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Innovation for the BoP: The Patient-Capital Perspective

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Co-authors Robert Kennedy and Jacqueline Novogratz explain how social entrepreneurs and “philanthrocapitalists” are changing the BoP landscape by connecting innovative business approaches to “patient capital”—i.e., money that is expected to generate returns over a longer period than is typical of (say) venture capital. They identify four types of innovation that are proving critically important to success in operating in BoP markets, and show how a range of enterprises are applying these approaches in the field.

The past decade has witnessed a revolution in thinking about how to address the persistent issue of poverty. Thoughtful observers in government, business, and nonprofits are moving beyond the old “markets versus development assistance” debate and are now converging on a new approach to addressing poverty.

What is driving this convergence? Simply put, neither traditional markets nor traditional development assistance has worked well. Globalization has lifted millions out of poverty in countries like Mexico, Brazil, China, and India. But those benefits have largely bypassed those living in base of the pyramid (BoP) marketplaces. As noted elsewhere in this volume, more than two billion people still subsist on less than \$2 per day, and the gap between rich and poor is growing—a disparity that in the long run is not sustainable.¹

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But traditional approaches to development assistance have not worked either. Over the past 60 years, more than \$1.5 trillion has been disbursed as aid-based grants and donations to developing countries, with little improvement in poverty measures.² William Easterly, Dambisa Moyo, Robert Calderisi, and others have argued that traditional top-down development programs, while well intentioned, inevitably fall short of their goals because they neglect individual incentives, create opportunistic behavior, and fail to tap into the innovative potential of citizens in recipient countries.³

While this history is discouraging, new approaches that combine the best of the markets with the best of traditional aid are showing much more promise. Two complementary developments are transforming how we think about development. First, a new group of so-called “philanthrocapitalists” has taken an interest in global poverty.⁴ Organizations such as the Gates Foundation, Omidyar Network, Google.org, and Virgin Unite are devoting new resources to social investment. Unlike traditional development organizations, however, they are insisting on the adoption of business tools and techniques in their programs: using private capital organizational forms to get incentives right, pushing for efficient and effective use of resources, insisting on rigorous measurement, and so on. The goal is to identify and scale organizations that can have a large impact.⁵ One important outcome is the emergence of a new “patient capital” sector—a set of intermediaries with private capital structures who direct their energy toward creating social returns. Examples include Acumen Fund (with which one of the authors is affiliated), New Ventures, E+Co, Root Capital, and TechnoServe.

A second development is the rise of “social entrepreneurs”—individuals who create innovative organizations to address social needs. Like classic entrepreneurs, social entrepreneurs look for unmet needs, organize resources in new ways, and bring their solutions to the marketplace.

When they work together, social entrepreneurs and patient capitalists can have a transformative effect on BoP markets—in sectors as diverse as housing, water, sanitation, agriculture, and health care. The social entrepreneurs innovate and create new solutions. The patient

capitalists identify the best ideas, help build organizational capabilities, and provide the capital to scale.

This chapter draws on our experience with patient capital organizations to explore what it takes to run a business that serves the BoP community. The answer is much more complex than simply importing successful business ideas from the top of the pyramid (ToP). BoP markets differ from ToP markets in important ways and thus require unique solutions. The factors that make BoP markets unique are discussed in more depth elsewhere,⁶ but five key factors are briefly highlighted here:

- There are many *unaddressed needs* at the BoP. These range from services where the government often does not meet its mandate (clean water, sanitation, and so on) to needs that are neglected because people are perceived as being too poor to buy (health care, housing).
- BoP markets are beset by *poor infrastructure* (roads, water, power) and inadequate distribution networks. As a result, firms cannot count on the basics—connectivity, roads, water, power—when they are setting up a factory, warehouse, bank branch, or sales office. Poor infrastructure also means that the low-income customer generally has poor access to education and information—which makes marketing and service delivery different from a company’s approach to ToP customers.
- *Corruption* is common, sapping economic value from the system and adversely affecting those who follow the rules.
- *Low purchasing power* makes it difficult for new products and services to enter the market. A 2007 study indicates that there are more than 4 billion people living in conditions where they are subject to a “poverty penalty,” whereby the poor pay significantly more for products and services than their middle-income counterparts (in some cases, up to 40 times more).⁷
- *A lack of equity capital*. Traditional capital providers typically bypass BoP entrepreneurs, including those who are trying to solve tough problems in healthcare, water, sanitation, and alternative energy because they are perceived as highly risky.

Taken together, these factors make BoP markets very different than ToP markets. We see this in the types of products and services

offered, how ventures are run, and in the ways in which organizations innovate to design and deliver products and services to their customers.

This chapter is organized into four parts. The first provides a brief introduction to the patient capital sector. The second introduces and explains four types of business model innovations that are critical to succeeding in BoP markets. The third explores the experience of four successful BoP ventures. The conclusion serves as a summary and—we hope—a call to arms.

The Emerging Patient Capital Sector

The patient capital sector is relatively new, but it is growing rapidly and having an important impact. BoP firms often require nontraditional financing. In many of the situations described in this chapter, firms require some type of patient capital. Why? Because the innovations and advances undertaken by BoP firms usually take time to pilot, develop, and grow. Patient capital is not a grant; it is an investment intended to return its principal plus interest, which may be at or below the risk-adjusted market rate. It does not seek to maximize financial returns to investors; rather, it seeks to maximize social impact and to catalyze the creation of markets to combat poverty. On the spectrum of capital available to both nonprofits and for-profits, patient capital sits somewhere between traditional venture capital and traditional philanthropy and also between development aid and foreign direct investment.

Patient capital organizations differ from traditional capital providers in at least four ways. These are:

- **A longer time horizon.** Patient capital is often appropriate for BoP firms because there are few opportunities for quick exit. Whereas a traditional venture capitalist might hope to exit a company after three or four years, a patient capital investor may need to be willing to tie up money for ten years or longer.

This is also a sharp contrast to the short time horizon of many traditional development aid programs. A renewed focus on accountability among bi- and multi-laterals has led to the proliferation of

three-year funding cycles for many development projects, including project ramp-up, wind-down, and evaluation. This only leaves somewhere between 18 and 24 months for the “real work” to be done. Our experience is that firms operating at the BoP find it difficult to prove their concepts within such a short time frame.

