國立政治大學商學院國際經營管理英語碩士學位學程

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碩士論文

Master's Thesis

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Bottom of Pyramid : Fortune or Mirage?

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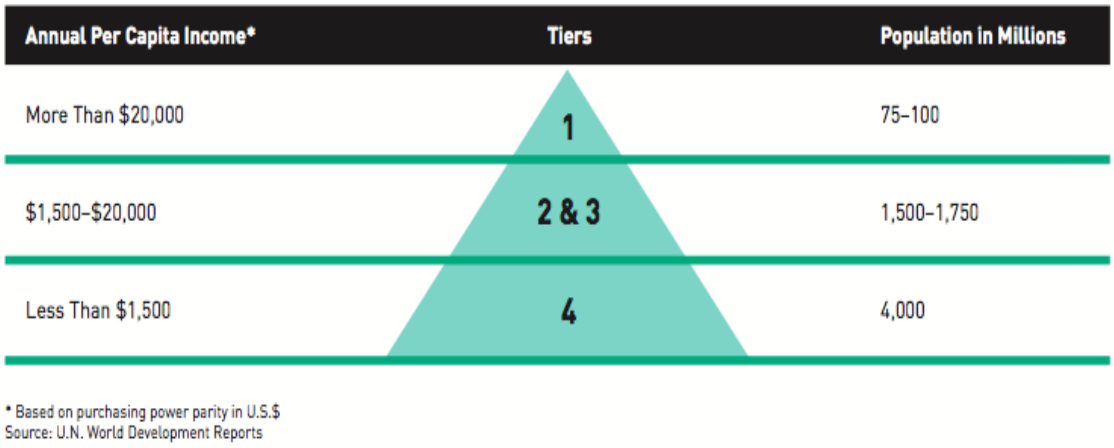
1. Introduction

In economics, the bottom of the pyramid is the largest, but poorest socio-economic group. In global terms, this is the 4 billion people who live on less than $2.50 per day. The phrase bottom of the pyramid is used in particular by people developing new models of doing business that deliberately target that demographic, often using new technology. This field is also often referred to as the Base of the Pyramid or just the BOP.

Several books and journal articles have been written on the potential market by members of business schools offering consultancy on the burgeoning market. They include The Fortune at the Bottom of the Pyramid by C.K. Prahalad of the University of Michigan, Capitalism at the Crossroads by Stuart L. Hart of Cornell University and the first empirical article, Reinventing strategies for emerging markets: Beyond the transnational model, by Ted London of the University of Michigan and Hart. London has also developed a working paper, commissioned by the United Nations Development Programme, that explores the contributions of the BoP literature to the poverty alleviation domain.

Figure-1 (Bottom of Pyramid)



1.1 Why Gaining Traction

Global poverty exists today at a startling scale; while the exact numbers are debated, some estimate that four billion people worldwide live on less than two dollars a day. According to C.K. Prahalad

and Stuart Hart, both Aspen Institute Faculty Pioneer Award recipients, companies should not ignore these traditionally overlooked people, collectively dubbed the Bottom of the Pyramid, because of their considerable combined purchasing power. Thus, if companies are innovative enough to create or tailor their products to the economic realities and life needs of these people, a significant profit can be won. At the same time, this group's entry into the market would hopefully better their quality of life and aid in regional economic development.

Three well-publicized examples will help illustrate the base-of-the-pyramid concept. First, Grameen Bank was started by Nobel Prize laureate Muhammed Yunus in Bangladesh to offer mini-loans to entrepreneurs who wouldn't qualify for traditional bank loans based on collateral. As of May 2007, over seven million people have borrowed from the Bank with incredibly high levels of repayment. Second, PlayPumps is a water pump that runs on the energy created from children playing on a merry-go-round. Advertising space on the pump's storage tank generates revenue that covers maintenance costs. Lastly, cell phone providers have developed means of selling relatively cheap units to remote villages, allowing farmers, as just one example, to check grain prices at the nearest market before deciding to lug their product into town.

Despite the concepts' critics, more business schools in 2007 are instructing Bottom of the Pyramid material in their classrooms than in 2005, according to the Aspen Institute's biennial Beyond Grey Pinstripes survey. This Closer Look attempts to give an overview of the pioneering coursework and teaching resources being used in this blossoming field of inquiry.

THE BOTTOM LINE:

- The Bottom of the Pyramid concept is being introduced into MBA classes in a wide range of disciplines, including: Strategy; Marketing; Entrepreneurship; Economics; International Management; Business Ethics; and Production and Operations Management.

- Curricular integration of this theory is not just taking place in North American programs, but also in top business schools in Asia, Latin America, Europe, and South Africa.
- Business schools are using innovative approaches to promote the Base of the Pyramid concept. The Project Pyramid Case Competition, for example, is a unique offering of Vanderbilt University's Owen Graduate School of Management.

1.2 Objective of Thesis Research

The objective of this report is to know the framework for poverty alleviation. Lets start with a simple proposition. If we stop thinking of the poor as victims or as a burden and start recognizing them as resilient and creative entrepreneurs and value-conscious consumers, a whole new world of opportunity will open up**.** Four billion poor can be the engine of the next round of global trade and prosperity. It can be a source of innovations. Serving the BOP consumers will demand innovations in technology, products and services, and business models. More importantly, it will require large firms to work collaboratively with civil society organizations and local governments. Market development at the BOP will also create millions of new entrepreneurs at the grass roots level—from women working as distributors and entrepreneurs to village-level micro enterprises. These micro enterprises will be an integral part of the market-based ecosystem. It will require organizational and governance innovations as well.

The vision that is presented in the following pages is the co-creation of a solution to the problem of poverty. The opportunities at the BOP cannot be unlocked if large and small firms, governments, civil society organizations, development agencies, and the poor themselves do not work together with a shared agenda. Entrepreneurship on a massive scale is the key. This approach will challenge the prejudices about the role and value added of each group and its role in the economic development at the BOP.

In these sections, we will find the opportunities for co-creation among the various players. More importantly, the poor themselves are willing to experiment, learn, and change. While we will focus on the role of the private sector, the importance of collaboration across the various groups will become obvious. The interconnectedness of the approach to economic development and social transformation as visualized below will become obvious.

Figure-2 (Economic Development & Social Transformation)

Turn on your television and you will see calls for money to help the world's 4 billion poor—people who live on far less than $2 a day. In fact, the cry is so constant and the need so chronic that the tendency for many people is to tune out these images as well as the message. Even those who do hear and heed the cry are limited in what they can accomplish. For more than 50 years, the World Bank, donor nations,various aid agencies, national governments, and, lately, civil society organizations have all fought the good fight, but have not eradicated poverty. The adoption of the

Millennium Development Goals (MDG) by the United Nations only underscores that reality; as we enter the 21st century, poverty—and the disenfranchisement that accompanies it—remains one of the world's most daunting problems.

The purpose of this report is to change that familiar image on TV. It is to illustrate that the typical pictures of poverty mask the fact that the very poor represent resilient entrepreneurs and value-conscious consumers. What is needed is a better approach to help the poor, an approach that involves partnering with them to innovate and achieve sustainable win–win scenarios where the poor are actively engaged and, at the same time, the companies providing products and services to them are profitable. This collaboration between the poor, civil society organizations, governments, and large firms can create the largest and fastest growing markets in the world. Large-scale and wide-spread entrepreneurship is at the heart of the solution to poverty. Such an approach exists and has, in several instances, gone well past the idea stage as private enterprises, both large and small, have begun to successfully build markets at the bottom of the pyramid (BOP) as a way of eradicating poverty. There are more than 4 billion constitute the BOP. These are the people who are the subject matter of this report.

1.3 Power of Dominant Logic

All of us are prisoners of our own socialization. The lenses through which we perceive the world are colored by our own ideology, experiences, and established management practices. Each one of the groups that is focusing on poverty alleviation—the World Bank, rich countries providing aid, charitable organizations, national governments, and the private sector—is conditioned by its own dominant logic. Let us, for example, examine the dominant logic of each group as it approaches the task of eradicating poverty.

Consider, for instance, the politicians and bureaucrats in India, one of the largest countries with a significant portion of the world's poor. India is home to more than 400 million people who qualify as being very poor. The policies of the government for the first 45 years since independence from

Great Britain in 1947 were based on a set of basic assumptions. Independent India started with a deep suspicion of the private sector. The country's interaction with the East India Company and colonialism played a major part in creating this mindset. The experience with the indigenous private sector was not very positive, either. The private sector was deemed exploitative of the poor. This suspicion was coupled with an enormous confidence in the government machinery to do what is right and moral. For example, the government of India initiated a series of large industrial projects in the public sector (owned by the Indian government) in a wide variety of industries, from steel to food distribution and global trading in essential commodities. India's general suspicion of the private sector led to controls over its size and expansion. Some sectors of economic activity were reserved for small-scale industries. In textiles, for example, the hand loom sector dominated by small firms was given preference. There was no credible voice in public policy for nurturing market-based ecosystems that included the large and the small in a symbiotic relationship. The thinking was cleanly divided among the public sector (mostly large firms with significant capital outlay as in steel), the private sector with large firms strictly controlled by the government through a system of licenses, and a small-scale sector. The focus of public policy was on distributive justice over wealth creation. Because of the disparities in wealth and the preponderance of the poor, the government thought its first priority must be policies that equalized wealth distribution. Taxation, limits on salaries of top managers, and other such measures were instituted to ensure distributive justice. The discussion further polarized around the somewhat contrived concepts of rural poor and urban rich. The assumption was that the rural population was primarily poor and the urban population was relatively rich. However, the data increasingly does not support this distinction. There are as many rural rich as there are urban poor. Poverty knows no such boundaries. In the developing world, more than one third of the urban population lives in shanty towns and slums. These traditional views reflect the philosophy behind actions taken by bureaucrats and politicians. During the last decade, a slow but discernable transition has been taking place from the traditional to a more market-based outlook. The changing perspectives are shown in Table-1

Table-1 (Changing Perspective of Dominant Logic)

Assumption	Implication
The poor are not our target customers; they cannot afford our products or services.	Our cost structure is a given; with our cost structure, we cannot serve the BOP markets
The poor do not have use for products sold in developed countries.	We are committed to a form over functionality. The poor might need sanitation, but can't afford detergents in formats we offer. Therefore, there is no market in the BOP.
Only developed countries appreciate and pay for technological innovation	The BOP does not need advanced technology solutions; they will not pay for them. Therefore, the BOP cannot be a source of innovations.
The BOP market is not critical for long-term growth and vitality of MNCs.	BOP markets are at best an attractive disttraction
Intellectual excitement is in developed markets; it is very hard to recruit managers for BOP markets	We cannot assign our best people to work on market development in BOP markets.

Adapted from C.K. Prahalad and Stuart Hart, The Fortune at the Bottom of the Pyramid.

This much-needed and desirable transition is in its infancy. The dominant logic, built over 45 years, is difficult to give up for individuals, political parties, and sections of the bureaucracy. This is the reason why politicians and bureaucrats appear to be vacillating in their positions. Most thinking people know where they have to go, but letting go of their beliefs and abandoning their zones of comfort and familiarity are not easy. We also believe that it is equally difficult for a whole generation of BOP consumers to give up its dependence on governmental subsidies.

We have explicitly focused on ideology and policy and not on the quality of implementation of projects focused on the poor, be it building roads and dams or providing basic education and health care. The distinct role of corruption, which seems so endemic to developing countries in general,

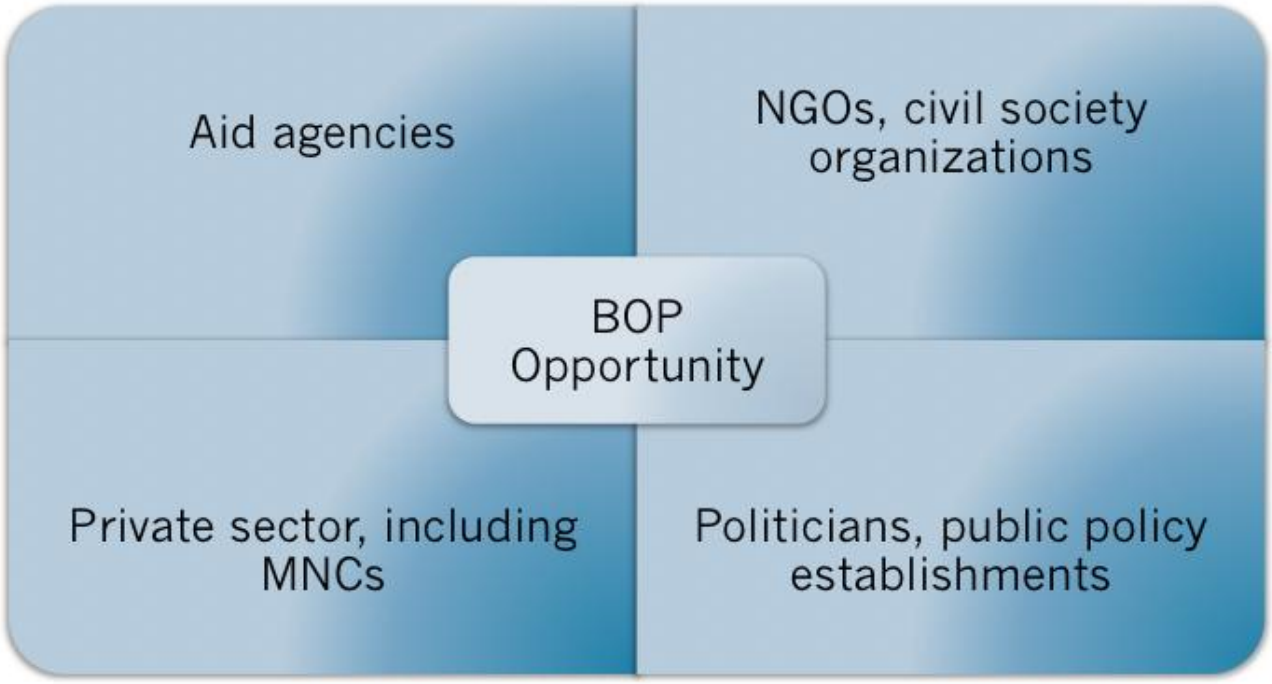
deserves separate treatment. Private-sector businesses, especially MNCs (and large local firms that emulate their MNC competitors), also suffer from a deeply etched dominant logic of their own, which restricts their ability to see a vibrant market opportunity at the BOP. For example, it is common in MNCs to have the assumptions outlined in Table 1. These assumptions dictate decision and resource allocation processes for developing countries and BOP markets in particular.
These and other implicit assumptions surface in every discussion of BOP markets with managers in MNCs and those in large domestic firms in developing countries that fashion their management practices after those at successful MNCs. These biases are hard to eradicate in large firms. Although the dominant logic and its implications are clear, it is our goal in this report to challenge and provide counterpoints. For example, BOP markets enable firms to challenge their perspectives on cost. We will show that a 10 to 200 times advantage (compared to the cost structures that are oriented to the top of the pyramid markets) is possible if firms innovate from the BOP up and do not follow the traditional practice of serving the BOP markets by making minor changes to the products created for the top of the pyramid.

Most charitable organizations also believe that the private sector is greedy and uncaring and that corporations cannot be trusted with the problems of poverty alleviation. From this perspective, profit motive and poverty alleviation do not mix easily or well. Aid agencies have come full circle in their own thinking. From aid focused on large infrastructure projects and public spending on education and health, they are also moving toward a belief that private-sector involvement is a crucial ingredient to poverty alleviation.

