strong: Interested/qualified communities are empowered to implement our program with "toolkit" and coaching from our local organization partners. Viral/"Pull" model.	3
Local Economic Ecosystem Score:		

Source: Cisco IBSG, 2011

Figure 4. People Software Capability 3: Learn from Mistakes

Question	Answer	Points
How do we assess the effectiveness of ICT on the community?	Weak: We rely on informal verbal feedback.	1
	Moderate: We have an external assessment tool to measure effectiveness (for example, annual survey).	2
	Strong: We have embedded a system in the program to regularly test effectiveness on the community.	3
How do we continually adapt and innovate?	Weak: We are restricted in how much we can change the program.	1
	Moderate: We have a mechanism to continually assess changes to community demand and trends.	2
	Strong: We reward and empower the community to constantly innovate the program and technology.	3
Learn from Mistakes Score:		

Source: Cisco IBSG, 2011

Scores	Points
Focus on the People	
Support the Local Economic Ecosystem	
Learn from Mistakes	
Overall Score:	

Your People Software Capability	
0-11: Weak	Your people software capabilities show areas for improvement. It may be helpful to reassess your ICT program strategy with your key stakeholders.
12-20: Moderate	Your people software capabilities are going in the right direction. Look to fill gaps and build upon areas of weakness.
21-27: Excellent	Your people software capabilities are positioned for success. Consider scaling your operations.

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