- ***A willingness to forego maximum financial returns in exchange for social or environmental impact.*** Different organizations approach this trade-off very differently. Some start with expected market rates of return, and—if an investment has high social or environmental impact—indicate their willingness to forego some return (for example, 15 percent as opposed to 20 percent). Other firms take the opposite approach, seeking to maximize social returns with some lower bound on acceptable returns. These organizations strive for break-even on a commercial basis, with the primary goal being maximum social impact.
- ***A greater tolerance for risk than traditional investors.*** The source of patient capital may be philanthropy, investment capital, or some combination of the two. Many patient capital investors raise their money from foundations or socially oriented individuals who have no expectation that their capital will be returned. This allows for greater experimentation with the knowledge that many investments may not succeed but will still lead to learning that benefits the entire sector. When investments do succeed, the money is returned to the fund and thus becomes available for future investments. For many social investors, the opportunity cost of *not* investing is perceived to be high. Their aim is social change, which leads to a tilt toward experimentation and action, as opposed to conservation of capital.
- ***Capital is typically bundled with intensive support for social entrepreneurs as they grow their enterprises.*** This assistance may take many forms, including formal training programs; informal mentoring of executives; assistance with writing business plans or obtaining financing; technical advice on manufacturing, sourcing, and distribution; and sponsorship for conferences and exchange programs. Patient capital investors often spend more time and effort nurturing and growing their investee organizations than they do providing financial capital.

We should emphasize, though, that patient capital is not “easy capital.” It invests because it believes in a company’s ability to become self-sustaining and to serve low-income markets at scale. It expects accountability and requires repayment on an agreed-upon schedule. Critically, repayment is part of a social contract that helps avoid the tension that can arise when poor entrepreneurs are expected to repay well-off investors. When they repay the patient capitalist, the social entrepreneur is enabling the patient capital investor to support other social entrepreneurs serving the poor.

To provide a better sense of the kinds of organizations that populate the patient capital sector, we briefly profile five of them here:

- **Acumen Fund** was founded in 2001 to help build a world in which all individuals have access to quality, affordable critical goods and services. This nonprofit venture capital fund for the poor has invested in 46 organizations with \$40+ million in approved investments, which range from \$200,000 to \$2 million in both debt and equity vehicles. Acumen Fund now has offices in Hyderabad, Karachi, Nairobi, and New York. Its investments have helped create more than 20,000 jobs and delivered services to tens of millions of customers.
- **E+Co** is a clean-energy investor focused on developing countries. The firm finds promising entrepreneurs and helps them start or grow companies that provide energy services to low-income customers. E+Co makes debt and equity investments, ranging from \$25,000 to \$1 million. The firm not only invests capital, but also provides tools and business know-how to help make clean energy businesses successful.

Since it was established in 1994, E+Co has invested \$32.4 million in more than 200 small enterprises, giving 5.6 million people access to energy and generating an overall return of 8.4 percent.⁸

- **New Ventures**, a program of the Washington, D.C.-based World Resources Institute, was an early pioneer in the patient capital sector. New Ventures promotes sustainable growth in emerging markets by supporting and accelerating the transfer of capital to businesses that deliver social and environmental benefits in the base of the economic pyramid markets.⁹

New Ventures supports small- and medium-sized enterprises seeking capital in the range of \$100,000 to \$5 million and located

in such fast-growth sectors as ecotourism, renewable energy, clean technologies, and water management. New Ventures works with its firms to open new markets, grow sales, and become leaders in their sectors. Since its inception in 1999, it has helped entrepreneurs attract more than \$175 million in investment.

- **Root Capital** invests in small, grassroots agricultural businesses such as coffee farmer cooperatives and artisan associations. Root Capital targets businesses that are caught in the “missing middle”—too small and risky for mainstream banks but too large for microfinance organizations.

Since 1999, Root Capital has provided more than \$140 million in credit to 254 grassroots enterprises in 30 countries in Latin America and Africa. The organization boasts a 99 percent repayment rate from its borrowers and a 100 percent repayment rate to its investors.¹⁰

- **TechnoServe**, founded in 1968, focuses on developing entrepreneurs, building businesses and industries, and improving the business environment. It identifies and capitalizes on good business opportunities that help transform the lives of the rural poor by generating jobs and creating markets for their products and services.

TechnoServe works to develop the skills and resources that entrepreneurs need to launch or expand businesses. It does so by sponsoring business plan competitions and entrepreneur training, while also working to foster a culture of entrepreneurship. After a company has launched, TechnoServe often remains engaged to assist with developing business plans, linking to markets and sources of capital, improving management skills, producing higher-quality products and services, and operating more efficiently.

Every year, TechnoServe assists thousands of small businesses, generating ripple effects in terms of employment, sales, and income generation in low-income countries.¹¹

As these five organizations illustrate, patient capital is helping to create and support an economic ecosystem that allows BoP ventures to thrive. The sector is nurturing businesses that provide maternal health care, village-level clean water solutions, low-cost green lighting

solutions, and sanitation. Patient capital investors and the social entrepreneurs they support are moving beyond an artificial separation between aid and the market and are jointly creating a new path to prosperity.

Business Model Innovations

We now turn to exploring the types of innovations that are frequently observed in successful BoP ventures. But first, a bit of context may be useful. Both authors have extensive experience with BoP ventures. Novogratz is the founder and CEO of Acumen Fund, which has invested in more than 40 BoP ventures. Kennedy has worked with dozens of BoP ventures in advisory roles, documenting their experiences in case studies, and as director of the William Davidson Institute (WDI).

The framework presented here draws on several years working together on Acumen Fund projects and many long discussions about how to nurture and grow BoP ventures—in Acumen Fund’s portfolio and elsewhere. To be clear, the framework is not the outcome of structured hypothesis testing or of extensive data gathering and analysis.

But as discussed in the introduction, BoP markets differ in important ways from ToP markets. Most ventures that succeed in the BoP environment operate very differently than ToP ventures in the products and services they offer and in their business processes.

Our experience indicates that four innovations are key. Most successful BoP ventures have adopted at least one of these innovations. Many have adopted more than one. Not all are present in every case, but this is the tool kit from which social entrepreneurs often draw. Briefly stated, these are:

- Introducing radical cost reductions in some value activity
- Building a BoP-centric management team, which consists of constantly rebalancing the social impulse (that is, the will to serve the poor) with the more traditional business skills needed to build a successful business
- Implementing human-centric design thinking to products and services

- Establishing trust with the BoP in order to create and grow markets

We briefly discuss each innovation and then use examples from BoP ventures affiliated with Acumen Fund to demonstrate how these concepts are operationalized in practice.

Introducing Radical Cost Reductions

To operate sustainably in the BoP marketplace, organizations must be able to cover their costs. A common misconception is that because BoP customers have low incomes, companies must sacrifice quality to make products and services affordable. For some consumer products businesses, this may be the case (for example, Nirma Detergent in India).¹² But many BoP organizations have managed to lower costs without sacrificing quality.

Aravind Eye Hospital is one example. Based in Madurai, India, Aravind screens more than 3 million people annually for eye problems and performs more than 250,000 cataract surgeries. In developed countries, a cataract surgery costs \$2,500 to \$3,000. Aravind has lowered this cost by a factor of around 50 (to between \$50 and \$75 per surgery) through a radical restructuring of the hospital's workflow.