Historically, governments, aid agencies, nongovernmental organizations (NGOs), large firms, and the organized (formal and legal as opposed to extralegal) business sector all seem to have reached an implicit agreement: Market-based solutions cannot lead to poverty reduction and economic development. As shown in Figure 3, the dominant logic of each group restricts its ability to see the

market opportunities at the BOP. The dominant logic of each group is different, but the conclusions are similar. During the last decade, each group has been searching for ways out of this self-imposed intellectual trap. To eradicate poverty, we have to break this implicit compact through a BOP-oriented involvement of the private sector.

Figure-3 (BOP Opportunity)



We have to change our long-held beliefs about the BOP—our genetic code, if you will. The barrier that each group has to cross is different, but difficult nonetheless. However, once we cross the intellectual barrier, the opportunities become obvious. The BOP market also represents a major engine of growth and global trade, as we illustrate in our subsequent stories of MNCs and private firms from around the world.

1.4 Nature of BOP market

The nature of the BOP market has characteristics that are distinct. We outline some of the critical dimensions that define this market. These characteristics must be incorporated into our thinking as we approach the BOP.

There Is Money at the BOP

The dominant assumption is that the poor have no purchasing power and therefore do not represent a viable market.

Let us start with the aggregate purchasing power in developing countries where most of the BOP market exists. Developing countries offer tremendous growth opportunities. Within these markets, the BOP represents a major opportunity. Take China as an example. With a population of 1.2 billion and an average per capita gross domestic product (GDP) of US $1,000, China currently represents a $1.2 trillion economy. However, the U.S. dollar equivalent is not a good measure of the demand for goods and services produced and consumed in China. If we convert the GDP-based figure into its dollar purchasing power parity (PPP), China is already a $5.0 trillion economy, making it the second largest economy behind the United States in PPP terms. Similarly, the Indian economy is worth about $3.0 trillion in PPP terms. If we take nine countries—China, India, Brazil, Mexico, Russia, Indonesia, Turkey, South Africa, and Thailand—collectively they are home to about 3 billion people, representing 70 percent of the developing world population. In PPP terms, this group's GDP is $12.5 trillion, which represents 90 percent of the developing world. It is larger than the GDP of Japan, Germany, France, the United Kingdom, and Italy combined. This is not a market to be ignored.

Now, consider the BOP within the broad developing country opportunity. The dominant assumption is that the poor do not have money to spend and, therefore, are not a viable market. Certainly, the buying power for those earning less than US $2 per day cannot be compared with the purchasing power of individuals in the developed nations. However, by virtue of their numbers, the poor represent a significant latent purchasing power that must be unlocked. For example, all too often, the poor tend to reside in high-cost ecosystems even within developing countries. In the shanty town of Dharavi, outside Mumbai, India, the poor pay a premium for everything from rice to credit.

Compare the cost of everyday items of consumption between Dharavi and Warden Road (now redesignated B. Desai Road), a higher income neighborhood in Mumbai. The poverty penalty in Dharavi can be as high as 5 to 25 times what the rich pay for the same services below Table-2. Research indicates that this poverty penalty is universal, although the magnitude differs by country. The poverty penalty is the result of local monopolies, inadequate access, poor distribution, and strong traditional intermediaries. Large-scale private-sector businesses can unlock this poverty penalty. For example, the poor in Dharavi pay 600 to 1,000 percent interest for credit from local moneylenders. A bank with access to this market can do well for itself by offering credit at 25 percent. Although 25 percent interest might look excessive to a casual observer, from the point of view of the BOP consumer, access to a bank decreases the cost of credit from 600 percent to 25 percent. The BOP consumer is focused on the difference between the local moneylender rates and the rates that a commercial bank would charge. The bank can make a reasonable profit after adjusting for risk (10 percent over its traditional, top-of-the-pyramid customers). We argue later that the BOP consumers do not represent higher risk.

Table-2 (Poverty Penalty)

Item	Dharvi	Warden Road	Poverty Premium
Credit (annual Interest)	600-1000%	12-18%	53
Muncipal grade water (cubic meter)	$1.12	$0.03	37
Phone Call (per minute)	$0.04-0.05	$0.025	1.8
Diarrhea Medication	$20	$2	10
Rice (per Kg)	$0.28	$0.24	1.2

Adapted from C.K. Prahalad and Stuart Hart, The Fortune at the Bottom of the Pyramid

These cost disparities between BOP consumers and the rich in the same economy can be explained only by the fact that the poverty penalty at the BOP is a result of inefficiencies in access to distribution and the role of the local intermediaries. These problems can easily be cured if the organized private sector decides to serve the BOP. The organized sector brings with it the scale,

scope of operations, and management know-how that can lead to efficiencies for itself and its potential consumers.

The poor also spend their earnings in ways that reflect a different set of priorities. For example, they might not spend disposable income on sanitation, clean running water, and better homes, but will spend it on items traditionally considered luxuries. Without legal title to land, these residents are unlikely to invest in improving their living quarters, much less the public facilities surrounding their homes. For example, in Dharavi, 85 percent of the households own a television set, 75 percent own a pressure cooker and blender, 56 percent own a gas stove, and 21 percent have telephones. In Bangladesh, women entrepreneurs with cell phones, which they rent out by the minute to other villagers, do a brisk business. It is estimated that the poor in Bangladesh spend as much as 7 percent of their income on connectivity.

Access to BOP Markets

The dominant assumption is that distribution access to the BOP markets is very difficult and therefore represents a major impediment for the participation of large firms and MNCs.

Urban areas have become a magnet for the poor. By 2015 there will be more than 225 cities in Africa, 903 in Asia, and 225 in Latin America. More than 368 cities in the developing world will have more than 1 million people in each. There will be at least 23 cities with more than 10 million residents. Collectively, these cities will account for about 1.5 to 2.0 billion people. Over 35 to 40 percent of these urban concentrations will be comprised of BOP consumers. The density of these settlements—about 15,000 people per hectare—will allow for intense distribution opportunities.

The rural poor represent a different problem. Access to distribution in rural markets continues to be problematic. Most of the rural markets are also inaccessible to audio and television signals and are

often designated as media dark. Therefore, the rural poor are not only denied access to products and services, but also to knowledge about what is available and how to use it. The spread of wireless connectivity among the poor might help reduce this problem. The ability to download movie and audio clips on wireless devices might allow firms to access traditionally media dark areas and provide consumers in these locations with newfound access to information about products and services. However, this is still an evolving phenomenon restricted to a few countries.

The BOP does not lend itself to a single distribution solution. Urban concentrations represent a problem distinct from that of the distribution access to dispersed rural communities. Worldwide, the cost of reach per consumer can vary significantly across countries. A wide variety of experiments are underway in these markets to find efficient methods of distributing goods and services. One such experiment, Project Shakti at Hindustan Lever Ltd. (HLL) in India, is a case in point. HLL created a direct distribution network in hard-to-reach locales (markets without distribution coverage through traditional distributors and dealers). HLL selected entrepreneurial women from these villages and trained them to become distributors, providing education, advice, and access to products to their villages. These village women entrepreneurs, called Shakti Amma (empowered mother), have unique knowledge about what the village needs and which products are in demand. They earn between Rs. 3,000 and 7,000 per month (U.S. $60–$150) and therefore create a new capacity to consume for themselves and their families. More important, these entrepreneurial women are increasingly becoming the educators and access points for the rural BOP consumers in their communities. This approach is not new. Avon is one of the largest cosmetics operations in Brazil and has used a similar approach by leveraging more than 800,000 Avon ladies as distributors to reach even the most remote regions of Amazonia.

The BOP Markets Are Brand-Conscious

The dominant assumption is that the poor are not brand-conscious. On the contrary, the poor are very brand-conscious. They are also extremely value conscious by necessity.

The experience of Casas Bahia in Brazil and Elektra in Mexico—two of the largest retailers of consumer durables, such as televisions, washing machines, radios, and other appliances—suggests that the BOP markets are very brand-conscious. Brand consciousness among the poor is universal. In a way, brand consciousness should not be a surprise. An aspiration to a new and different quality of life is the dream of everyone, including those at the BOP. Therefore, aspirational brands are critical for BOP consumers. However, BOP consumers are value buyers. They expect great quality at prices they can afford. The challenge to large firms is to make aspirational products affordable to BOP consumers. These consumers represent a new challenge for managers with increased pressure on costs of development, manufacturing, and distribution. As a result, BOP markets will force a new level of efficiency in the MNCs, as we demonstrate in next section.

The BOP Market Is Connected

Contrary to the popular view, BOP consumers are getting connected and networked. They are rapidly exploiting the benefits of information networks.

The spread of wireless devices among the poor is proof of a market at the BOP. For example, by the end of 2010, China had an installed base of 800 million cell phones. India had an installed base of approximately 750 million. The Indian market is growing at about 0.5 million handsets per month. Both the current market size and the growth rates suggest that the BOP market is a critical factor in worldwide wireless growth. Telecommunications providers have made it easier for BOP consumers to purchase handsets and service through prepaid cards. The proliferation of wireless devices among the poor is universal, from Grameen Phone in Bangladesh to Telefonica in Brazil. Further, the availability of PCs in kiosks at a very low price per hour and the opportunity to videoconference using PCs are adding to the intensity of connectivity among those at the BOP. The net result is an unprecedented ability of BOP consumers to communicate with each other in several countries. The

technology of wireless and PC connectivity is allowing the BOP population to be actively engaged in a dialogue with each other, with the firms from which they wish to purchase goods and services, and with the politicians who represent them.

Connectivity also allows the BOP consumers to establish new patterns of communication away from their villages. With cell phones and TV, the BOP consumer has unprecedented access to information as well as opportunities to engage in a dialogue with the larger community. As a result, word of mouth among BOP consumers is becoming a very potent force for assessing product quality, prices, and options available to them. The spread of good bargains as well as bad news can be very rapid. For example, in India, it appears that some consumers found worms in chocolates sold by Cadbury, a large and very successful MNC. Ten years ago this would have been a nonevent, but with access to multiple and fiercely competitive TV channels, wireless, and Internet, the news spread so rapidly across India that not just managers within Cadbury but all managers involved in the fast-moving consumer goods industry were surprised and worried.

BOP Consumers Accept Advanced Technology Readily

Contrary to popular belief, the BOP consumers accept advanced technology readily.

The spread of wireless devices, PC kiosks, and personal digital assistants (PDAs) at the BOP has surprised many a manager and researcher. For example, ITC, an Indian conglomerate, decided to connect Indian farmers with PCs in their villages. The ITC e-Choupal (literally, village meeting place) allowed the farmers to check prices not only in the local auction houses (called *mandis*), but also prices of soybean futures at the Chicago Board of Trade. The e-Choupal network allowed the farmers access to information that allowed them to make decisions about how much to sell and when, thus improving their margins. Similarly, women entrepreneurs in southern India, given a PC kiosk in their villages, have learned to videoconference among themselves, across villages on all

kinds of issues, from the cost of loans from various banks to the lives of their grandchildren in the United States. Chat rooms are full of activity that none of us could have imagined. Most interestingly, in Kerala, India, fishermen in traditional fishing boats, after a day of productive work, sell their catch to the highest bidders, using their cell phones to contact multiple possible landing sites along the Kerala coast. The simple boats, called catamarans, have not changed, but the entire process of pricing the catch and knowing how to sell based on reliable information has totally changed lives at the BOP. The BOP consumers are more willing to adopt new technologies because they have nothing to forget. Moving to wireless from nothing is easier than moving to wireless from a strong tradition of efficient and ubiquitous landlines.

The Market Development Imperative

The task of converting the poor into consumers is one of market development. Market development involves both the consumer and the private-sector firm. We consider the risks and benefits to the private sector firm later. Here, we reflect on the incentives for the BOP consumer, who is so far isolated from the benefits of access to regional and global markets, to participate. What are the benefits to the BOP consumer? Examples are drawn primarily from the stories that appear in the report.

Create the Capacity to Consume

To convert the BOP into a consumer market, we have to create the capacity to consume. Cash-poor and with a low level of income, the BOP consumer has to be accessed differently.

The traditional approach to creating the capacity to consume among the poor has been to provide the product or service free of charge. This has the feel of philanthropy. Charity might feel good, but it rarely solves the problem in a scalable and sustainable fashion.

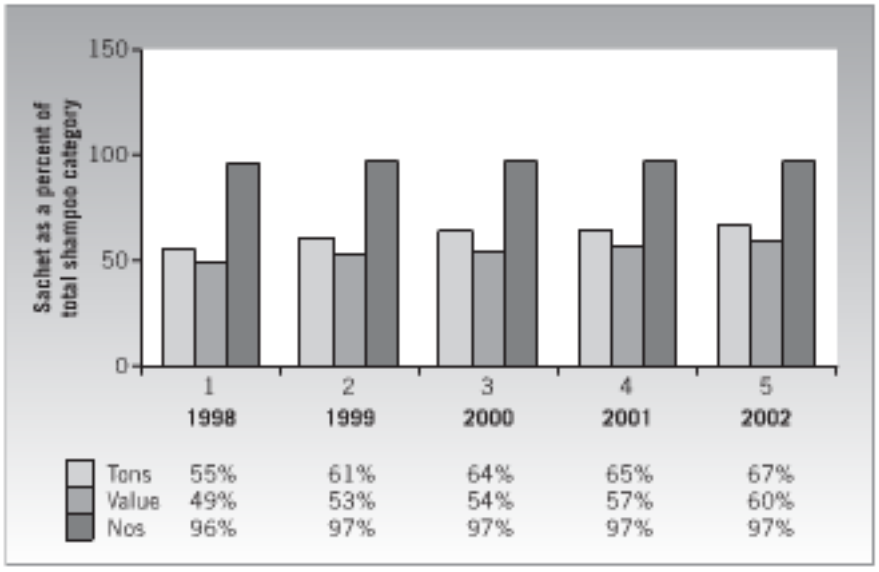
A rapidly evolving approach to encouraging consumption and choice at the BOP is to make unit packages that are small and, therefore, affordable. The logic is obvious. The rich use cash to inventory convenience. They can afford, for example, to buy a large bottle of shampoo to avoid multiple trips to the store. The poor have unpredictable income streams. Many subsist on daily wages and have to use cash conservatively. They tend to make purchases only when they have cash and buy only what they need for that day. Single-serve packaging—be it shampoo, ketchup, tea and coffee, or aspirin—is well suited to this population. A single-serve revolution is sweeping through the BOP markets. For example, in India, single-serve sachets have become the norm for a wide variety of products, as shown in below table-3.

Table-3 (Single Serve Sachets prices at retail)

Typical Products	**Rs**	**$**
Shampoo, Confectionary, matches, tea	0.5	0.01
Shampoo, Salt, Biscits, Ketchup, Fruit drink concentrate	1	0.02
Detergent, soup, mouth freshners, biscuits, jams, spreads, coffee, spices	2	0.04
Biscuits, toothpaste, color cosmetics, fragrances, bread, cooking oil, skin cream	5	0.1

The number of products sold in the single-serve format is rapidly increasing. The format is so popular that even firms producing high-end merchandise have to adopt it to remain viable long-term players in the growing markets. For example, in the shampoo business, the situation in the Indian market is shown in below Figure-4.

Figure-4 (Shampoo Business Situation)



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

Measured in tons, the size of the Indian shampoo market is as large as the U.S. market. Large MNCs, such as Unilever and Procter & Gamble (P&G), are major participants in this market, as are large local firms. Because the poor are just as brand-conscious as the rich, it is possible to buy Pantene, a high-end shampoo from P&G, in a single-serve sachet in India. The entrepreneurial private sector has created a large market at the BOP; the penetration of shampoo in India is about 90 percent.

A similar approach to creating capacity to consume is through innovative purchase schemes. More BOP consumers in Brazil are able to buy appliances through Casas Bahia because the firm provides credit even for consumers with low and unpredictable income streams. Through a very sophisticated credit rating system coupled with counseling, Casas Bahia is able to provide access to high-quality appliances to consumers who could not otherwise afford them. At the same time, the firm ensures that its consumers are not overstretched. The default rate is very low at 8.5 percent, compared to over 15 percent for competitor firms. Casas Bahia has also created a new pool of repeat customers. Cemex, one of the world's largest cement companies in Mexico, follows a similar

approach in its do-it-yourself business focused on the BOP market. The idea is to help the consumers learn to save and invest. By creating a pool of three women who save as a group and discipline and pressure each other to stay with the scheme, Cemex facilitates the process of consumption by bundling savings and access to credit with the ability to add a bathroom or a kitchen to their homes.

Creating the capacity to consume is based on three simple principles best described as the Three As:

1. *Affordability*. Whether it is a single-serve package or novel purchasing schemes, the key is affordability without sacrificing quality or efficacy.
2. *Access*. Distribution patterns for products and services must take into account where the poor live as well as their work patterns. Most BOP consumers must work the full day before they can have enough cash to purchase the necessities for that day. Stores that close at 5:00 PM have no relevance to them, as their shopping begins after 7:00 PM. Further, BOP consumers cannot travel great distances. Stores must be easy to reach, often within a short walk. This calls for geographical *intensity of distribution*.
3. *Availability*. Often, the decision to buy for BOP consumers is based on the cash they have on hand at a given point in time. They cannot defer buying decisions. Availability (and therefore, *distribution efficiency*) is a critical factor in serving the BOP consumer. Of course, the ideal is to create the capacity to earn more so that the BOP consumers can afford to consume more. The ITC e-Choupal story illustrates how farmers with access to the Internet and thereby access to the prices of commodities around the world can increase their incomes by 5 to 10 percent. These farmers can decide when and how much to sell based on their understanding of the likely price movements for their products. Modern technology not only allows them to realize better prices, but also to improve their logistics. The aggregation of food grains allows for efficiencies for both the farmer and the buyer.

By focusing on the BOP consumers' capacity to consume, private-sector businesses can create a new market. The critical requirement is the ability to invent ways that take into account the variability in the cash flows of BOP consumers that makes it difficult for them to access the traditional market for goods and services oriented toward the top of the pyramid.

The Need for New Goods and Services

The involvement of the private sector at the BOP can provide opportunities for the development of new products and services.

Amul, a dairy cooperative in India, has introduced good quality ice cream at less than $0.05 per serving, affordable by all at the BOP. This product is not only a source of enjoyment; the milk in it is also a source of nutrition for the poor. Now, Amul is planning to introduce a natural laxative-laced ice cream called isabgol-enriched. It is too early to tell whether the product can be a success. However, the experimentation is what the game is about. Similarly, the popularization of pizza by the same company allows the poor to obtain an adequate quantity of protein. PRODEM FFP, a Bolivian financial services company, has introduced smart automated teller machines (ATMs) that recognize fingerprints, use color-coded touch screens, and speak in three local languages. This technological innovation allows even illiterate BOP consumers to access, on a 24-hour basis, high-quality financial services.Cemex, as we saw earlier, provides access to good quality housing. Through Tecnosol, the BOP consumers in rural Nicaragua have access to clean energy from renewable sources—solar and wind power. Previously, these consumers did not have access to grid-based electricity and were dependent on more expensive sources, such as kerosene and batteries. Now they have energy that is affordable enough to run their households. Casas Bahia not only sells appliances, but has also introduced a line of good quality furniture oriented toward the BOP markets. Furniture has become one of the fastest growing businesses for the company as well as a source of pride and satisfaction to its consumers.

Dignity and Choice

When the poor are converted into consumers, they get more than access to products and services. They acquire the dignity of attention and choices from the private sector that were previously reserved for the middle-class and rich.

The farmers at an ITC e-Choupal were very clear. The traditional auctioning system at the government-mandated markets (mandis) did not offer them any choices. Once they went to a mandi, they had to sell their produce at the prices offered on that day. They could not wait for better prices or haul their produce back to their villages. More important, the local merchants who controlled the mandi were not very respectful of the farmers. One farmer remarked, They make rude comments about my produce. They also raise the prices in the auction by $0.02 per ton. It is as if they have already determined the price you will get and they go through the motions of an auction. It used to be very demeaning. Not any longer. Now, the same farmers can access information on the Web across all the mandis and can decide where, when, and at which prices they want to sell. Similarly, women in self-help groups (SHGs) working with ICICI Bank in India also have had their dignity restored. As a group, they decide which borrowers and projects will receive loans. This involvement of women in leadership development and in learning about finances and bank operations has given them a new sense of personal worth. The single-serve revolution has created a revolutionary level of choice for consumers at the BOP. For example, the switching costs for the consumer are negligible because she can buy a sachet of shampoo or detergent or pickles; if she is not satisfied with her purchase she can switch brands the next day. Firms must continuously innovate and upgrade their products to keep customers interested in their brands, thereby improving quality and reducing costs.

Trust Is a Prerequisite

Both sides—the large firms and the BOP consumers—have traditionally not trusted each other. The mistrust runs deep. However, private-sector firms approaching the BOP market must focus on building trust between themselves and the consumers.

This is clearly evident when one visits a Casas Bahia store. BOP consumers here venerate the founder, Mr. Klein, for giving them the opportunity to possess appliances that they could not otherwise afford. Although the shanty towns of Sao Paulo or Rio de Janeiro can be dangerous to outsiders, Casas Bahia trucks move freely around without worry. The same is true for Bimbo, the provider of fresh bread and other bakery products to the BOP consumers in Mexico. Bimbo is the largest bakery in Mexico and its trucks have become symbols of trust between the BOP consumers and the firm. The truck drivers are so trusted that often the small store owners in the slums allow them to open their shops, stock them with bread, and collect cash from the cash boxes without supervision. Both Casas Bahia and Bimbo believe that the truck drivers who deliver their products to the BOP consumers are their ambassadors and neither company will outsource the delivery process. In fact, all managers at Bimbo must work as truck drivers for the company to become better educated about their customers .

MNCs often assume that the default rate among the poor is likely to be higher than that of their rich customers. The opposite is often true. The poor pay on time and default rates are very low. In the case of ICICI Bank, out of a customer base of 200,000, the default rate is less than 1 percent. The default rate at Grameen Bank, a microfinance pioneer in Bangladesh, is less than 1.5 percent among 2,500,000 customers. The lessons are clear. Through persistent effort and the provision of worldclass quality, private-sector businesses can create mutual trust and responsibility between their companies and BOP customers. Trust is difficult to build after 50 years of suspicion and prejudice based on little evidence and strong stereotyping.

Benefits to the Private Sector

We have identified the immediate benefits of treating the poor as consumers as well as the poverty alleviation process that will result as businesses focus on the BOP. It is clear that the consumers (the poor) benefit, but do the private-sector businesses benefit as well? The BOP market potential is huge: 4 to 5 billion underserved people and an economy of more than $13 trillion PPP. The needs of the poor are many. The case for growth opportunity in the BOP markets is easy to make. However, to participate in these markets, the private sector must learn to innovate. Traditional products, services, and management processes will not work.

2. BOP Success Stories

While the cases in this report are intended to illustrate that there are viable business opportunities at the Bottom of the Pyramid, there was a lot of skepticism. Over the years, there is accumulating evidence that this segment represents a viable business. Consider for example, the growth of the cell phone. By 2011, more than 4 billion cell phones will be in use. Most of this growth is in the Bottom of the Pyramid markets. From sub-Saharan Africa, China, Southeast Asia, India, and Latin America and Eastern Europe, there is not a single country where the poor have not taken to the cell phone. India alone added approximately 11 million new subscribers in January 2009. Many successful firms have emerged out of this opportunity. Many are new firms, and many are new businesses in older firms. Mobile Telephone Networks from South Africa, CelTel in Sub Saharan Africa, a dozen competitors in India led by Bharati Airtel, and Globe in the Philippines are some examples. The market capitalization of the three of the top five (two are not listed) leading players in wireless in India is approximately $57 billion as of June 2008. In January 2009, in a depressed market, it was $38 billion. The cell phone revolution has demonstrated beyond doubt that there is a market for world-class goods and services if they can be made available at affordable prices. For example, a cell phone minute costs less than $ 0.01 in India, probably the lowest rate per minute anywhere. The industry had to create its own ecosystem of mini entrepreneurs who sold prepaid

cards and also charged the cell phones. The Bottom of the Pyramid business is quite critical for both the infrastructure players, such as LM Ericsson, and device makers, such as Nokia and Motorola.

The spread of the cell phone has made this the device of choice for not only communications but also some computing, entertainment, and the delivery of a wide variety of services such as medical care (as described in the Voxiva case in this report and reconfirmed in the update). Financial service organizations are also rapidly developing systems to use the cell phone for financial transactions (see the ICICI case update). Remittances are routinely handled through the cell phone. The cell phone, we can say, has shown that the Bottom of the Pyramid is not just a market but also a source of innovations in business models and applications. It has transformed the lives of the poor. We can do well and do good simultaneously. Most important, the rate of diffusion among the Bottom of the Pyramid around the world has shown how willing and capable the poor are to accept and benefit from advanced technology. The cell phone has broken several long-held beliefs: There is no market at the Bottom of the Pyramid; they won't pay, they will not accept or do not need advanced technologies; the Bottom of the Pyramid cannot be a source of innovation; and multinationals do not need them. Maybe some multinational firms can ignore this market. Not if you are Nokia, Motorola, Nestle, Unilever, or Microsoft. However, being a multinational or a large domestic firm does not guarantee success; the capacity to adapt and innovate at the Bottom of the Pyramid does.

A large number of firms have benefited from a focus on the Bottom of the Pyramid markets. They span multiple geographies and industries. For example, the success of the following local firms is common knowledge. The goal here is not to give an exhaustive list but an indicative list.

- Brazil Casas Bahia (retail)
- Habibs (fast food)
- Bradesco (banking)

- Mexico Elecktra (retail, banking)
- Groupo Bimbo (food)
- Patrimonio Hoy (housing)
- Philippines Globe (telecom, water)
- Bangladesh Grammen (micro finance, telecom, food)
- India Amul (dairy)
- Aravind Eye Hospital, Jaipur Foot,
- Narayana Hrudayalaya (health care)
- ITC e-Choupal (agriculture)
- SKS Finance (micro finance)
- Airtel (telecom)
- South Africa Pick and Pay (retail)
- Mobile Telephone Networks (telecom)
- Chile Savory, by Nestlé (ice cream)
- Brestler, by Unilever (ice cream)

Note : About Elevan cases of success stories has been attached in the Annexure of this report.

More importantly, we see a large number of multinational firms either start new initiatives in Bottom of the Pyramid markets or reinforce their existing presence in the Bottom of the Pyramid. Some notable new entrants are such well-known firms as Microsoft (software), DSM (food supplements), Royal Philips (health care), Thomson Reuters (information), GlaxoSmithKline (pharmaceuticals), Intel (computing), Vodafone (telecom), ING (microfinance), and Monsanto (agriculture).

The large private sector is learning rapidly that there is a significant market at the Bottom of the Pyramid. In some industries the size and attractiveness of the Bottom of the Pyramid markets are well established. Retailing, fast-moving consumer goods, micro finance, telecom, and

agri-business, belong to this category. Computing, health and wellness oriented food, health care, education, pharmaceuticals, and energy are emerging as major opportunities. Affordable and modern housing, water, and transportation are still elusive at the Bottom of the Pyramid. Firms are also learning that this market cannot be approached with the mindset of their traditional markets. There is a need for experimentation and innovation. We certainly will witness more efforts in this direction. We need to ask: Why can't we create markets in every sector that we have created in telecom through wireless? Why not apply the same level of innovation, eco system development, and focus on affordability as we did in cell phones? This question is asked more and more in corporate boardrooms.

3. BOP a Fallacy

Widespread poverty is an economic, social, political and moral problem. Eradicating, or at least alleviating, poverty is an urgent challenge. For many decades, various institutions have tried to address this challenge: local governments, developed country governments, international organizations (such as the World Bank and the United Nations), aid foundations and non-governmental organizations. The intellectual discourse has been largely in the fields of public policy and development economics. More recently, large companies, business schools and management experts have entered this arena. CK Prahalad, a well-known business guru, is one of the pioneers of this move, and certainly the most visible and prolific writer in this field. He has been instrumental in developing a set of ideas often referred to as the 'bottom of the pyramid' (BOP) initiative. It is argued that selling to the poor can simultaneously be profitable and eradicate poverty. There is both glory and fortune at the bottom of the pyramid. This is, of course, a very appealing proposition and has drawn much attention. Prahalad's (2004) book has achieved much visibility. The world's top CEOs have discussed this topic at recent sessions of the World Economic Forum. There have been many conferences targeted at this topic, such as the conference titled 'Eradicating

Poverty through Profit' in December 2004 organized by the World Resource Institute. Various MNCs such as Unilever, Hewlett Packard, and SC Johnson have undertaken BOP initiatives. Several business schools (such as IESE Barcelona, North Carolina, Cornell, and University of Michigan) have set up BOP centers and offer MBA courses in this area.

The BOP proposition is indeed too good to be true. It is seductively appealing, but it is riddled with fallacies. There is neither glory nor fortune at the bottom of the pyramid – it is all a mirage. This section mainly views by Anees Karnani, will argue that the BOP proposition is both logically & empirically flawed. This has serious implications for both firm strategies and public policy. We will propose an alternative perspective on how the private sector can help alleviate poverty. Rather than focusing on the poor as consumers, we need to view the poor as producers. The only way to alleviate poverty is to raise the real income of the poor.

Poverty Line

Poverty is, of course, a matter of degrees and involves subjective judgments. It is not surprising that there are intense debates about where to draw the poverty line (Ravallion, 2003; Sala-I-Martin, forthcoming). Richer countries draw the poverty line at higher consumption levels than poorer countries. Since 1990, the World Bank has measured poverty by the standards commonly used in low-income countries, which generated the widely accepted 'dollar a day' poverty line. This poverty line is then converted to local currency using the latest Purchasing Power Parity (PPP) exchange rates, and the local consumer price indices are then used to adjust for inflation. This work was updated recently (Chen and Ravallion, 2001) resulting in a poverty line of $1.08 per day in 1993 prices, still often referred to as '$1 per day' poverty line. In most countries the government determines its own national poverty line; for example, in India the national poverty line is $1.48 in 1999 prices, at PPP exchange rate of Rs. 8.17 (Virmani, 2006). People below the 'extreme poverty' line of '$1 per day' cannot meet basic needs for survival: nutrition, health care, safe drinking water, sanitation, education for children, adequate shelter and clothing (Sachs, 2005). This definition of

‘extreme poverty’ is probably too conservative. Another commonly used standard, more representative of middle-income countries, is ‘$2 per day’. At this level of ‘moderate poverty,’ the basic needs of survival are met, but just barely. Both these measures of poverty are widely used in development economics and public policy fields. For example, in 2002 all the 191 United Nations member states agreed to the Millennium Development Goals. The first goal of this declaration is to eradicate extreme poverty and hunger, and set the target: halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day (United Nations, 2005). The World Bank uses both $1/day and $2/day lines. Virtually all research on poverty uses a poverty line somewhere in between $1 to $2 per day. But in BOP, uses the $2 per day criterion. Most analysts define poverty in monetary terms; but, there is much debate about whether to use consumption or income measures. The World Bank and some researchers (for example, Ravallion 2004) use consumption measures; The United Nations (2000) and other researchers (for example, Sala-I-Martin, forthcoming) use income measures. Ravallion (2004) argues that the consumption poverty measure should be doubled to reflect the items implicitly included in the income measure, which are government expenditure and private investment. Therefore, the $1/day consumption poverty line is roughly equivalent to $2/day income line. The BOP argument is inconsistent in its definition of the poverty line, and often uses a level much higher than $2 per day. BOP started with a definition of the poor as per capita annual income (at purchasing power rates) of $1500 or less. It is difficult, and probably impossible, to prescribe solutions without first defining the nature and the scope of the problem. The BOP proposition emphasizes selling to the poor people. A household with a per capita consumption of $2000 per year probably would consider purchasing a motorcycle; a household with a per capita income of $1 per day certainly could not contemplate such a purchase. Whether there is a fortune at the bottom of the pyramid depends on how one defines the ‘bottom’. Similarly, how to alleviate poverty too depends on the definition of poverty. People who consume less than $1 per day have very different needs and priorities than people who consume more than five times as much.