There are three key elements to Aravind's radical cost reduction:

- ***Massive scale.*** A leading eye hospital in the U.S. might perform 3,000 to 5,000 surgeries per year. Aravind performs more than 50 times this volume, allowing it to optimize workflows.
- ***A focus on paraskilling.***¹³ Aravind employs hundreds of low-cost orderlies and junior nurses who perform routine monitoring and patient care services. This frees up doctors and nurses to focus on the activities that truly require their expertise.
- ***A relentless focus on optimizing scarce resources.*** A surgeon at Aravind performs 3,000 to 5,000 surgeries per year, compared with 200 to 300 for a typical U.S.-based surgeon. Paraskilling and other workflow innovations allow surgeons to complete a cataract operation in three to five minutes and to start on the next patient less than one minute later. Because surgeons are, by far, the most expensive resource in the hospital, workflow innovations that improve their productivity have a dramatic effect on costs.

While Aravind is a low-cost provider, its quality measures are equal to or exceed those of U.S. hospitals. Because of this high quality—and also because of the rare opportunity to gain a great deal of experience in a short time—surgical residents from around the world offer their services in exchange for training in the Aravind system. Cost reduction innovations like these allow Aravind to price its services so that even the poor can afford high quality eye care.

Building a BoP-Centric Management Team

Finding the right talent at the right time is critical to the success of BoP ventures. Top management teams need two distinct skill sets: *the will and imagination* to create solutions for BoP markets and the *skill* to manage a significant business. The challenge is to balance these needs effectively as the venture matures.

Successful BoP ventures go through distinct stages. During launch and startup, it is vital to have a dedicated social entrepreneur who recognizes a need, has an insight, and throws herself into creating a solution that creates value for her customers. At this stage, the staff is typically small and cohesive; operations, finance, and HR issues are straightforward and can be handled effectively on an ad hoc basis.

If and when the concept is proven and the BoP venture scales (often very rapidly), the organization becomes much more complex and frequently grows beyond the capabilities of the founder. The staff grows in size, and it becomes difficult to create a shared mission. This makes onboarding and HR policies more important. Scale brings new operational challenges (such as multiple locations or product lines) and a heightened need for financial and operational controls. While *will* and *imagination* remain important, *business skills* in specific functional areas now become the critical factor. Of course, this is the classic entrepreneurship challenge, but it is magnified in the BoP setting because the characteristics of the early stage social entrepreneur are so unique.

So why is innovation needed to build a BoP-centric management team? Because traditional approaches rarely work. At the senior management levels, it is difficult to find highly skilled individuals who

have a good sense of low-income consumers while also knowing how to build a complex business. High achievers have an enormous range of professional choices available to them. This is especially challenging in rural areas, where it is tough to convince high achievers to live. Asking them to work for relatively low salary, in a rural area, in a risky venture is a major hurdle. For many organizations, it wipes out the pool of candidates.

At the middle-management level, high growth companies serving the BoP often face the challenge of hiring leaders who will take initiative rather than just follow directions. Many companies (LifeSpring Hospitals, WaterHealth International, D.light Design, and so on) are pursuing decentralized distribution models. These models rely on solid managers who know when and how to make strategic decisions, improve processes, and bring new ideas to top management when appropriate. Developing a team of managers that shares a common culture, set of values, and approach to operations, while bringing a keen sense of judgment to the work, is critical and challenging.

In short, organizational success creates new management needs. Those interested in social entrepreneurship rarely have the functional skills necessary to run large, complex organizations. And skilled functional executives are rarely available for the salaries and circumstances that BoP ventures can offer. It is not unusual for the inspirational founder of an organization to find herself a poor fit as it becomes a successful BoP venture. Balancing these needs—will and skill—is a key challenge.

Successful BoP ventures often pursue alternative methods of recruiting key executives. Two innovations have proven useful for matching functional specialists with the needs of growing BoP ventures:

- ***Connecting with experienced managers from the private sector.*** More and more such executives are joining the social enterprise sector as a second or third career. These executives are financially secure and looking to make a difference. Programs that place them with BoP ventures for up to a year provide quick shots of functional expertise, along with mentoring for the social entrepreneurs. One example is Acumen Fund's Senior Fellows Program, which sends experienced managers on assignments with investees such as Drishtee (India), Jassar

Farms (Pakistan), First Micro Insurance Agency (Pakistan), and Insta Products (Kenya).

- **Connecting with idealistic young professionals.** More and more young professionals are taking a break after their bachelors' or graduate degree programs for a service year. Acumen Fund, Kiva, and Drishtee all run "Fellows" programs that place young professionals in BoP ventures. Programs such as Engineers for Social Impact and MBAs without Borders connect volunteers with BoP ventures in many geographies and sectors.

Patient capital investors play a key role in making these programs work. Few BoP ventures have an accurate perception of their management gaps or the management bandwidth to select an appropriate fellow. But patient capitalists can identify the gaps, screen candidates for multiple organizations, and work with founders to bring in outsiders and entrust them with key activities.

Implementing Human-Centric Design Thinking

A central challenge facing BoP organizations is to offer products or services that meet at least three conditions:

- ***They are valued*** by BoP consumers. Some services are simply private sector alternatives to items that governments provide in ToP markets (that is, electricity, clean water, sanitation). Others address needs that are specific to the BoP (such as asynchronous Internet access and mobile telephone banking services).
- ***They are affordable*** for BoP consumers.
- ***They can be delivered efficiently enough*** so that the organization can cover costs at the BoP price. Ideally, both fixed and variable costs can be covered. But in some cases, "smart subsidies" may be needed to cover start-up, fixed, or even some portion of operating costs.

For all three of these reasons, design is a key element of many successful BoP ventures.¹⁴ This usually involves immersion in the local context to understand consumers' needs and usage patterns to achieve "human-centric design" for BoP consumers.¹⁵ Something that

is learned early in many organizations is that product, service, and system designs that work in ToP markets often do not translate to BoP markets. In many cases, products and services from the ToP are not suitable given the culture and context of the BoP or are too expensive for BoP customers to afford.

Human-centric design begins with attempt to understand the wants and needs of customers—and well beyond what a typical market researcher might find useful. The point is to better understand the way people think, feel, and live at the BoP before, during, and after designing products or services.¹⁶

An example of human-centric design is WaterHealth International's (WHI) experience with home water delivery. WHI is discussed in more detail in a later section, but one insight is worth noting here. WHI builds and operates village-based water purification systems. The standard model is to operate a WaterHealth Centre in a central location, where villagers can come to purchase water and transport it home. In an early effort to generate incremental revenues, WHI experimented with a home delivery service. The thinking was that WHI could charge rich households a premium for delivery (approximately two times the price of the water) and use these fees to subsidize water for the poor.

The service was an immediate success, but somewhat surprisingly, day laborers were the customer group most likely to use the service. It turns out that rich households had servants and perceived no incremental cost to sending them to transport water. But the day laborers put a high value on their time. They needed water in their homes and couldn't spare the time to pick it up—but they were willing to pay for a service that was vital to them. Immersing itself deeply into the local community and listening carefully to its customers allowed WHI to develop an important but counterintuitive understanding of its target customers.

Establishing Trust with the BoP to Grow New Markets

Trust can be a scarce commodity in BoP markets. In the commercial sector, the deck often seems stacked against the BoP. Farmers may be compelled to deal with monopolistic intermediaries that are the only suppliers of agricultural inputs or buyers for the harvest.

Villagers hear the promises made by politicians—a new road, a new school, a new clinic—around election time and then see many of those promises broken. Mistrust extends, as well, to the well-intentioned development organizations and charities whose funding or organizational priorities prevent them from “being patient, staying longer, and coming back” (to quote our editor and co-author Ted London).

So it should not be surprising that many BoP customers are extremely skeptical of many of the solutions offered to them. After all, they have seen it all before. Combine this with the fact that for understandable reasons, the poor tend to be more risk-averse than other market segments, and you have a recipe for customer inertia and even resistance.

Consider the case of Ms. Gupta, a samosa vendor who works outside the D.light headquarters in Noida, India.¹⁷ (D.light is an international consumer products company that targets consumers with no reliable electricity source, to which we will return later in this chapter.¹⁸) In May 2009, D.light’s product development team gave Ms. Gupta a solar-powered lamp as part of a one-month market test. At the end of the month, Ms. Gupta would have the option to purchase her lamp or give it back to D.light.

She immediately replaced her hot, dirty, expensive, and unsafe kerosene lamp with the new Nova S150 lamp and reported fantastic results.¹⁹ The Nova gave off a better quality light, so Ms. Gupta hung it from the corner of her cart to get a better view of what she was doing, resulting in fewer charred samosas. The smokeless light attracted customers who wanted to eat their samosas in the absence of a noxious kerosene cloud. At the end of the working day, she used it as the cart’s headlamp on the way home—something not possible with the kerosene lamp.

At the end of that first month, with more customers, more volume, and less waste, Ms. Gupta discovered that she had *doubled* her income. The D.light team showed her glowing projections—the light would pay for itself in kerosene expenditure savings, not to mention all the non-monetary benefits—in less than five months. All signs seemed positive, and the D.light team asked if she wanted to buy the lamp. She declined politely, implying that she might buy one sometime in the future.

An irrational decision? Not from Ms. Gupta's perspective. Consider two aspects of the decision-making process: trust and the "bluff." First, D.light was a start-up company, then in India for less than two years. It was not yet a trusted brand. Even though the lamp worked well for one month, there was no track record to suggest that it would continue to perform well.

Compounding the problem for D.light was the track record of traditional development aid. Western aid organizations were and are well-known for giving things away for free. Ms. Gupta figured that if she hesitated, perhaps the company would just *give* it to her.

Ms. Gupta's decision-making process is not atypical. Closing any sale is difficult, but in a low-income market, it can be far more so.

Innovations in Action

We now delve into the experiences of four BoP ventures to see how these organizations applied these approaches to innovation in a real-world setting. The organizations are:

- ***LifeSpring Hospitals***, a maternity hospital chain delivering low-cost, high quality services to low-income people in India.
- ***Ecotact***, a firm that builds and operates pay-per-use toilets and shower facilities in urban centers throughout Kenya.
- ***WaterHealth International***, the low-cost provider of clean water solutions to the poor that was introduced earlier.
- ***D.light Design***, the lighting and consumer-products manufacturer also introduced earlier.

Each of these organizations relies on several of the innovations described in the previous section (as summarized in Table 2-1). For each organization, we introduce the problem being addressed, describe the organization's key business model innovations, report results to date, and use the organization's experience to highlight one of the four innovations. We also briefly note other secondary innovations adopted by each organization. (The reader may want to refer back to Table 2-1 periodically to help keep the larger conceptual framework in mind.)

TABLE 2-1 Innovations in Four Organizations

	LifeSpring	Ecotact	WHI	D.light
Radically reducing costs	XX			
Building BoP-centric management	x	XX		
Using human-centric design		x	x	XX
Developing trust			XX	x

LifeSpring Hospitals

In developed countries, the lifetime risk of maternal death is 1 in 8,000; in developing countries, the ratio is 1 in 76. Worldwide, more than 500,000 women die each year due to complications during pregnancy and childbirth.²⁰ According to the World Health Organization, nearly 25 percent of these deaths occur in India.²¹

One problem is that only 43 percent of Indian women are cared for by a skilled attendant during childbirth.²² True, Indian government policy focuses on the public provision of healthcare services, but the public system performs very poorly. The maternal mortality rate is more than nine times that of China and thirty times that of the United States. Maternal and child mortality also affect whole populations and countries: USAID estimates that \$15.5 billion a year in productivity is lost when mothers and newborns die.

In some ways, Anant Kumar was the least likely person to get involved with maternal care. As an executive with Hindustan Latex Limited (HLL)—India’s largest condom manufacturer—his job was to prevent pregnancies, not facilitate them. But in his role as the head of Social Franchising at Hindustan Latex Family Planning Promotion Trust (HLFPPT), Anant saw firsthand the conditions at public hospitals and the unwillingness of the private sector to move downmarket.

He launched the first LifeSpring Hospital in December 2005 as a pilot within HLFPPT. This was not his initial foray into the development space; he had previously served as program manager of the Andhra Pradesh Social Marketing Programme as well as a regional manager for HLL. These dual positions gave him the skill to run a business and the will to serve the poor. With a post-graduate diploma in rural management (equivalent to an MBA) from the Institute of

Rural Management and a post-graduate diploma in health care and hospital management from Symbiosis Institute, he was in many ways the ideal entrepreneur to run a BoP enterprise.

Today, LifeSpring Hospitals is a network of hospitals operated as a joint venture between Acumen Fund, HLL (a private company), and HLFPT (a quasi-governmental agency). The goal of the partnership is to provide low-income customers access to affordable maternal and child healthcare services in urban areas through a chain of small hospitals (20 to 30 beds).

LifeSpring's business model starts with respect. All prices are clearly written on the wall. Doctors are fairly compensated and on salary, which means that there are fewer "surprises," like emergency (and unnecessary) Caesarian sections. Providing information in advance about how much the services will cost and helping clients plan for their deliveries have proven to be two of LifeSpring's strongest selling points.

Radically Reducing Costs

LifeSpring has radically reduced costs across its business lines. Its narrow specialization and high customer volume are the foundation of its business model, allowing it to maintain high quality without incurring expenses that would prevent it from serving a BoP clientele. LifeSpring's hospitals focus on normal deliveries, Caesarian sections, and hysterectomies; more complicated procedures (and their associated high costs) are referred to affiliate hospitals. The cost of a delivery at LifeSpring (\$32) is about one-sixth the cost of a delivery at local private hospitals (approximately \$200).