How Many Poor People

BOP (2002) states that there are 4 billion people with per capita income below $1500 per year. Prahalad and Hammond (2002) assert there are 4 billion people with per capita income below $2000 per year. Prahalad (2004) states that there are more than 4 billion people with per capita income below $2 per day. So what are the true facts?

Measuring the number of poor people is surprisingly difficult. Even after agreeing on a poverty line, there are intense debates about the exact number of poor people. The World Bank measures consumption poverty using data drawn from household surveys. Other researchers measure income poverty using data drawn from national accounts (The Economist, 2004a; Sala-I-Martin, forthcoming). These two methods yield widely different results. An important controversy relates to the adjustment of individual consumption levels as derived from a survey, by the ratio of the per capita consumption from the National account statistics to the survey mean for the same item (Virmani, 2006). For example, the World Bank discontinued such an adjustment in 1993; the Government of India continues to believe that such an adjustment is necessary to get a true picture of the poverty rates. The World Bank estimates a poverty rate of 35.3% for India in 1999 based on $1 a day; the Indian Government estimates a significantly lower poverty rate of 26% using its national poverty line of $1.48 in 1999. The World Bank estimates there were 1.1 billion people consuming less than $1 per day, and 2.7 billion people consuming less than $2 per day, in 2001. Sala-I-Martin (forthcoming) estimates there were 322 million people with income below $1/day, and 600 million people with income below $2/day. In the controversies on the measurement of poverty, the World Bank has the highest estimates, while Sala-I-Martin is essentially at the other extreme. So, the number of poor people in the world is somewhere between 322 million and 2.7 billion depending on the definition of poverty, source of data, assumptions made, and the method of analysis. Most researchers argue that the World Bank methodology over-estimates the number of poor people. Even if we take the most conservative approach, World Bank methodology and $2/day

poverty line, there are 2.7 billion poor people in the world – not even close to the 4 billion number used by the BOP literature. These are big differences given the total population of the world is only 6.1 billion. If we use a lower poverty line or a lower estimate of the number of poor people, then the potential market at the BOP is even smaller, and the argument against the BOP proposition is even stronger.

Surprisingly, BOP (Prahalad) even claims that the poor as a market are 5 billion strong. This tendency to exaggerate seems to be contagious. Various newspaper and magazine articles in discussing the BOP proposition similarly exaggerate the number of poor people (for example, Washington Post, 2005). The Economist (2004) uncritically quotes Prahalad that there are 4 billion-5 billion people on under $2 a day, a number well above even the World Bank estimate. This in spite of the fact that a few months earlier The Economist (2004) argued that the true extent of poverty in the world is significantly less than that estimated by the World Bank! Even an article in the highly respected academic journal *Administrative Science Quarterly* incorrectly quotes the World Bank as saying four billion people in the world earn less than $2 per day (Walsh *et al*, 2005). Pointing out the problems with the BOP argument in terms of definition of poverty and the number of poor people is not just quibbling about the details. Nor are we trying to minimize the problem of poverty. By any measure, poverty is a serious problem, and there is no need to exaggerate it in order to mobilize the will and the resources to solve it. These are important issues for defining the nature and scope of the problem, and the potential solutions.

Target Market

A central aspect of the BOP proposition is that there is a ‘fortune’ at the bottom of the pyramid. Surely this depends on the number of poor people and their per capita purchasing power. BOP (Prahalad), claims that the BOP potential market is $13 trillion at PPP. This grossly over-estimates the BOP market size. Let us use the most ‘favorable’ numbers: the $2/day *consumption* poverty line and the World Bank estimates. In that case the *average* consumption of poor people is $1.25 per

day and there are 2.7 billion poor people, which implies a BOP market size of $1.2 trillion, compared to the world's gross national income of $48.5 trillion at PPP in 2002 (The World bank, 2005). So, the bottom 44% of the world population accounts for only 2.5% of the total purchasing power. Even at $1.2 trillion the BOP market is still of a significant size. But, from the perspective of a MNC, that is an overestimate. To understand the problem of poverty and the consumption patterns of the poor, it is appropriate to convert local currencies into dollars at the PPP rates, as we have been doing above. But, from the perspective of a multi-national company from a rich country selling to customers in a poor country, profits will be repatriated at the financial exchange rates, not at PPP rates. The ratio of financial exchange rates to PPP rates for poor countries is in the range of 3 to 7 (World Bank, 2005); for China it is 4.5 and for India it is 5.3. Even at a conservative ratio of 4, the size of the BOP market, from the perspective of a MNC from a rich country, is only $0.3 trillion – compare this to the $11 trillion economy in the United States alone.

No Fortune

Not only is the BOP market quite small, it is unlikely to be very profitable, especially for a large company. The costs of serving the markets at the bottom of the pyramid are very high. The poor are often geographically dispersed and culturally heterogeneous. This increases distribution and marketing costs and makes it difficult to exploit economies of scale. Weak infrastructure (transportation, communication, media, and legal) further increases cost of doing business. This may be somewhat less true for the urban poor (compared to the rural poor) who are often geographically concentrated into slums. Another factor leading to high costs is the small size of each transaction. Poor people are, of course, price sensitive. Companies assume that poor people spend only on basic needs like food and shelter. BOP disagree, but such assumptions reflect a narrow and largely outdated view of the developing world. In fact, the poor often do buy 'luxury' items. Quite the contrary! Poor people who live on less than $2 per day and can barely meet their basic survival needs are unlikely to buy luxury items. Diverting expenditures from these basic needs

to luxuries is probably not in their self-interest. The poor in fact do not spend much on luxuries – sensibly so, from our perspective. BOP urges companies to make a fortune by unlocking the latent purchasing power at the bottom of the pyramid. To do this, companies surely need to have an accurate understanding of the income and consumption patterns of the target market. Companies following the BOP proposition often fail because they overestimate the purchasing power of the poor people and try to market products/services at too high a price point. Virtually none of the examples cited by the BOP proposition support the recommendation that companies can make a fortune by selling to the poor. The BOP in defining the poverty line. Several of the examples that apparently support the BOP proposition involve companies that are profitable by selling to people well above the poverty line, but who seem poor only in relative terms, especially to a Western researcher.

Casas Bahia

BOP cites the case of Casas Bahia which has become a large retailer in Brazil by converting the BOP into consumers. Casas Bahia carries and sells top-quality brands: Sony, Toshiba, JVC, and Brastemp (Whirlpool). There is a misconception that because customers are poor they do not desire quality products. It is quite obvious that poor people desire quality products; the problem is that they can not afford such products. People whose income is less than $2 per day and can barely meet their basic survival needs do not purchase top quality electronic appliances! This confusion arises because of inconsistency in defining the poverty line. Casas Bahia customers (individually or as a family) are much above the $2 per day poverty line. Casas Bahia is a big, profitable retailer but has little to do with the BOP proposition if we define the poverty line appropriately. This is the cause of the BOP fallacy that poor people buy top quality products.

Iodized Salt

Many people in developing countries suffer from iodine deficiency, leading to diseases such as goiter. Salt is an excellent carrier of iodine, and it is very inexpensive to add iodine to salt. A problem is that some of this iodine in salt is lost in the process of storage, transportation and

cooking. Hindustan Lever Limited (HLL), the Indian subsidiary of Unilever, has developed a proprietary micro-encapsulation technology to stabilize the iodine content in salt. BOP cites the case of Annapurna salt marketed to the bottom of the pyramid by HLL. However, the fact is that the penetration of Annapurna salt among the poor is miniscule at best. The branded salt market in India accounts for only 20-30% of the total market; the rest of the market is served by the unorganized sector (Sarvani, 2003). Annapurna is the second largest with a market share of 35% of the branded sector, which implies a share of 7-10% of the total market. Annapurna salt is priced at Rs. 7.5/kg, the same as the market leader Tata salt; whereas the small regional producers sell iodized salt at Rs. 2/kg. It is unlikely that many poor people are paying such a high premium for Annapurna salt. The BOP proposition is adamant about selling high quality products at a low price to the poor. Yet, Annapurna sells at a price premium of 250%! Not too many poor people see this as a bargain. Annapurna may be a profitable business supporting the BOP proposition.

Coca-Cola

Balakrishna and Sidharth (2004) applaud Coca Cola in India for launching in 2003 its low-price, affordability strategy, which hinged on raising the overall consumer base by offering carbonated soft drinks in smaller pack sizes of 200 ml at Rs. 5, which is equivalent to $0.57 (at PPP). This is 'affordability' for the Indian poor?! Coca Cola's BOP initiative is certainly not helping the poor. Nor is it helping Coca Cola. Facing complaints from its bottlers and retailers, the company reversed this low-price strategy and began to raise prices by August 2004. But analysts say this entire exercise cost the company in terms of its own profitability. Coca Cola's new global CEO, Neville Isdell is believed to be not very hot on Coke's rural focus in India, and has restructured the Indian operations under two new CEOs (Bhattacharya, 2005).

Ice Cream

Amul, a large Indian dairy cooperative, found an instant market in 2001 when it introduced ice cream, a luxury in tropical India, at affordable prices (2 cents per serving). Poor people want to buy their children ice cream every bit as much as middle-class families, but before Amul targeted the

poor as consumers, they lacked that option Actually the price of Amul ice cream is much higher. According to Amul's website, their cheapest ice cream sells for Rs. 5 – equivalent to $0.57 (at PPP) for a 50ml serving (a rather small serving). We doubt too many poor people living on less than $2 per day find this ice cream a bargain. Till Amul entered the Indian ice cream market in 2001, Hindustan Lever was the largest firm in this market. The reality is that Hindustan Lever instead of expanding to the bottom of the pyramid has actually retreated to the very top of the pyramid because of unknown reasons.

Single Serve Revolution: A Dud

The most mentioned example in the BOP literature is shampoo sold in sachets to the poor. A single-serve revolution is sweeping through poor countries, as companies learn to sell small packets of various products such as shampoo, ketchup, tea, coffee, choice at the BOP is to make unit packages that are small and, therefore, affordable. This is a fallacy. The poor might prefer small packages because of convenience and managing cash flow. Companies might prefer to sell small packages to encourage trial, brand sampling, and impulse purchases. But, small packages definitely do not increase affordability. A customer might be 'fooled' into thinking a smaller package is more affordable. But, the only way to increase real affordability is to reduce the per unit price. By the BOP logic, an easy way to solve the problems of hunger and malnutrition would be to sell food in smaller packages thus making it more affordable to the poor! In most cases, the packaging cost per unit is higher for small packages. Small packages often do sell at slightly lower unit prices; this is probably because of the greater competitive intensity and hence lower profit margins in this segment. Sometimes small packages sell at a higher or the same per unit price as large packages. Diarrhea is a major problem in India; ironically, most cases of diarrhea can be prevented simply by washing hands with soap. BOP reports surveys that indicate that only 30% of households use soap daily. Surely the poor would be better off increasing their consumption of soap at the expense of shampoo.

Financing schemes

More BOP consumers in Brazil are able to buy appliances through Casas Bahia because the firm provides credit even for consumers with low and unpredictable income streams. Casas Bahia is able to provide access to high-quality appliances to consumers who could not otherwise afford them. The BOP proposition again falls prey to a fallacy: providing credit does not change the affordability of a product. The finance term for Casas Bahia ranges from four months to one year, with an average of six months. All that the financing scheme does is provide instant gratification at a price. A poor consumer could save money and buy the appliance later by paying cash, or buy now on credit. For the privilege of this instant gratification, he pays an interest rate of over 4% per month. People with low and unpredictable income would be well advised to save and pay in cash; this will enable them to do a better job of comparison shopping too. It is not surprising that many of Casas Bahia's customers do not understand well how to unbundle the purchase price and the interest cost and instead focus on the monthly installment payment.Whether it is a single-serve package or novel purchasing schemes, the key is affordability without sacrificing quality or efficacy. The only way to make a product truly more affordable is to reduce the per unit price. Changing package size or providing credit might provide other benefits to the consumer – it definitely does not change affordability. This is analogous to the person with a new credit card believing that he can now afford to spend more money; a short-term credit line does not change one's income or purchasing power.

Lower Prices

One way to alleviate poverty is to reduce the prices of the goods and services the poor buy (or would buy), thus increasing their effective income. To have a significant impact on the purchasing behavior of the poor, the BOP proposition calls for price reductions of over 90%. This is too ambitious a target and rarely achieved; we will settle for price reductions of at least, say, 50%

There are only three ways to reduce prices: 1) reduce profits, 2) reduce costs without reducing quality, and 3) reduce costs by reducing quality. If it is true that the average profit margin in a market is well over 50%, we should certainly endeavor to make the market more 'efficient' and reduce monopoly profits resulting in significant price reduction. Even allowing for the fact that the poor are often subject to local monopolies, this must be a rare situation. Therefore, the only realistic way to reduce price is to reduce cost. The BOP proposition is adamant that we should not reduce quality in this process. Unless all the current producers are grossly inefficient, the only way to reduce cost by over 50% without reducing quality will always require a significant improvement in technology.

Cost-quality trade-offs

Contrary to the BOP proposition, the goal is to reduce both cost and quality in such a way that the cost-quality trade-off is acceptable to the poor consumers. A good example of this logic is the low-price detergent introduced by Nirma in India. In 1969 Karsanbahi Patel started a small business to sell a cheap detergent powder he had formulated in his kitchen. The quality of Nirma was clearly inferior to that of Surf, the product marketed by Hindustan Lever, the Indian subsidiary of Unilever. Nirma contained no 'active detergent', whitener, perfume, or softener. Indeed tests performed on Nirma confirmed that it was hard on the skin and could cause blisters (Ahmad and Mead, 2004). Largely because of this Nirma sold at a price about one-third the price of Surf. Nirma rapidly became a success. In 1977, Surf had a market share of 31 % compared to 12% for Nirma. Ten years later in 1987, the market share of Surf had come down to 7% while cheap low-quality products! This is not because they cannot appreciate good quality nor is it because they do not want good quality. They simply can not afford the same quality products as the rich; they have a different price-quality trade-off. They are even willing to put up with a detergent that sometimes causes blisters! Most often reducing costs while reducing quality does not require a major technological

advance. Nirma is a perfect example of a win-win situation. The company has created a large market and made significant profits. The poor are better off now that they can buy an affordable detergent. In a real sense they are economically better off. We need more products like Nirma. Selling cheap low-quality products does not hurt the poor. Insisting on not lowering the quality actually hurts the poor by depriving them of a product they could afford and would like to buy. The BOP proposition argues that selling low quality products to the poor is disrespectful. Quite the contrary, imposing our price-quality trade-off on the poor is disrespectful of their preferences. The myth is that low-quality implies terrible, shoddy, or dangerous products. It is better to think of quality as a relative concept.