Each hospital is laid out in exactly the same way, with the same clinical and administrative procedures. Think of it as the McDonald's of hospitals—that is, franchised facilities in which everything is standardized. As the Monitor Inclusive Markets team reports, "LifeSpring hospitals are strictly no-frills operations: no canteens, outsourced pharmacy and laboratory services, rented rather than purchased properties, and old hospital buildings rather than new ones. Most beds are in general wards, with basic furnishing and no air conditioning."²³

LifeSpring doctors earn fixed salaries rather than the per-procedure consulting fees of their peers in private clinics. Each site employs an administrative specialist who is responsible for all paperwork, thus enabling physicians to focus on clinical care. The doctors are LifeSpring's most expensive variable cost—so they employ up to 12 nurses per doctor to support them and increase productivity.

The hospital is organized so that it increases the use rates of other key assets—ranging from diagnostic machines to the obstetricians themselves. LifeSpring's high throughput business model leads to strong productivity that drives profitability.

Focusing on inpatient gynecology and obstetrics leads to standardization and lower costs. The hospital has defined more than 90 standard procedures, from standardized surgery kits to clinical protocols. LifeSpring uses a narrow range of drugs and equipment for large numbers of repeat procedures, making it possible to purchase standard equipment and generic medicines at volume discounts. Standardization also enables the hospital to use Auxiliary Nurse Midwifery nurses in some roles where, typically, more expensive General Nurse Midwifery nurses would be used.

There are important lessons for the public sector in LifeSpring's model. It typically costs the Indian government 5,000 rupees (\$110)—or more than three times the price LifeSpring charges—for a normal delivery. As the model has been developed, LifeSpring has emerged as a powerful example of private innovation driving public change.

By mid-2009, LifeSpring had treated more than 65,000 patients in nine hospitals, conducting 3,500 safe deliveries.

Other Innovations: Building a BoP-Centric Management Team

LifeSpring aims to double its current size, to 18 hospitals by 2012, so human capital strategy is central to its growth plan. The company has added hundreds of employees in the past two years and plans to double its staff in the next two.

To reinforce the importance of a customer-centered culture at LifeSpring, new employees go through an innovative onboarding program. Each new worker spends a day shadowing a LifeSpring outreach worker. The worker spends time with existing and potential

customers—mothers and mothers-to-be—in low-income areas. This helps middle-class staff see life through the eyes of low-income customers and experience first-hand LifeSpring’s social mission.

New workers also visit a government-run hospital. Seeing the “competition” firsthand is a powerful experience for the new employee. The third aspect of the onboarding is an overnight stay at a LifeSpring Hospital. The onboarding program focuses on culture and the ways in which LifeSpring differs from the norm, and the firm is able to get its workforce engaged and up to speed quickly.

Ecotact

More than 2.6 billion people—or almost 40 percent of the world’s population—lack access to basic sanitation.²⁴ The situation is worst in sub-Saharan Africa, where 63 percent of the population lacks this access.²⁵

Kenya’s capital of Nairobi is home to some of the world’s largest and most densely populated informal settlements. The World Bank has labeled the city’s public toilets as unhygienic and barely functional. (It has been more than 30 years since the government last invested in public sanitation facilities in the capital.) The lack of functioning toilets and showers in Kenya exposes BoP communities to health risks and affronts their dignity. Many slum residents dispose of excrement at night in plastic bags, which are commonly thrown from residences into the street, leading to the colloquial name “flying toilets.”

David Kuria is an entrepreneur who is deeply familiar with these challenges. An architect by training, he has worked for years to create solutions for the urban poor, including experimenting with different water and sanitation models. Among other initiatives, Kuria built toilet facilities in slum areas where local residents could pay a small fee to use a safe and clean toilet and could also take showers if they paid slightly more.

In the early days, Kuria was the epitome of the startup social entrepreneur: securing land concessions, writing grant applications, supervising construction, hiring and supervising workers in the facilities, and acting as the general manager.

His early models were grant-funded, but Kuria found that the demand was so great that fee income would cover operating costs and generate a surplus. He came to realize that if he could use operating surpluses to secure private financing for the capital cost of his systems, he would be able to scale more quickly than if he continued to rely on grants for each new system.

Acumen Fund found this idea compelling from both the social and financial perspectives. Acumen worked with Kuria for more than a year to create a business plan for his company—christened “Ecotact”—and invested \$757,000 to finance 30 facilities. The toilet facilities themselves are branded as IkoToilets. “Iko” means “there is” in Kiswahili. As such, the name tells customers that “there is a toilet” here. The toilets’ slogan is “thinking beyond a toilet,” an effort by the company to remove stigma from sanitation and make it an aspirational purchase for its customers.

Incorporated in 2006, Ecotact today builds and operates public pay-per-use toilets and shower facilities in urban centers throughout Kenya. The company uses a Build-Operate-Transfer model, where municipalities grant the use of public land—in most cases, for a period of five years. The company then constructs and operates a sanitation facility. After five years, Ecotact transfers ownership of the operation to the municipality, sometimes negotiating the rights to operate the facility for additional years.

At each facility, there are a total of 24 toilets and 8 showers—half for men and half for women. Each facility employs two or three uniformed workers, responsible for managing, cleaning, and maintaining the operation. Customers are charged 5 KShs (about seven cents) to use a toilet and 20 KShs (about 29 cents) to take a shower. Additional revenue is earned from renting space to vendors (such as shoeshine services and newspaper stands) and by selling advertising space.

In early 2010, Ecotact operated 22 facilities serving more than 15,000 customers daily, with the total usage for 2009 exceeding 4.3 million visits. Facilities operate in the central business districts of Nairobi, Naivasha, Machakos, Nanyuki, Othaya, Eldoret, and Embu, as well as two of the capital’s slum areas.

The firm plans to add 30 additional facilities by 2012. To extend its reach even more, Ecotact has also begun to explore a franchise model for new facilities; Ecotact would charge a franchise fee based

on location and volume of customers. To help make services more affordable to users in informal settlements, Ecotact is now offering a family membership plan, whereby a family pays 100 KShs (\$1.30 USD) a month for the use of a facility.

Building a BoP-Centric Management Team

Ecotact's success to date is due in large part to Kuria's passion for and ability to execute on his ambitious vision. But that is not nearly enough to ensure success. Growth—from only a handful of facilities in 2007 to 22 in 2010 and an anticipated 50+ in 2012—has created huge organizational challenges. It is impossible for any one person, no matter how passionate or committed—to drive a social enterprise to scale.