Quality balance

Garvin (1987) develops a framework for analyzing quality by considering eight dimensions of quality: performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. To further expand this concept, we might add other dimensions such as availability, timeliness, convenience, and customization. The customer takes into account all these dimensions and arrives at a subjective judgment of the overall quality of the product (or service), and is, by definition, willing to pay a higher price for a product with higher quality – this is the price-quality trade-off. Holding technology and firm capabilities constant, it costs more to produce higher quality products – this is the cost-quality trade-off. To profitably serve the poor, the firm needs to make the cost-quality trade-off in a manner consistent with the price-quality trade-off made by the target customer.

Raise Income

Not only is there no fortune, there is not even glory at the BOP. It is a fallacy to claim that there is much 'untapped' purchasing power at the BOP. The poor, in fact, obviously consume most of what they earn, and have a low savings rate. Getting the poor to consume more will not solve their

problem, contrary to the BOP argument. The poor do not need convincing to consume more; they want to consume more. Their problem is that they can not afford to consume more. The BOP proposition tries to increase the consumption choices available to the poor by targeting various products and services, such as shampoo, iodized salt and televisions, at the BOP. Holding the poor consumer's income constant, the only way he can purchase the newly available product is to divert expenditure from some other product. If he is a 'rational' consumer, this will increase his welfare. However, as a practical matter, this is unlikely to result in a significant change in his poverty situation. Additionally, if for some reason, the poor consumer is irrational in his resource allocation choice, the BOP initiative might even result in reducing his welfare. The only way to help the poor and alleviate poverty is to raise the *real* income of the poor. There are only two ways to do this: 1) lower the prices by appropriately lowering quality of the goods that the poor buy, which will in effect raise their income, and 2) raise the income that the poor earn. The BOP proposition eschews the first approach because it is insistent on not lowering quality. It deemphasizes the second approach because it views the poor primarily as consumers rather than as producers.

Harmless Illusion or Dangerous Delusion

The BOP proposition is based on a mirage. There is no fortune to be made by selling to the poor. Neither will selling to the poor eradicate poverty. However, given the continuing problem of poverty, we might argue that it is an experiment that is worth trying. Even if the BOP proposition is an illusion, we should perhaps try the solution given the high stakes involved. Or, is it true that the BOP proposition can hurt the very people it is trying to help? In that case the BOP proposition is actually a dangerous delusion. Which is it: a harmless illusion or a dangerous delusion? There are two perspectives to consider here: the private enterprise and the poor.

Eradicating Poverty

The BOP proposition emphatically views the poor as consumers, as untapped purchasing power. It argues that the poor have the right to determine how they spend their limited income and are in fact value-conscious consumers; the poor themselves are the best judge of how to maximize their utility. This is free market ideology taken to an extreme. This is a potentially dangerous aspect of the BOP proposition. The poor in fact are vulnerable by virtue of lack of education (often they are illiterate), lack of information, and economic, cultural and social deprivations. A person's utility preferences are malleable and shaped by his background and experience, especially so if he has been disadvantaged. We need to look beyond the expressed preferences and focus on people's capabilities to choose the lives they have reason to value. Social and economic factors such as basic education, elementary health care, and secure employment are important not only in their own right, but also for the role they can play in giving people opportunity to approach the world with courage and freedom.

Exploitation of the Poor

It could be argued that the BOP initiative results in the poor spending money on products such as televisions and shampoo that would have been better spent on higher priority needs such as nutrition and education and health. BOP dismisses such arguments as patronizing and arrogant; how can anybody else decide what is best for the poor? The problem is that the poor often make choices that are not in their own self interest.

The Poor as Producers

The BOP proposition focuses on the poor as consumers. By focusing on the BOP consumers' capacity to consume, private sector businesses can create a new market. To the contrary, we argue for the need to view the poor primarily as producers, not as consumers. Rather than emphasizing selling to the poor, we should emphasize buying from the poor. By far the best way to alleviate poverty is to raise the income of the poor. Even though the BOP proposition conceptually focuses

on the poor as consumers, it sometimes cites examples of successful organizations that treat the poor primarily as producers.

Role of the Government

For the poor agricultural laborers to migrate to even low-skill industrial jobs, they need basic health care and essential education – which are in the domain of the public sector. This can be illustrated by comparing China and India, which have both been moving towards market-oriented economies, but with differing results, concludes while Indian efforts have slowly met with some success, the kind of massive results that China has seen has failed to occur in India. When China turned to marketization in 1979, it already had a highly literate people, especially the young, with good schooling facilities across the bulk of the country. In contrast, India had a halfliterate adult population when it turned to marketization in 1991, and the situation is not much improved today. The health conditions in China were also much better than in India because of the social commitment of the pre-reform regime to health care as well as education. Even in 2003, the adult literacy rate in India is only 61% (compared to 91% for China in 2000); because of the gender bias, the situation is even worse for Indian women. Even this may understate the problem in India. The Economist (2006) argues that the official national literacy rate of 61% includes many who are able to write their names but are functionally illiterate. The government needs to facilitate the creation and growth of private (small, medium and large) enterprises in labor intensive sectors of the economy, through appropriate policies (such as de-regulation), infrastructure (such as transportation), and institutions (such as capital markets). In India, archaic labor laws discourage investment in labor intensive industries and encourage capital for labor substitution – exactly the opposite of what a country with low labor costs and unemployment needs. Small and medium sized enterprises need financing options – both debt and equity -- in the range of $10,000 to $1. Lack of good infrastructure results in geographically fragmented markets and firms that are too small to exploit scale economies. The best antidote to poverty is economic growth. There is much evidence

linking poverty reduction to economic growth – the so called 'trickle down' or 'multiplier effect'. But, there are two problems with this argument. First, the trickle down effect may be too little and too slow. Poverty is not just an economic problem; it is also a moral and political crisis. We need to target programs specifically at poverty reduction rather than just wait for the general multiplier effect to kick in. The recent political changes – disillusionment with the Washington Consensus and a drift to the populist left – in several South American countries (such as Venezuela, Bolivia, and Peru) support such an emphasis on poverty reduction. Second, poverty can not be defined only in economic terms; it is about a much broader set of needs that permit well being. Development can be seen as a process of expanding the real freedoms that people enjoy (Sen, 2000). The point is not the irrelevance of economic variables such as personal incomes, but their severe inadequacy in measuring many of the casual influences on the quality of life and survival chances of people. The BOP proposition focuses on companies, marketing and prosperity; it sees the social, cultural and political benefits at best as by-products of economic gains. In contrast, we think that social, cultural and political freedoms are desirable in and of themselves, and also enablers of individual income growth. We should emphasize the role of the government in cultivating and safeguarding these other (non-economic) freedoms.

Beyond the Hype

We fully support the BOP proposition when it treats the poor as producers and focuses on increasing their income and productivity. The fact that some of these ideas, such as microfinance, are much older than the BOP proposition is not a major criticism. The problem is that the BOP proposition sheds no new light. For example, it does not address the critical issue of how to make microfinance a consistently profitable business. The bigger problem is that the BOP proposition only infrequently treats the poor as producers. By far the greater emphasis is on seeing the poor as consumers and unlocking their purchasing power. Here the BOP proposition is both conceptually and empirically wrong.

4. Products and Services for the BOP

BOP can be a viable growth market. During the last decade, many MNCs have approached BOP markets with an existing portfolio of products and services. Because these product portfolios have been priced and developed for Western markets, they are often out of reach for potential customers in BOP markets. More important, the feature-function set has often been inappropriate. As a result, the promise of the emerging BOP markets has been largely illusory. At the same time, developmental agencies have also tried to replicate developed country models at the BOP with equally unsatisfactory results. The development assistance community has invested billions in Western mechanical waste water treatment facilities in the developing world. Many if not most of these facilities were no longer operating within a year of their completion because the local markets could not afford the electricity to operate them, did not have a steady electricity supply, or lacked an adequate supply of chemicals and spare parts.

MNCs do recognize that only 5 to 10 percent of the population of China or India can represent a new market of 50 to 100 million each. MNCs can more easily tap into the top of the economic pyramid in emerging economies such as China, India, or Brazil, and these markets can be substantial. Although the affluent in these markets might appear to be similar to traditional consumers in developed countries, they are not. They tend to be much more value-conscious. Regardless, the goal is to reach the entire population base, including the BOP. How can MNCs capitalize on this emerging BOP opportunity?

A Philosophy for Developing Products and Services for the BOP

The BOP, as a market, challenges the dominant logic of MNC managers (the beliefs and values that managers serving the developed markets have been socialized with). For example, the basic economics of the BOP market are base per unit, high volume, and high return on capital employed.

This is different from large unit packs, high margin per unit, high volume, and reasonable return on capital employed. This shift in business economics is the first surprise to most managers. As we previous section, The Market at the Bottom of the Pyramid, creating the capacity to consume—the single-serve and low unit pack revolution at the BOP— can be the first surprise for product developers trained in the West. How can anyone make money at $0.01/unit price at retail? is often the question. Similarly, in the West, product developers often assume that the required infrastructures for the use of products exist or that Western infrastructure can be made economically viable and will function properly in these markets. In a developed market, access to refrigerators, telephones, transportation, credit, and a minimum level of literacy can all be assumed. The choice of technologies is not constrained by the infrastructure. However, in BOP markets, the quality of infrastructure can vary substantially, especially within a country as vast as China, Brazil, or India. What is available in Shanghai or Mumbai is not an indication of the infrastructure in the hinterlands of China or India. For example, the supply of electricity can be quite erratic and blackouts and brownouts are common. Advanced technology solutions, such as a regional network of PCs, must coexist with poor and indifferented on all unit packages, low margin electrical and telecom infrastructures. Hybrid solutions that integrate backup power sources with PCs are a must, as are customer interfaces. For example, India boasts more than 15 official languages and 500 dialects, and 30 percent of the total population is illiterate. How then can we develop user-friendly interfaces for products that the poor and the illiterate can understand and utilize? Surprisingly, illiteracy can lead to acceptance of the state-of-the-art solutions. For example, illiterate consumers can see and hear, not read. Therefore, video- enabled cell phones might be more appropriate for this market. These challenges are not isolated conditions. Involvement in BOP markets challenges assumptions that managers in MNCs have developed over a long period of time. A new philosophy of product development and innovation that reflects the realities of BOP markets is needed. This philosophy must represent a different perspective from those that we have grown accustomed to in serving Western markets. Based on research, 12 principles that, taken together, constitute the building

blocks of a philosophy of innovation for BOP markets. In this section, we discuss each of these principles with specific illustrations drawn primarily from the detailed case studies of successful innovations at the BOP.

Twelve Principles of Innovation for BOP Markets

1. Focus on price performance of products and services. Serving BOP markets is not just about lower prices. It is about creating a new price-performance envelope. Quantum jumps in price performance are required to cater to BOP markets.
2. Innovation requires hybrid solutions. BOP consumer problems cannot be solved with old technologies. Most scalable, price- performance-enhancing solutions need advanced and emerging technologies that are creatively blended with the existing and rapidly evolving infrastructures.
3. As BOP markets are large, solutions that are developed must be scalable and transportable across countries, cultures, and languages. How does one take a solution from the southern part of India to the northern part? From Brazil to India or China? Solutions must be designed for ease of adaptation in similar BOP markets. This is a key consideration for gaining scale.
4. The developed markets are accustomed to resource wastage. For example, if the BOP consumers started using as much packaging per capita as the typical American or Japanese consumer, the world could not sustain that level of resource use. All innovations must focus on conserving resources: eliminate, reduce, and recycle. Reducing resource intensity must be a critical principle in product development, be it for detergents or ice cream.
5. Product development must start from a deep understanding of functionality, not just form. Marginal changes to products developed for rich customers in the United States, Europe, or Japan will not do. The infrastructure BOP consumers have to live and work in demands a

rethinking of the functionality anew. Washing clothes in an outdoor moving stream is different from washing clothes in the controlled conditions of a washing machine that adjusts itself to the level of dirt and for batches of colored and white clothes.

6. Process innovations are just as critical in BOP markets as product innovations. In developed markets, the logistics system for accessing potential consumers, selling to them, and servicing products is well developed. A reliable infrastructure exists, and only minor changes might need to be made for specific products. In BOP markets, the presence of a logistics infrastructure cannot be assumed. Often, innovation must focus on building a logistics infrastructure, including manufacturing that is sensitive to the prevailing conditions. Accessing potential consumers and educating them can also be a daunting task to the uninitiated.
7. Deskilling work is critical. Most BOP markets are poor in skills. The design of products and services must take into account the skill levels, poor infrastructure, and difficulty of access for service in remote areas.
8. Education of customers on product usage is key. Innovations in educating a semiliterate group on the use of new products can pose interesting challenges. Further, most of the BOP also live in media dark zones, meaning they do not have access to radio or TV. In the absence of traditional approaches to education—traditional advertising—new and creative approaches, such as video mounted on trucks and traveling low-cost theatrical productions whose job it is to demonstrate product usage in villages, must be developed.
9. Products must work in hostile environments. It is not just noise, dust, unsanitary conditions, and abuse that products must endure. Products must also be developed to accommodate the low quality of the infrastructure, such as electricity (for example, wide fluctuations in voltage, blackouts, and brownouts) and water (for example, particulate, bacterial, and viral pollution).
10. Products must work in hostile environments. It is not just noise, dust, unsanitary

conditions, and abuse that products must endure. Products must also be developed to accommodate the low quality of the infrastructure, such as electricity (for example, wide fluctuations in voltage, blackouts, and brownouts) and water (for example, particulate, bacterial, and viral pollution).

11. Innovations must reach the consumer. Both the highly dispersed rural market and a highly dense urban market at the BOP represent an opportunity to innovate in methods of distribution. Designing methods for accessing the poor at low cost is critical.

12. Paradoxically, the feature and function evolution in BOP markets can be rapid. Product developers must focus on the broad architecture of the system—the platform—so that new features can be easily incorporated. BOP markets allow (and force) us to challenge existing paradigms. For example, challenging the grid- based supply of electricity as the only available source for providing good-quality, inexpensive energy is possible and necessary in the isolated, poor BOP markets.

It might appear that the new philosophy of innovation for the BOP markets requires too many changes to the existing approach to innovation for developed markets. It does require significant adaptation, but all elements of innovation for the BOP described here might not apply to all businesses. Managers need to pick and choose and prioritize. Although effective participation requires changes to the philosophy of innovation, the pain of change is worth the rewards that will be reaped from the BOP and from traditional markets. Further, when we recognize the issues involved, innovation can be quite an energizing experience. Also plan to illustrate with a large number of examples that a wide variety of organizations—MNCs, local firms, and NGOs—are successfully innovating with vigor in these markets and are making a great difference in the quality of life of low-income customers and low- income communities. This is of particular importance to MNCs. Because innovations for the BOP markets challenge our established ways of thinking, BOP markets can become a source of innovations for the developed markets as well. Innovation in BOP

markets can reverse the flow of concepts, ideas, and methods. Therefore, for an MNC that aims to stay ahead of the curve, experimenting in BOP markets is increasingly critical. It is no longer an option.

5. BOP A Global opportunity

We will be talking about the process by which large firms can create products and services that are ideally suited for the BOP markets. It is natural to ask whether the managerial energy required for these innovations is justified. Although there are opportunities for growth in BOP markets, are these opportunities attractive enough for large firms (including MNCs) to go through the changes that are required in their internal systems and processes? To challenge their dominant logic? Similarly, will the social and developmental benefits of such business growth be substantial enough for NGOs and community organizations to give priority to market-based approaches?

I believe the answer is an unambiguous yes. Based on emerging evidence, we can identify four distinct sources of opportunity for a large firm that invests the time and energy to understand and cater to the BOP market

1. Some BOP markets are large and attractive as stand-alone entities.
2. Many local innovations can be leveraged across other BOP markets, creating a global opportunity for local innovations.
3. Some innovations from the BOP markets will find applications in developed markets.
4. Lessons from the BOP markets can influence the management practices of global firms.

The benefits of operating at the BOP, therefore, do not just accrue in local markets. We describe each one of these opportunities next.

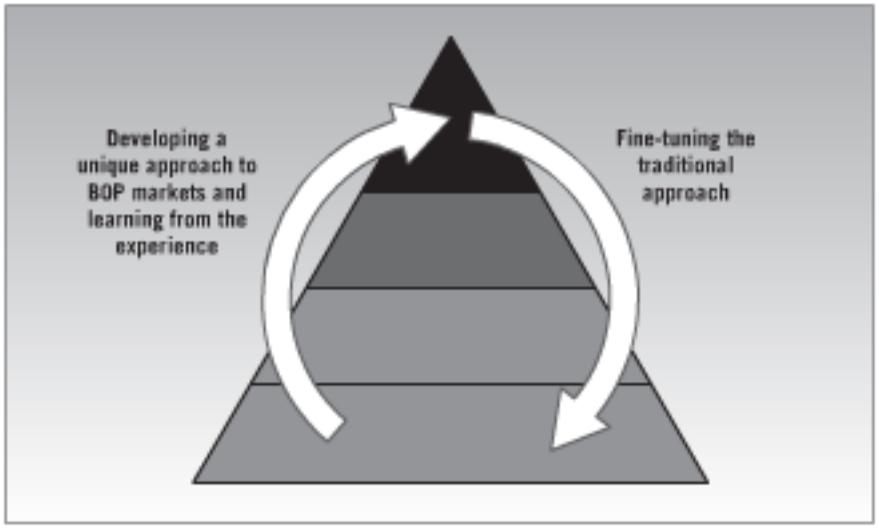
Engaging the BOP

There are two ways in which large firms tend to engage the BOP markets. The traditional approach of many MNCs is to start from the business models honed in the developed markets—the top of the pyramid and their zone of comfort. This approach to the BOP market inevitably results in fine-tuning current products and services and management practices. There is growing evidence that this approach is a recipe for failure. MNCs and large firms must start from a deep understanding of the nature and the requirements of the BOP, and then architect the business models and the management processes around these requirements. This approach to the BOP market will not only allow large firms to succeed in local markets but will also provide the knowledge base to challenge the way they manage the developed markets. Let us consider some examples.

BOP consumers in Latin America are careful in their use of diapers. They use one or two changes per day compared to the five or six changes per day common among the top of the pyramid consumers. Because they can afford only one or two changes, they expect a higher level of absorbency in the diapers and an improved construction of the diaper that will accommodate additional load. This means that the firms have to technically upgrade the quality of their diapers for the BOP consumers compared to the products they currently sell to the rich in those markets. Needless to say, the new product built for the BOP market is higher in quality and provides a better price-performance proposition. Similarly, detergent soap, when used by BOP consumers in India washing their wares in running water, becomes mushy. About 20 to 25 percent of the detergent soap can be lost in the process. Therefore, HLL developed a soap with a coating on five sides, which makes it waterproof. The coated soap saves 20 percent wastage even in a hostile user environment. The innovation is of interest to the rich as well. Access to clean water is a major concern at the BOP. Polluted water (particulate, bacterial, and viral pollutants) is common. Boiling water is the only current alternative to eliminating the bacterial and viral pollutants. A focus on solving this problem has to start with a cost target that is no more than the cost of boiled water. Further, the system has to

create a quality level that is better than boiled water (removing sediments). The process is of interest to the rich as well. The quality, efficacy, potency, and usability of solutions developed for the BOP markets are very attractive for the top of the pyramid. The traditional MNC approach and the approach suggested here—top of the pyramid to BOP and from the BOP to the top of the pyramid—are shown in Figure-5.

Figure-5 (Learning from the BOP)



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

BOP can be a source of innovations for not only products and processes, but business models as well. Let us start with the growth opportunities in local, stand-alone BOP markets first

Local Growth Opportunities

Some of the local BOP markets are very large. A large population base is one indicator of the size of the market opportunity at the BOP, not necessarily the per-capita income. For example, China, India, Indonesia, Brazil, Mexico, Russia, South Africa, and Nigeria can potentially be large emerging BOP markets. If an industry or a firm finds the sweet spot—meaning the right business model and the right combination of products and services—these markets could have explosive growth. Consider growth opportunities in China, the world's largest producer of steel. The growth of the appliances, building, and auto markets has created an insatiable appetite for steel. China's

steel capacity is estimated at 220 million tons compared to 110 million tons in Japan and 90 million tons in the United States. China has also an installed base of more than 250 million cell phones. That is larger than the installed base of the United States. China is also one of the largest markets for televisions, appliances, and autos. The growth spurt in China is without parallel. Similarly, India is at the early stages of a growth spurt in a wide variety of businesses such as two-wheelers (4.8 million during the fiscal year 2002–03), housing loans, and wireless. The housing loan business went from a low of Rs. 19,723 crores during fiscal 1999–2000 ($4.4 billion) to Rs. 51,672 crores ($11.5 billion) in 2002–2003 . During the latter part of 2003, India was adding about 1.5 million telephone subscribers/month.

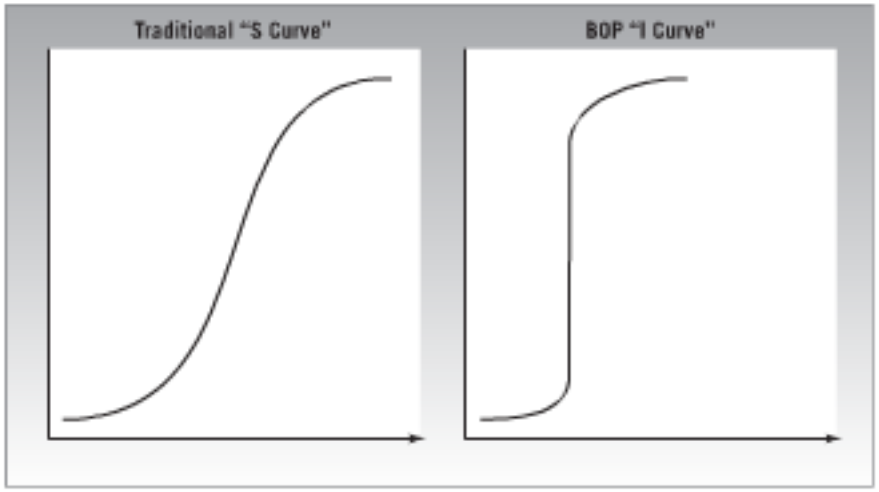
Needless to say, this growth was not all derived from the poor. There are a lot of emerging middle-class customers here, but most of them earn less than $1,500 per capita ($6,000 per family of four). This growth is not funneled by the top of the pyramid. What is it that MNCs learn in these markets? The lessons for Samsung and LG (South Korean suppliers of cell phones to India), not just for Reliance and Tatas (Indian providers of service), is that they have to adjust to rapid growth, not 2 to 5 percent per year, but perhaps 50 to 100 percent per year.

Learning to Grow

BOP markets can collapse the time frames taken for products, technologies, and concepts to diffuse in the system. Many of the drivers of change and market growth—deregulation, involvement of the private sector in BOP markets, digitization, ubiquitous connectivity, and the attendant change in the aspirations of people, favorable demographics (a young population), and access to credit—are simultaneously present in BOP markets. These drivers interact. The result is the challenge to the S curve that is the model for the diffusion of new products and services in the developed world. The changes that played out over 15 years in the developed markets are being collapsed into a short period of just three to five years in many BOP markets. M.S. Banga, CEO of HLL, suggests that the real challenge in BOP markets is that managers have to cope with the I curve. The entire

management process in most large firms is geared for slow growth, if at all. The I curve challenges the status quo. The S and the I curves, the two approaches to diffusion of innovations (products and services), can be conceptualized, as shown in figure-6.

Figure-6 (Traditional & BOP growth patterns)



Source : MS Banga, CEO, HLL

This is good news and bad news. A cell phone today is a telephone, a camera, a watch, a computer, and a partial radio and TV. Why would you need a traditional watch (other than as an ornament) if you had a cell phone? The I curve can rapidly propel some innovations and can equally rapidly destroy some traditional markets. Rapid growth can also make new demands on firms. For example, HLL wants to build a network of 1 million direct distributors. This means the recruitment and training of about 30,000 to 40,000 people every month. Evaluating applicants; identifying those who could make good HLL distributors; training them in products, business models, and the values of the company; and inducting such a large number into the system create new demands on the process of management. Few firms around the world have experience in inducting this many new recruits (independent distributors) per month.

Local Innovations and Global Opportunity

The micro encapsulation of iodine in salt to preserve the iodine in the harsh conditions of

transportation, storage, and cooking in India has found market opportunities in Africa, especially in Ivory Coast, Kenya, and Tanzania. Iodine Deficiency Disorder (IDD) is common across the developing world, and the solution found in India has been transported across other similar markets with IDD by Unilever. Similarly, during the late 1980s, in response to the growing success of Nirma, a local entrepreneurial startup in the detergent business that created a new category, focused on the BOP markets, HLL launched Wheel, intended for the same market segment. Wheel today is one of the largest brands in the HLL portfolio in India ($150 million). The BOP market has grown rapidly. BOP markets in India account for a total of 1.0 million tons of detergents, compared with 300,000 tons for the top of the pyramid. More important, the lessons learned in India were not lost on Unilever. It wanted to protect BOP markets in countries such as Brazil, Indonesia, and China. It took the lessons from developing Wheel in India—from the formulation, manufacturing process, packaging, pricing, distribution, and advertising and promotion—to Brazil. It introduced a similar product oriented toward the BOP called Ala. The product was a runaway success. The product was available in 2,000 small neighborhood stores in less than three months. The detergent team that developed the new business model for the BOP in India also went to Brazil and China to help build the distribution systems that were critical for the success of the business. Today, India is seen as a laboratory for similar India-like markets within Unilever. Product ideas and concepts are tried out in India with a global BOP market in mind. Similarly, the idea of single-serve units has become a global phenomenon in the BOP markets. The growth in fast-moving consumer goods businesses in Bangladesh, Nepal, Pakistan, and China has been fueled by similar requirements.

The success of Grameen Bank in developing microfinance in Bangladesh as a successful commercial operation has led to global interest in the process. Grameen Bank was totally focused on BOP customers. The average loan size was less than $20 when it started. There are more than 17,000 microfinance operations that are variants of the Grameen concept around the world, including in the United States. The microfinance revolution now has its own global conference

every year. The success of Jaipur Foot is now exported to a wide variety of countries with similar requirements. The primary demand in all these countries for prosthetics is from BOP customers. They have been available in 19 countries, from Afghanistan to Vietnam. The Aravind Eye Hospital, in a similar vein, is training doctors to establish a lowcost, world-class delivery system for eye care in South Africa, Cambodia, and Vietnam. In an interesting twist of the traditional view of capabilities, the cost and quality advantages of cardiac care in India are allowing it to negotiate terms for the possibility of moving a portion of the patients from the National Health System in the United Kingdom to India. The total cost of the trip for the patient and an accompanying family member, the stays in India, and the cost of patient care will be less than the cost in the United Kingdom. More important, the quality of care is equally good or better. There are no delays in accessing care. The Indian pharmaceutical industry had to learn to serve the BOP market. Prices were regulated by the government. Further, affordability of the public health system forced very low prices. It also forced them to develop methods for reverse engineering. Controversial as it is, the Indian pharmaceutical industry can deliver drugs coming off patents in the United States at a fraction of the cost charged by the established drug companies. However, the focus on the BOP has allowed these firms to invent cost-effective ways to manufacture, test, and distribute.

BOP Solutions for Developed Markets

In the rural areas of countries such as Peru, providing high-quality health care is difficult. More difficult is the surveillance of outbreaks of infectious diseases. These remote regions must be kept under constant surveillance to avoid the spread of disease, be it cholera or SARS. However, these locations are not well connected for constant communications. PCs are rare, and telephone lines are a luxury. The question for public health professionals in such a situation is simple:

How do we connect remote areas to a real-time surveillance system so that the spread of infectious diseases can be monitored using devices that are currently available on location (often simple telephones)? This implies that the system must be simple and device-agnostic. Remote locations

must be connected to a central node so that planners and policymakers are fully informed. Such a system, originally developed for Peru, is finding successes in the United States. The system, originally created by Voxiva, was based on three premises:

1. The system, to be robust, must be based on any device that is available: telephone (landline or wireless) or PC. The local community must know how to use the device. The telephone is the most widely used device for communications.
2. The remote populations were either illiterate or just moderately literate. The system had to deskill diagnosis at the point of patient contact. The chances of having a trained and experienced doctor in remote regions in the Andes are low. However, the quality of the diagnosis must be world-class.
3. The system must be reliable and available in real time so that senior members of the health care system can react immediately to emerging problems of infectious diseases. Early detection of health problems and rapid response (reaction time) are critical components of the system. The system was first deployed in the remote regions of Peru and was a success. Similar problems confront the United States. The CDC and the FDA have to prepare to remotely monitor outbreaks of diseases caused by terrorists or problems in food quality that must be traced rapidly. Blood banks have to be monitored for stock and quality. When the FDA and CDC were looking for a system to help them with remote, real-time surveillance, they found the Voxiva system to be the best. Both of them are now Voxiva customers. Further, as the U.S. Department of Defense was inoculating soldiers with smallpox vaccine as a preventive measure, it needed a system for monitoring soldiers for possible adverse reactions to the vaccine. Voxiva, with its capabilities, was the obvious choice. Voxiva has moved on to sell its platforms for the detection of SARS, HIV, and other public health problems. The underlying platform is lowcost, robust, and simple, needs few skills, and can be grafted onto an existing telecom network.

Lessons for MNCs from BOP Markets

The most interesting lesson for MNCs from operating in the BOP market is about costs—for innovation, distribution, manufacturing, and general costs of organization. Because the BOP forces an extraordinary emphasis on price performance, firms must focus on all elements of cost.

Shortage and the cost of capital force firms in BOP markets to be very focused on the efficiency of capital use. MNCs tend to impose their management systems and practices on BOP markets and find that it is hard to make a profit. The choices are simple: Change the management systems to cut costs or lose significant amounts of money. The lessons learned from BOP markets by MNCs are covered in the following sections.