Kuria is working with Acumen Fund to transform his organization from a founder-run startup to a professionally managed growth company. Together, they are working to build the company along four distinct issue areas, each of which will require a manager-level presence to ensure continued growth and success. These four issue areas are:

- Preconstruction operations: permits, construction management
- Post-construction operations: staff training, cash collection, toilet staff supervision
- Communications and advertising
- Finance and cash management

In short, Ecotact has become orders of magnitude more complex than it was only two years ago. A committed entrepreneur can conceivably manage the first round of facility construction and operation. But an organization with dozens of facilities, hundreds of employees, and numerous complex contracts with government agencies won't survive long by will alone. Kuria is working with Acumen Fund to recruit an experienced, professional team that shares Kuria's vision, passion, and *will*, while bringing additional talent and experience (in finance, HR, marketing, and operations)—the business *skills*—that are necessary for growth.

Acumen Fund has supported this transition by providing Ecotact with Acumen Fund Fellows, external consultants, and extensive management support. It is a time of growth and promise, but also of

uncertainty for Ecotact. The challenge with a business focused on BoP markets—like Ecotact—is to recruit top talent without diluting the founder’s vision of serving low-income customers.

Other Innovations: Human-Centric Design

Design is also key to Ecotact’s vision and success. As noted, Kuria is a trained architect. Solid engineering and visual appeal—tools of a good architect—are built into the company’s facilities. For example:

- Ecotact’s facilities (called “IkoToilet malls”) are architecturally distinctive, incorporating odd angles into the building design. These angles are not merely a flourish—they enhance ventilation and facilitate maintenance—but they also set IkoToilets apart from surrounding buildings.
- Ecotact’s uniformed attendants greet customers and sell services, while also continuously cleaning the facility. This signals professionalism, enhances the customer experience, and increases their willingness to pay.
- The interior of an IkoToilet mall is painted in unique colors, and popular music is piped into the bathrooms and showers. Customers remark of the “beauty” of the IkoToilet—not the reaction one might expect to such a facility.

WaterHealth International

Worldwide, some 1.2 billion people don’t have access to safe drinking water; of this population, roughly 480 million live in India.²⁶ At any point in time, half of the world’s hospital beds are likely to be occupied by patients suffering from waterborne diseases. Aside from the human suffering involved, there is also a tremendous impact on people’s productivity. In India alone, water-borne diseases cost the nation an annual \$600 million in lost production and medical treatment.²⁷

Individuals in rural communities often spend hours a day collecting and transporting water from contaminated sources. Their counterparts in urban slums have little or no access to municipal water and as a result, pay a premium of up to 37 times to buy sanitary water from tanker trucks.²⁸

In this situation, we once again see the inability of two traditional models to solve the problem. The government, on the one hand, has invested in infrastructure, but not in maintenance, so the wells may provide water that is unsafe to drink. Commercial vendors of water products, meanwhile, don't see the rural poor as a market and don't invest in building water businesses that serve them.

As a Ghanaian, Tralance Addy had a personal connection to this aspect of rural poverty: His family came from a small and impoverished village in the country. He had an opportunity to get an education in the U.S. and eventually took a job with Johnson & Johnson, where he worked for more than 25 years. Clean drinking water was always his passion, however; he wanted to switch gears to build an innovative business with major social impact. In 2001, Tralance acquired a company, WaterHealth International (WHI), that used a pioneering ultraviolet filtration system to quickly and easily clean water, at a cost of just five cents per ton of water.

Today, WHI attempts to serve the market that both the government and incumbent private sector players do not. WHI manufactures and markets community water systems (CWSs) that use a proprietary UV-based water treatment system. The company sells these cost-effective water filtration systems, called WaterHealth Centres, to organizations serving both rural and urban communities in India, the Philippines, Ghana, and Mexico. The majority of WHI's systems are now installed in India.

A WaterHealth Centre can provide a community of 7,000 people with up to 20 liters of safe, affordable drinking water per person per day. WHI sells 20 liters of water for just INR 3 rupees (about six U.S. cents), enough to meet the daily water needs of most families. The company currently reaches more than 400,000 individuals in India alone and has served as a model for an emerging water sector focused on rural villages.

Developing Trust

During its initial ramp-up, WHI focused on producing and delivering CWSs to villages. This led to the development of the UV Waterworks treatment system and the WaterHealth Centers. But as the

centers began to come on-line, WHI noticed there were unexpected issues along several dimensions. These included education about clean water issues, social conventions around access to clean water, and the “last mile” problem of transportation and storage.

WHI partnered with the Naandi Foundation, a trusted local non-governmental organization (NGO). This allowed WHI to focus on building, operating, and maintaining the WaterHealth Centres, while Naandi conducted customer awareness and education campaigns focused on the health benefits of drinking clean water. WHI and Naandi co-branded the plants and shared revenues from the WaterHealth Centres. The partnership led to increased sales for WHI and allowed Naandi to deepen its impact in the communities where it works.

A lack of consumer awareness about the links between contaminated water and waterborne diseases continues to be a major challenge. A WHI study showed that many living at the BoP believe that as long as water looks clean, it is drinkable. In addition, many people hold longstanding cultural beliefs that are hard to change, such as a family’s history of drinking from a certain well, the taste and health benefits from drinking tap water, and the idea that dead bodies thrown into ponds will later produce purified water.

WHI realized that it could not rely on traditional forms of communication and marketing (such as posters, flyers, and handouts). These forms were not trusted by locals, and were generally ignored. WHI therefore launched a series of village information sessions, which continue today. They attract customers by mounting street fairs with clowns and other entertainment. When a large enough audience has gathered, WHI employees project microscopic images of both contaminated and clean water onto large screens, showing the differences between the two. WHI workers then answer questions from the crowd and demonstrate WHI’s filtration systems. These sessions have helped to communicate WHI’s value proposition and increased trust among villagers. At the sites where these information sessions were conducted, WHI has seen a four- to seven-fold increase in revenue and enjoys more repeat customers.

Team members are working with local entrepreneurs to design marketing programs and business ecosystems around WaterHealth

Centres that will improve acceptance, sales, and WHI's bottom line. Recently, this came to a head as the company rebranded its entire product line under the name “Dr. Water” to emphasize the health benefits of drinking clean water.

Other Innovations: Human-Centric Design

On the last-mile issue, WHI has taken a different approach. The organization worked with IDEO and Acumen on the “Ripple Effect” project, which tackled water transportation and storage. The team identified several challenges:

- While WaterHealth Centres were providing clean water at the central gathering point, much of this water was transported back to the home and stored in unsanitary containers.
- Villagers had both expected and surprising expectations regarding price. Many asked: *Why pay for something that we can get for free?* After all, water from the Centre looks and tastes like that collected from the local well or pond. The immersion process, however, also revealed that these same consumers are willing to pay for a variety of other features—including water temperature, flavor, clarity, packaging, and transportation.

WHI pondered these challenges and moved to position their product as a value-added set of products and services. For example, product designers worked with villagers to design and prototype new water transport and storage containers. These narrow-mouth containers prevent users from dipping their hands into the water, a common practice. The containers are also ergonomically designed to allow children and women to easily transport a day's supply of water in one trip.