Capital Intensity

The judicious use of capital is a critical element of success in BOP markets. For example, HLL works with negative working capital. It focuses on reducing capital intensity in plants and equipment. By focusing on a judicious mix of outsourcing to dedicated suppliers, it not only reduces its capital intensity but also creates several small-and medium-size enterprises that can conform to the norms and standards set by HLL. HLL, as the only customer to these suppliers, can and does influence their operations. Second, a senior management focus on logistics and distribution is critical for reducing the capital needs of the business. HLL serves 850,000 retail outlets in one of the most difficult distribution terrains. The sales data from every retail outlet is collected and processed in a central processing facility. All the retail outlets are serviced frequently. Finally, a focus on revenue management allows for reducing the capital tied up in receivables. HLL can collect revenues in real time as the goods leave the warehouses of their suppliers. The suppliers might provide credit to the dealers and retailers. HLL as a manufacturer can reduce its capital intensity. The results can be compelling. For example, the system for focusing on capital first initiated with the introduction of the detergent Wheel to the BOP provided evidence of how many

more opportunities for value creation can be unearthed by serving the needs of the BOP. A comparison of the financial performance of Nirma (the local competitor), HLL in the top of the pyramid market with Surf, and HLL in the BOP market with Wheel is shown in below table -4

Table-4 (Economic Value Creation at the BOP)

	Nirma	**HLL(Wheel)**	**HLL(Surf)**
Sales	150	100	180
Gross margin (%)	18	18	25
Return on Capital employed(%)	121	93	22

A similar situation exists at the Aravind Eye Hospital, ITC eChoupal & other cases in this report.

Sustainable Development

BOP markets are a great source for experimentation in sustainable development. First, resources such as water, energy, and transportation are scarce and expensive. Automotive and two-wheeler manufacturers are learning that the BOP customers are attuned to the total cost of ownership and not just the cost of purchase. The miles per gallon—the efficiency of energy use—is a significant determinant of market success. Similar demands are imposed on water use. BOP markets can also represent an emerging problem. Single-serve packaging is advantageous to create the capacity to consume at the BOP but can also lead to a major environmental problem. More than 13 billion single-serve packages are sold annually in India, and this trend is growing rapidly. Although plastic bags appear attractive, they are not biodegradable. MNCs involved in the BOP markets have the capability and the motivation to find solutions to the problem of packaging in emerging markets.

Innovations

Process of innovation for the BOP forces a new set of disciplines. First, the focus is on price performance. Innovations must become value-oriented from the consumer's perspective. The BOP focuses attention on both the objective and subjective performances of the product or service.

Markets at the BOP also focus on the need for 30 to 100 times improvements in price performance. Even if the need is only for 10 to 20 times improvement, the challenge is formidable. The BOP can become a major source of innovations. Consider, for example, the need for userfriendly interfaces. Biometric authentication systems such as fingerprint and voice recognition are emerging from the BOP markets, as we saw in the case of PRODEM FFP in Bolivia and Elektra in Mexico. Logistics and distribution requirements are an integral part of the innovation process at the BOP.

Serving the BOP forces a new business model on MNCs. Management systems developed for a price performance level cannot be fine-tuned to cope with the demands of the BOP markets. Although MNCs are slowly adapting to the needs of the BOP, few have consciously focused attention on examining the implications of their own operations in the BOP for their global operations. So far the attention has been on outsourcing from the more cost-efficient locations such as China, Taiwan, Thailand, the Philippines, and India. A $50 CD player is not just about wage rates, but a totally different way of approaching manufacturing. The I curve has different implications for scaling. The timing of investments, investment intensity, and the pace of market and distribution development become crucial, as is the rate at which costs must be brought down to fuel growth of the market.

Learning to Live in a Network of Relationships

MNCs working at the BOP learn rapidly that they have to learn to live with a wide variety of relationships with a large number of institutions. For example, in the case of selling iodized salt, HLL learned fast that its efforts would impact public policymakers and officials in the health department. NGOs focus on local communities and in many cases conflict with industry practices. HLL had to learn to cope with the agendas of the various parties that might be involved and work with them effectively in a cooperative mode. The case of soap, intended to reduce diarrhea, was more interesting. HLL had to deal not only with state governments and NGOs, but also with the World Bank, which wanted to partly fund the program of education and distribution. It also wanted

to be involved in the evaluation of results. As such, the firm had to learn to cope with the differing priorities, time scales, decision cycles, and perspectives of both the causes of the problem and the nature and efficacy of the solution. The reactions of the various groups can vary from open hostility toward the MNC to a willingness to cooperate. At the end of the day, however, MNCs learn how to transform their ideals of good corporate citizenship and social responsibility into their core business of delivering value on a day-to-day business basis. Social sector organizations learn how to scale their still-marginal efforts at social enterprise into viable business models serving a mass market.

BOP markets represent 80 percent of humanity. It is reasonable to expect that 4 billion people in search of an improved quality of life will create one of the most vibrant growth markets we have ever seen.

Private-sector involvement in development can be a win for both the BOP consumers and the private sector. All of us can learn. The flow of ideas, knowledge, and innovation will become a two-way street—from the developed countries to the developing and the reverse. MNCs can help BOP markets to develop. They can also learn from BOP markets.

6. The Ecosystem for Wealth Creation

The need for building an ecosystem for wealth creation and social development at the BOP. Traditionally, the focus of both business and social developmental initiatives at the BOP has been on one aspect of the ecosystems for wealth creation at a time—social capital or individual entrepreneurs (the focus of so much of the microfinance efforts), small and medium enterprises (SMEs), or large firms (market liberalization or foreign direct investment). There have been few attempts to focus on the symbiotic nature of the relationships between various private sector and social institutional players that can lead to a rapid development of markets at the BOP.

Market-Oriented Ecosystem

A market-based ecosystem is a framework that allows private sector and social actors, often with different traditions and motivations, and of different sizes and areas of influence, to act together and create wealth in a symbiotic relationship. Such an ecosystem consists of a wide variety of institutions coexisting and complementing each other. We use the concept of the ecosystem because each constituent in the system has a role to play. They are dependent on each other. The system adapts and evolves and can be resilient and flexible. Although there will always be distortions at the margin, the system is oriented toward a dynamic equilibrium. What then are the constituents of the market-based ecosystem? We can conceptualize it, as shown in below figure-7.

Figure – 7 (Components of the market-based ecosystem)

Every developing country has the components of this portfolio. However, the relative importance of the various components of the ecosystem is different across countries. For example, the extralegal (those who exist outside the legal system) vegetable sellers in the slums of Sao Paulo or Mumbai coexist with global firms such as Ford and Unilever. The chicken cooperatives and processors such as Sadia in southern Brazil and a local fast-food chain such as Habib's coexist with Kentucky Fried Chicken and McDonald's. Whether it is Brazil, Mexico, South Africa, or India, a portfolio of these constituents of various ecosystems exists. Needless to say, if the portfolio is totally skewed toward extralegal entities, the economy cannot advance, and the private sector cannot contribute to poverty

reduction. If it is skewed toward large local firms and MNCs, then it probably is a well-developed economy with a well-functioning private sector but is not oriented toward the creation of wealth among those living at the BOP. Historically, the evolution of the large firm was a symptom of a maturing economy focused on system efficiencies through scale and scope. For example, the development of the large firms in the United States at the turn of the 20th century fueled by electricity, the telegraph, refrigeration, and the railroads is well documented. There is a paucity of similar studies that document the evolution of ecosystems in developing countries. We do not have good studies on the underlying driving forces that create different compositions of private-sector firms in various countries. Further, we lack systematic evidence of triggers that shift the composition of an ecosystem in any direction. It should be clear that a focus on any one component of the ecosystem to the negligence or detriment of others is not desirable. The dilemma for public policymakers is clear: If we can't pick one sector for special attention, how do we mobilize the whole ecosystem? Alternately, how do we move the composition of the ecosystem toward large firms? Both are legitimate questions. This is the state of the debate. I believe that the debate must shift toward building market-based ecosystems for broadbased wealth creation. Only then can we tap into the vast, dormant, and trapped resources, purchasing power, and entrepreneurial drive at the BOP. This will allow for new growth opportunities for the large corporations and a better quality of life for those at the BOP.

Ecosystems for a Developing Country

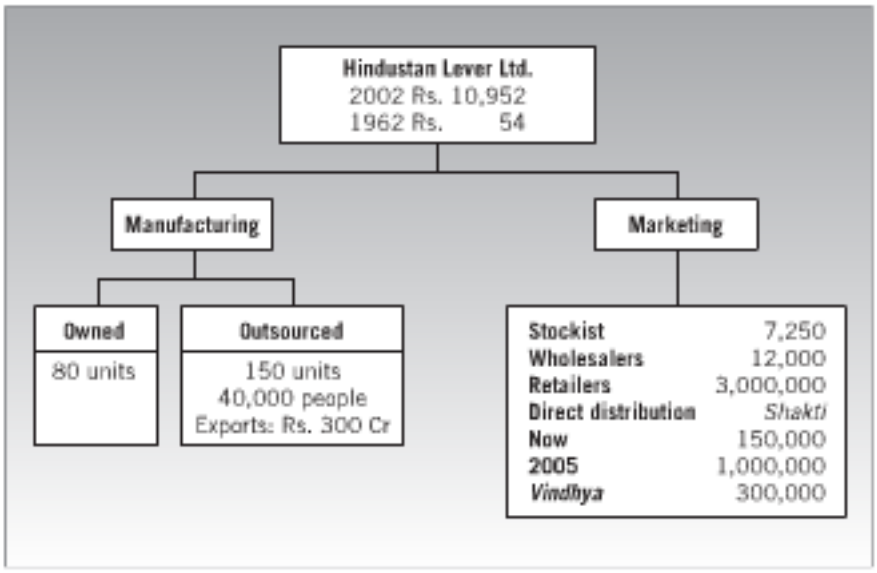
The evolution of the U.S. economy during the late 19th and 20th centuries might not be a good basis for prescriptions on how Brazil or South Africa should evolve. The competitive conditions, the availability of new technologies, the nature of resource endowments, and the educational infrastructure are vastly different. Are there new models of ecosystem development that public and private policymakers must focus on?

Let us start with an understanding of a private-sector ecosystem by considering the fast-moving consumer goods (FMCG) industry in India. The largest FMCG firm in India is HLL, a subsidiary of Unilever. HLL is a Rs. 100 billion ($2.3 billion) company with a wide portfolio of personal care and food products. The ecosystem of HLL consists of six components:

1. HLL (MNC) operates 80 manufacturing facilities.
2. A dedicated supplier base of 150 factories (SMEs) that employs anywhere between 30,000 and 40,000 people.
3. Exclusive stockists (7,250) who distribute HLL products nationwide.
4. Wholesalers (12,000) and small retailers and shop owners (3 00,000) who are either SMEs or microenterprises.
5. A growing direct distribution system (HLL net) and a rural direct distribution system called Shakti that cover 25 0,000 individual entrepreneurs in urban and remote villages who sell HLL products. This number had grown to 1 million by 2005.
6. An advisory relationship with the government of the Indian state of Madhya Pradesh to help it brand local produce from villages and tribal areas, such as natural honey collected from forests in the state. It touches 35 ,000 to 40,000 tribals.

The ecosystem that this represents is shown in below figure-8.

Figure-8 (HLL Ecosystem)



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

HLL does not have legal control over the entire ecosystem, nor does it have direct influence on all the elements of the system. However, HLL provides the framework, the intellectual direction, and the processes by which the system is governed and operated. The Shakti Ammas are independent, but they must follow simple rules to be part of the system. In this sense, HLL is a nodal firm that facilitates the entire functioning of the network. Ownership is not the issue. Access and influence without ownership are more important factors, as are quality standards, mutual obligations, commitment to contractual relationships, and a shared set of values. As a nodal firm, HLL provides expertise and establishes technical standards for a wide variety of private-sector enterprises, from supplier factories to individual entrepreneurs in remote villages. Quality levels in the system are prescribed by HLL and are consistent with global standards and local needs.

What is the value of a private-sector ecosystem? Who benefits from the standards and quality requirements demanded by the nodal firm from the constituents to participate in the network? How does this transform the basis for commercial transactions within a developing economy?

Learning the Sanctity of Contracts

Underpinning this ecosystem is education across all levels. The individual entrepreneur in the

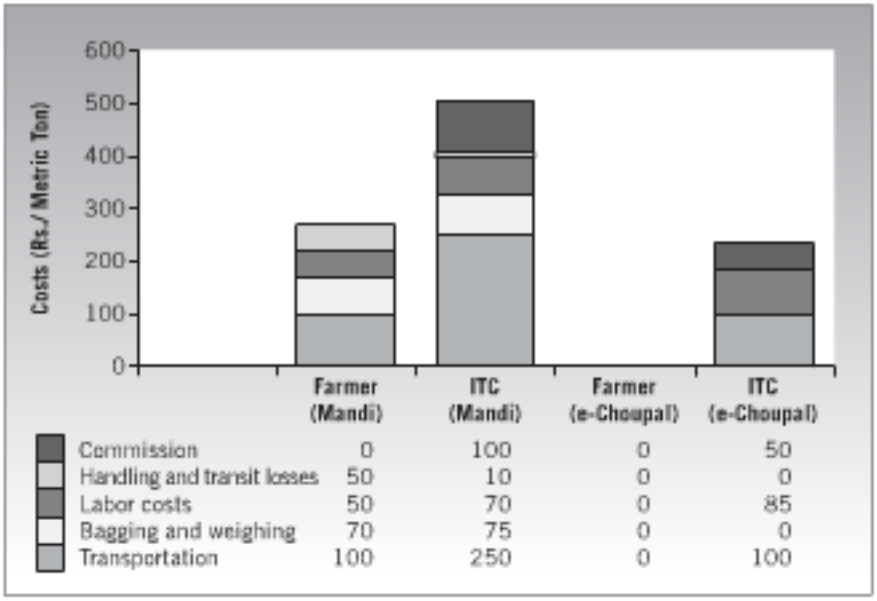
village—the Shakti Amma, for example—is being educated to be a responsible entrepreneur. She is a wealth creator in her village. She learns about products, prices, returns, and being an advisor and helper to her customers in the village. The training she received from the representatives of the company on products and business certainly helped her. This type of relationship in the ecosystem creates a win for all. Better informed, educated, and financially successful, these independent entrepreneurs seek the same type of transparency and access to information on products and features (what is unique about these compared to similar products from other firms operating in the same market, with similar prices, promotional schemes, and advertising). Market-based ecosystems can be a source of informing the poor of the benefits of transparency in transactions. She is also learning to respect contracts, be they implicit or explicit with the company. The mutual obligation between her and the parent company, HLL, which is just a concept for her, is real. Respect for contracts binds her to the company and allows her to make a profit. She recognizes that violating the contracts will dry up the source of her economic and social success. Transparent transaction governance is an integral part of the ecosystem. She is a local entrepreneur. She is a one-person company, but she does not operate as an extralegal entity. She is bound to the national and global system and is less beholden to the local system of moneylenders and slum lords. The social collateral of open and honest entrepreneurship that the market-based ecosystem provides will be significant. The ecosystem can provide the tools for the poor and the disadvantaged to be connected seamlessly with the rest of the world in a mutually beneficial and nonexploitative way. It provides them with skills and opportunities that are often denied by the informal sector.