By building trust through partnerships and using human-centered design principles throughout their business, WHI has positioned itself for growth just as the CWS market in India is taking off. By 2009, the company had nearly 300 Dr. Water WaterHealth Centres up and running and was preparing to push into the market for government tenders that would fund the construction of hundreds more.

D.light Design

More than 1.5 billion people in the world lack access to electricity. These households spend approximately \$38 billion on fuel-based lighting, including kerosene lanterns and candles. In India, some 580 million people lack access to safe, reliable electricity—most of them in rural areas, where even those connected to the grid get only eight hours of power per day or less. Stated differently, 44 percent of Indian households have no access to electricity. In rural areas, that percentage rises to more than half.²⁹

The government of India has been working to address this problem. In 2005, for example, it launched a rural electrification scheme to electrify more than a million villages by 2010. As of 2009, however, it was less than halfway to this ambitious goal, mainly because the necessary infrastructure was not in place.³⁰

Kerosene, the most prevalent type of fuel-based lighting in rural India, is a health hazard, emitting significant particulate pollutants of the type that cause 36 percent of all lung infections in India. It produces low-quality, inefficient lighting, often requiring the need for multiple lanterns to read or work, which in turn increases the risk of fire in the home. Kerosene is expensive; in some low-income households, more than 10 percent of income is spent on fuel-based lighting.³¹ Finally, the use of kerosene alone accounts for approximately 100 million tons of carbon emissions per year. Finding clean, safe, affordable substitutes thus promises enormous social impact.

Sam Goldman, D.light's founder, knows the disadvantages of kerosene all too well. As a young Peace Corps volunteer in Benin, he depended on kerosene lamps for reading and cooking light. Eventually, he persuaded a friend in the United States to ship him a light emitting diode (LED) headlamp, commonly used by backpackers, so that his eyes and respiratory system could get a break. In addition, Sam's neighbor in Benin nearly died from burns inflicted by a tipped-over kerosene lamp—a tragedy that left a lasting impression on Sam.

These experiences led Sam and his partner Ned Tozun to cofound D.light Design, a for-profit company whose mission is to “[e]nable households without reliable electricity to attain the same quality of life as those with electricity. [This] begins by replacing every kerosene lantern with clean, safe, and bright light.”³²

Taking advantage of advances in LED technology, the founders developed a solar-powered LED light that provides an alternative to kerosene lanterns and candles. LED units can provide a quality of light comparable to a fluorescent strip but are significantly cheaper, more durable, safer, and longer lasting.

D.light's product offering began with the Nova, an all-purpose portable LED lamp that provides up to 40 hours of light on a full charge. Thanks to effective innovation in its design and marketing strategies, D.light has expanded its product line, offering a Nova model that also charges mobile phones, as well as the ultra low-cost Kiran—a \$10 solar-powered LED lantern that has been widely praised.³³

By 2009, D.light was selling more than 50,000 LED units annually and recorded revenues of \$1 million. Early surveys show significant increases in income among purchasers as well as gains in health and general well-being. Since its founding, D.light also claims to have helped offset more than 30,000 tons of carbon emissions. The company is aggressively expanding sales operations in India and is also working to scale operations in East Africa.

Using Human-Centric Design

The company requires that all managers based in its Noida headquarters (including the CEO) spend a few days each year living in rural areas. Additionally, all new staffers have to spend at least one night in a rural, kerosene-lit village during their first month of employment.

D.light has a staff of eight full-time designers at headquarters, and the members of this team spend additional time immersed in village life—an immersion that moves the designers beyond mere technical specifications to really understanding needs, habits, and usage. Having staff consistently spending time in rural villages gives the company a short and straightforward feedback loop: Marketing/sales staff can directly communicate customer reaction to product designers. This has allowed the company to continuously innovate its core product—the Nova. The original Nova design was simple: An ultra-efficient LED was enclosed in an unbreakable plastic casing with a connection to a single-watt solar panel. The product was well received. After the Nova went to market, D.light's immersion research helped uncover a series of insights that allowed for continual improvement. These included:

- A need to hang the light from hooks and poles to better light an entire room. D.light responded by adding an ergonomically designed strap to the top of the light.
- A desire for multiple light settings.
- A need to respond to different ways in which the lamps were used—outdoors, for reading, for general lighting.
- A desire for after-sale service (rather than just a warranty).
- A desire for dual charging options (solar and A/C). After realizing that customers wanted both functions on a single device, D.light added an A/C-charge feature to the Nova and phased out its A/C-charge model, the Vega.

The latest version of the Nova—the S200—incorporates a mobile phone charger outlet: a design innovation that has been a major selling point since its introduction in early 2009. The model can provide up to 32 hours of light and recharge a standard mobile phone in 2 hours. The S200 also improves durability with a sturdier encasement.

The “Kiran,” D.Light’s newest product offering, goes a logical step further. The Nova was charged by plugging the lantern into a small solar panel, separate from the unit. While this is standard practice for solar products around the world, customer feedback indicated that the separate panel was damaged or lost easily. In response, the Kiran incorporates the solar panel directly into the lamp. The Kiran also features a metal handle—replacing the strap on the Nova—that gives the user up to 10 ways to hang or position the light. Finally, the Kiran gives off 360-degree light, whereas a Nova focused light only in one direction.

Other Innovations: Developing Trust

D.light is attempting to create a new product category and position a new brand in a rural market—an extremely challenging endeavor. This requires the company to persuade customers to change behaviors and buying habits that have been in place for generations. For some potential customers, the economics can be confusing. While LED lamps have much lower operating costs, they require larger up-front outlays—anywhere from \$10 to \$25 per lamp. A kerosene lamp involves a lower capital expenditure but much higher lifetime operating costs.

From a lifetime cost perspective, buying a D.light should be an easy decision for most low-income households. The D.light Nova S150 retails for INR 1500 (\$32)—equal to the annual operating cost of a wick lamp. The D.light lamp’s 50,000 hour life would last for more than 30 years if used four hours per day—yielding an annual operating cost of less than a dollar. When contrasted with a hurricane or mantle lamp, the economics are not just compelling—they are staggering (see Table 2-2). The ultra low-cost Kiran model, introduced in late 2009, makes the economics even more compelling.

TABLE 2-2 The Economics of Kerosene and LED Lighting

	Kerosene Wick Lamp	Kerosene Hurricane Lamp	Kerosene Mantle Lamp	Solar LED Products
Hours/Day	4	4	4	4
Lamp wick or bulb life (hours)	200	400	1000	50,000
Replacement wicks/Lanterns per year	7.3	3.7	1.5	0.03
Replacement costs	\$1.61	\$3.70	\$2.25	\$32.00
Annual fuel (liters)	15	44	109	0
Fuel costs annual	\$29.48	\$86.47	\$214.20	\$0.00
CO2 emissions (kg/year)	38.7	113.52	281.22	0.0
Total Operating Costs (\$ / year)	\$31.08	\$90.17	\$216.45	\$0.94

But selling a product is not as simple as educating a consumer about the unit economics. We’ve already told the story of Ms. Gupta, the samosa vendor and reluctant consumer who works outside the D.light headquarters in Noida, India. When a light is put into someone’s hands with a one-on-one demonstration, the consumer purchases it more than half the time. But this type of distribution is extremely expensive. Meanwhile, dealers often demand high markups, which can put the lamp out of reach for many BoP customers.

Conclusions

At first glance, our four examples—ranging from hospitals, to lighting, to clean water and toilet and shower facilities—have little in common. And indeed, each of these companies is unique: invented in a specific locale to meet a specific need for specific BoP consumers.

And yet, when you look across the thriving BoP landscape, you can see an emerging set of approaches to innovation (and innovative approaches to funding) that can be employed across a range of BoP-oriented businesses. These four innovations are critical building blocks for many BoP organizations. Not all organizations will use all four, but they collectively make up a useful toolkit from which social entrepreneurs can draw.

It is an exciting prospect. In fact, there has never been a more exciting moment in history for accelerating the delivery of goods and services to underserved markets. We are seeing social entrepreneurs who are increasingly approaching low-income communities as *customers* and even *partners*, rather than merely objects of charity.³⁴ We are seeing examples where patient capital is enabling entrepreneurs to take risks they might not otherwise take to serve the BoP.

The emerging sector is necessarily messy, as many players struggle to figure out what works and—just as important—what doesn't. Our collective challenge is to build on this trend. We need to share lessons and ensure the ongoing extension of the global economy so that it includes, ultimately, *everyone*.

As William Gibson, prophet of the digital future, famously said, “The future is already here—it’s just not evenly distributed.”³⁵

Notes

¹ World Development Indicators, 2008.

² \$1.5 trillion as measured in current US dollars. Calculated from the World Development Indicators database (<http://data.worldbank.org/indicator/DT.ODA.ALLD.CD>) of the World Bank, accessed 11 June 2010. The measured indicator is net official development assistance and official aid, for all countries with data, from 1960 to 2008.

- ³ Easterly was a long-serving economist at the World Bank and is now a Professor at NYU's Stern School of Business. See for example, *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*, 2001, MIT Press; or *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good*, 2006, Penguin Press. See also D. Moyo, 2009, *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa*, Farrar, Straus and Giroux; and R. Calderisi, 2007, *The Trouble with Africa: Why Foreign Aid Isn't Working*, Palgrave Macmillan.
- ⁴ Bishop, Matthew and Michael Green, 2009, *Philanthrocapitalism: How Giving Can Save the World*, Bloomsbury Press.
- ⁵ See Al Hammond's chapter in this book for a further exploration of scale.
- ⁶ See Erik Simanis' chapter in this book for more details on the unique aspects of the BoP context.
- ⁷ Hammond, Allen, William Kramer, Robert Katz, Julia Tran and Courtland Walker. *The Next 4 Billion: Market Size and Business Strategy at the Base of the Pyramid*. World Resources Institute and International Finance Corporation, 2007. See also Prahalad, C.K. (2004) *The Fortune at the Bottom of the Pyramid*, p. 11.
- ⁸ Source: E+Co web site: <http://www.eandco.net/impact> (Accessed November 12, 2009).
- ⁹ Source: New Ventures web site: <http://www.new-ventures.org> (Accessed November 12, 2009).
- ¹⁰ Source: Root Capital web site: <http://www.rootcapital.org> (Accessed November 12, 2009).
- ¹¹ Source: TechnoServe web site: <http://www.technoserve.org> (Accessed November 12, 2009).
- ¹² Nirma is a leading, low-priced laundry detergent in India. The firm has radically lowered production costs by avoiding most nice-to-have features—such as fragrance, whitening, etc. Nirma is somewhat harsh on the skin and rough on clothes. But it is much better than no detergent at all, and has achieved a leading market position with its “low-cost, low-feature” positioning.
- ¹³ Karamchandani, Ashish, Michael Kubzansky and Paul Frandano. *Emerging Markets, Emerging Models: Market-Based Solutions to the Challenges of Global Poverty*. Monitor Inclusive Markets, March 2009. See page 55 for a detailed discussion of paraskilling.
- ¹⁴ See Patrick Whitney's chapter in this book for more on designing for BoP marketplaces.
- ¹⁵ <http://www.ideo.com/work/item/human-centered-design-toolkit/>.
- ¹⁶ See Madhu Viswanathan's chapter in this book for more on a micro-level approach to understanding BoP marketplaces.
- ¹⁷ A samosa is a popular fried Indian snack food, something like a dumpling.

- ¹⁸ http://dlightdesign.com/about_who_we_are.php
- ¹⁹ For the full story, see: <http://www.socialedge.org/blogs/let-there-d-light/archive/2009/05/04/samosa-150>.
- ²⁰ http://www.childinfo.org/maternal_mortality.html.
- ²¹ http://www.childinfo.org/maternal_mortality_countrydata.php.
- ²² Maternal Mortality in India, Center for Reproductive Rights, via http://acumenfund.socialtext.net/data/workspaces/acuwiki/attachments/maternal_mortality_in_india_center_for_reproductive_rights_2009_report:20090225160931-4-28516/original/maternal_mortality_in_india_2009.pdf (internal site).
- ²³ Karamchandani, Ashish, Michael Kubzansky and Paul Frandano. *Emerging Markets, Emerging Models: Market-Based Solutions to the Challenges of Global Poverty*. Monitor Inclusive Markets, March 2009. Pages 48-49.
- ²⁴ World Health Organization and United Nations Children's Fund Joint Monitoring Programme on Water Supply and Sanitation.
- ²⁵ Progress on Drinking Water and Sanitation: special focus on sanitation. UNICEF, New York, and WHO, Geneva, 2008.
- ²⁶ Source: Human Development Report, 2006 <http://hdr.undp.org/en/media/HDR06-complete.pdf>.
- ²⁷ Source: Child Survivor Fact Sheet, UNICEF. http://www.unicef.org/media/media_21423.html.
- ²⁸ Prahalad, C.K. (2004) *The Fortune at the Bottom of the Pyramid*, p. 11.
- ²⁹ Modi, Vijay. "Improving electricity services in rural India." Working Paper Series, The Earth Institute at Columbia University. Dec 2005.
- ³⁰ "Rural Electrification Scheme to Miss Target" The Press Trust of India, June 1 2009.
- ³¹ Household Consumer Expenditure in India, 2006-2007. National Sample Survey Organisation, Ministry of Statistics and Programme Implementation, Government of India. October 2008.
- ³² http://www.dlightdesign.com/about_who_we_are.php.
- ³³ http://www.dlightdesign.com/about_who_we_are.php.
- ³⁴ See Ted London's chapter in this book for more on crafting solutions with the BoP.
- ³⁵ http://en.wikipedia.org/wiki/William_Gibson.