Reducing Inequities in Contracts

Consider ITC's initiative, the e-Choupal (literally, the electronic village meeting place). ITC is the Indian subsidiary of British American Tobacco. ITC has branched out of its traditional and primary focus on tobacco to include hotels, paper, and food. The International Business Division (IBD) of ITC was concerned about its capability to source soybeans from widely scattered and subsistence

farmers in Madhya Pradesh, India. The traditional system focused on the mandi, the place where the farmers brought their produce to be auctioned. The buyers in the mandi aggregated the produce and sold it to firms like ITC for further processing. The farmers got a raw deal in the mandi, and the large processors like ITC were beholden to the intermediaries. ITC decided to use advances in digital technologies to reduce the inefficiencies in the system and to ensure a steady supply of good-quality soybeans for its processing plants. The approach depended on building a network of PCs in villages around the soya belt. ITC picked a successful farmer called the sanchalak in each village. He was given a PC that could be used by all the farmers in the village. The sanchalak took a formal oath in the village to be impartial and make access to the PC available to all the farmers in his area. The farmers could check the prices of soybeans in the neighboring mandis and decide when and where to sell their crops. ITC decided to build a system that changed many of the existing practices. The farmers could check prices and decide at what prices they wanted to sell. They were not at the mercy of the auctioneers at the mandi on a particular day. The produce was weighed accurately, unlike the previous practice with the traditional aggregators in the mandi. Under the old system, farmers lost about two to three kilograms per ton in inaccurate weighing. Under the old system, farmers were also expected to pay for the bagging of their produce, about Rs. 3 per bag. IBD's system allowed for better and accurate weighing, immediate payment, and reduction of transportation and bagging costs for the farmer. The new system efficiencies compared to the traditional mandi system resulted in savings of Rs. 270 per ton for the farmer. The composition of the savings is shown in below figure-9.

Figure-9 (Savings in ITC eChoupal)



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

ITC also saved Rs. 300 per ton. This is a win-win situation for both the farmer and the company.

The real benefits of the e-Choupal are more than cost reduction in the system. There were four sources of friction in the system:

1. There was significant asymmetry in the access to information between the farmer, the traders in the mandi, small local processors, and the large processors such as ITC. By providing the farmer access to information about prices not only in his mandi but also around the world, the e-Choupal system dramatically eliminates the asymmetric information that confines the subsistence farmer to a helpless bargaining position.
2. There was an asymmetry in choice between the farmer and the trader under the old system. The new system reduces the logistical problems of moving soybean crops from the village to the mandi and the costs incurred by the farmer in doing so. The farmer also had to deal with the procedural requirements imposed on him by traders, such as paying the costs of bagging the produce. The inaccuracies in weighing the product are eliminated. These logistical and procedural inefficiencies (as seen from the farmer's perspective) were built

into the traditional system. It reflected the lack of choice for the farmer. He was for all practical purposes a semi-indentured supplier to the mandi close by.

3. There was an asymmetry in the ability to enforce contracts under the old system. The moneylenders and traders had the upper hand. The farmer could not alienate them. Therefore, the traders could take advantage of their strong bargaining position and delay payments. The farmers had no official recourse. The current system changes this dramatically.
4. Finally, under the old system, there was an asymmetry in the social standing of the farmer (the producer), the buyer, and the trader. Although all social inequities are unlikely to be solved, farmers do not have to face the indignity of a rigged auction in the mandi. They can be assured that what they get paid for their work is a fair market price that can be verified by them without any distortions. ITC's e-Choupal takes the idea of explicit contracting and transaction governance capacity a big step forward. By providing access to information that the farmers can independently obtain, the system changes the inequities that the extralegal and the quasi-legal systems impose on BOP consumers and producers in developing countries. ITC still pays the taxes due to the government as if the trade did take place in the mandi. The government is happy with revenues. The traders are likely to be unhappy, as their ability to coerce farmers into selling at the price that they decided in the auction is getting eroded. The most telling comment was from a farmer captured on video by the researchers: I did not even know how to hold a mouse. Four months later: Even if they take away the computer, we will buy one. We need Net connectivity. That summarizes it all.

Building Governance Capabilities Among the Poor

There is a third phase of building transaction governance capacity. This entails building the capacity for self-governance. The Bank of Madura initiated a model of village development in

southern India that has shown great promise. It was based on three assumptions:

1. Microsavings must precede microlending. BOP consumers must learn to save, and there were no institutions to support microsavings.
2. BOP consumers must start trusting themselves. They must be actively involved in solving their problems. Outside help (financial and other) can go only so far. The village must break its cycle of dependency built by more than 40 years of subsidies and government handouts, NGO interventions, and the like. Privatesector development (in this case, banking based on commercial principles) and subsidies do not mix.
3. There is no dearth of latent leaders in the villages. Given the opportunity, they will emerge and will influence the start of a transparent and commercially viable system. This group will then become the custodians of transaction governance instead of lawyers or the local slum lords.

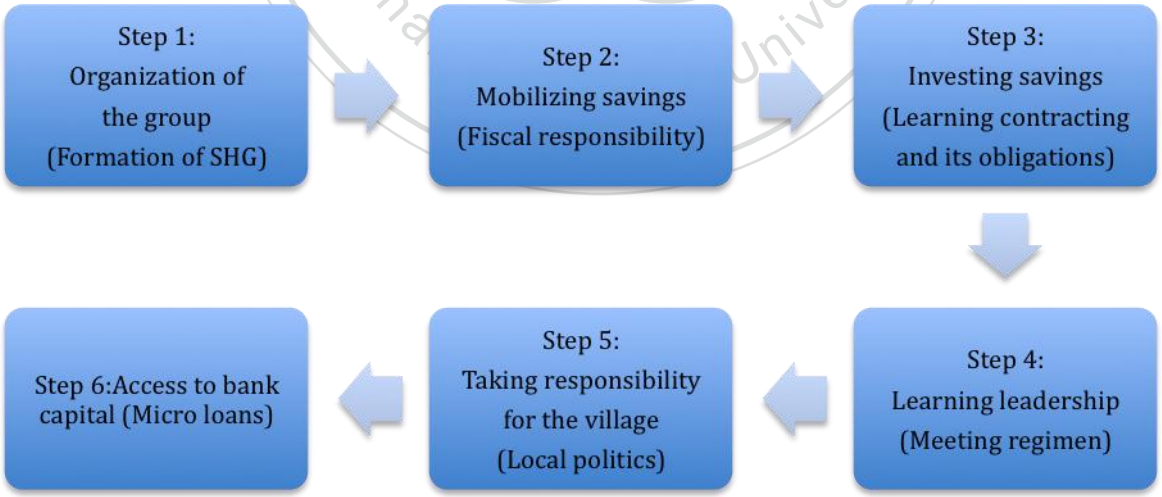
These were bold assumptions, but the work started with a clear position. Dr. Raj Thiagarajan, who was the CEO of the Bank of Madura, initiated this project in the rural areas of Tamil Nadu, India. He had difficulty, initially, getting the best managers to work in the area of rural development. When it became obvious to the bank employees that he was personally involved and it was going to be his initiative, the perceptions of the value attached to this work changed. There is a lesson for large firms here: Unless BOP work is seen as central to the firm, the best managers are unlikely to sign up. Carefully selected bank employees were assigned to villages where their primary focus was to build confidence and trust among local groups. They interviewed and picked a woman in each village who could be a potential leader. The SHG consisted of 20 women in each village who formed the core group. They had no prior familial relationship, no formal participation or experience with the financial sector, and no incentives to trust each other. All were from the same village but could be strangers. The officers of the bank continued to visit these SHGs, organizing them and creating a sense of cohesion. The women who formed the SHGs were taught the

disciplines of holding a meeting, developing an agenda, writing the minutes, keeping records, and saving. The team had to jointly guarantee any financial dealings with the bank. The SHGs understood the basic dimensions of transaction governance capacity—transparency, access, explicit contractual obligations, penalties for violating contracts, the connection between the cost of capital and the track record of performance of contracts, and most important, the need to take charge of their community and protect their newfound access to capital at reasonable rates.

The Bank of Madura paid a lot of attention to the maturation of the SHGs. As they matured and became a working group with a clear understanding of each other's obligations and the process by which conflicts of interest and ideas would be settled, the bank progressed them to the next stage, making capital available as microloans for building a common village facility (for example, a toilet in the village) or expanding a member's agricultural operations.

The maturation model for SHGs is shown in Figure-10. The first three steps often took more than a year.

Figure-10 (Maturation model for SHGs)



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

As SHG leaders became more confident and capable of articulating the basic premise of the approach and could demonstrate how SHGs had helped their own communities, they became evangelists. They went to adjoining villages and recruited other women to form SHGs, providing both the motivation and the training. At the time of the merger of the Bank of Madura with ICICI, the second largest retail bank in India, there were 1,200 SHG groups. During the next two years, the number expanded to 10,000 SHGs covering about 200,000 women and therefore 200,000 families. The default rates have remained, as of writing, at less than 1 percent. The model is scalable because the preconditions for the success of SHGs can be identified. The key criteria are as follows:

1. Is the group between 15 and 20 members?
2. Are all of the members considered very poor?
3. Was there a fixed amount of savings collected each month?
4. Is there more than 20 percent literacy?
5. Have they used their savings for internal lending purposes?
6. Have the members kept a high level of attendance?

The second criterion is not critical. However, this was part of the policy adopted by the government of India. The concept of SHGs can work quite effectively with the other principles. The lending from the bank is quite safe. The marketing ecosystem— the private sector—left to operate in a commercially responsible way, can create transaction governance capacity at all levels of society, from the very poor individuals in the villages to microentrepreneurs (like Shakti Ammas), to SMEs. Governments tend to overregulate the private sector (assuming that such overregulation will protect the poor) or tend to use public-sector corporations as a way of creating a culture of subsidies disguised as commercial operations (for example, loans from banks that are not returned and where no enforcement is possible). Non-performing assets are not only a problem with large borrowers but also with small borrowers at the village level.

In this section of Ecosystem for Wealth Creation, we tried to illustrate the three steps in creating a transaction governance capacity based on the marketing ecosystem:

1. Help the poor understand that there is a win-win situation for them and the firm by respecting contracts. The Shakti Amma wants to be within the system and can respect the contract with a large firm such as HLL. Respect for the contract must transcend people you see every day. A contract with another legal entity, large or small, seen or unseen, is critical.
2. The private sector can reduce the asymmetries in information, choice, ability to enforce contracts, and social standing. The use of information technology to build a network can create a powerful motivation to be part of the system. The farmers know the difference between the old system and the system introduced by the ITC eChoupal. It is more than just a win in terms of savings. It provides a social basis for becoming an insider.
3. The ICICI-supported SHGs take it one step further. They start with understanding the rationale for the contacting system: how and why it reduces transaction costs and, therefore, reduces the cost of capital and increases access to capital. Further, governance cannot be just between ICICI and the individual. By creating a collective commitment to accountability to contracting conditions, SHGs continually reinforce in the local community the benefits of being within the system

Ultimately, the goal in development is to bring as many people as possible to enjoy the benefits of an inclusive market. Transaction governance capacity is a prerequisite. The market-based ecosystem might provide us an approach to building the basic infrastructure for inclusion of BOP consumers. It also allows large firms to build new and profitable growth markets.

The impact of the market-based ecosystem and the role of the nodal company can be important in developing the disciplines of the market—respect for contracts, understanding mutuality of benefits,

being local and at the same time getting the benefits of being national and global, and most important, recognizing the benefits of transparency in relationships. The private sector, in its desire to leverage resources and gain market coverage, will invent new systems depending on the nature of the market. That is precisely what we need. We need the capacity to bring more people into the market system. This means not only gaining the benefits of globalization, but also accepting the disciplines that it imposes. Opaque, local moneylender-based contract enforcement and participating in a national or regional privatesector ecosystem are not compatible. Again, this is a positive situation for both the large firm and the BOP consumers. MNCs and small-scale enterprises and entrepreneurs can co-create a market and the BOP consumers can benefit not only by the quality and choice of products and services available to them, but also by building local entrepreneurship.

7. Reducing Corruption:Transaction Governance Capacity

In this section, we address the ever-present but seldom openly discussed topic of corruption. Corruption and poverty go together. However, given the advancement of technologies, we can mitigate corruption rapidly. This is what governments can do to facilitate the rapid development of market-based ecosystems and the active involvement of large firms and MNCs in the BOP market.

The private sector, can be a major facilitator of poverty alleviation through the creation of markets at the BOP. Although managers might be convinced about the opportunity, it is likely that there are lingering doubts about the capability of large firms to operate in these markets. The primary source of this concern is corruption. In many cases, the impact of micro regulations and local customs that are opaque to MNC managers might be interpreted as corruption. For example, the criticality of relationships in Japanese and Chinese business, opaque to the Western MNCs, can appear to be corruption. So will local customs and the set of mutual obligations in rural societies. We must understand the difference between corruption and local practice. Alliances with local firms and

NGOs can provide visibility to these understood but not explicit local practices. Transaction governance capacity (TGC) is about making the entire process as transparent as possible and consistently enforced. We must reduce the frictional losses in doing business at the BOP. The focus of this section, however, is overt corruption. Corruption in various forms adds to this cost burden and business uncertainty. In the previous section, we examined how MNCs and large firms (nodal firms) can create transaction governance capacity (TGC) within their ecosystems.

Most developing countries do not fully recognize the real costs of corruption and its impact on private-sector development and poverty alleviation. The capacity to facilitate commercial transactions through a system of laws fairly enforced is critical to the development of the private sector. It can be called as nation's TGC as opposed to the TGC within an ecosystem. In this section, we examine the need for and the process by which countries can develop their TGC.

Are the Poor Poor?

Some basic assumptions have been at the core of the thinking on poverty reduction and developmental assistance during the past 30 years.

- First, poor countries are poor because they lack resources. Aid was, therefore, seen as a substitute for locally generated resources.
- Second, aid from rich countries to the governments of the poor countries for specific projects (typically infrastructure) would reduce poverty.
- Third, investments in education and health care might have the largest multipliers per dollar of investment in economic development. Therefore, aid must be skewed to these sectors.
- The record of aid and loans from the various donor countries and the World Bank, International Monetary Fund, and other institutions is at best mixed. More recently, the development community is paying attention to the role of the private sector in building

markets.

There have been few voices of dissent to the dominant logic of the development community. Hernando de Soto, in his path-breaking book, The Mystery of Capital, challenged the assumption that poor countries are poor. Poor countries could often be asset-rich but capital-poor. Assets cannot become capital unless the country guarantees a rule of law—primarily the law of contracts—whereby the ownership of assets is clear; and because of clear legal title, these assets can be sold, bought, mortgaged, or converted into other assets. It is this concept of legal ownership that converts assets into capital. This is a compelling argument. De Soto also demonstrated in his work that the trapped resources—assets that cannot be converted into capital because of underdeveloped legal framework and institutions—can be significant.

For example, the estimated that the trapped resources of Mexico are about $300 billion. In Egypt, the estimate is about $198 billion. This perspective suggests that poverty is, at least partially, a self-imposed problem in most of the world. Local capital formation and the functioning of markets are stymied by the lack of appropriate institutional arrangements.

We can derive several conclusions from this:

1. All forms of foreign investment in poor countries—whether aid, FDI by multinational firms (the private sector), or philanthropy— are but a fraction of the potential for capital that is trapped in these countries.
2. In the absence of enforceable contract law, local commerce is conducted by a vibrant extra legal or informal sector (or the black market). This is the primary face of the private sector in most developing countries. These firms in the informal sector are unable to grow because they cannot attract capital. They remain small, local, and often inefficient.
3. There are contract enforcement systems that are local. Each slum might have its own unwritten but clearly understood rules. Enforcement might be the privilege of the local

strongmen. This is the ultimate paradox. Poor countries might be rich if we consider trapped assets. They might have a vibrant private sector and a market economy, although this private sector is informal, fragmented, and local. Ironically, these economies tend to be high cost with poor access to credit and inefficient systems of management. However, not all poor countries have a poor legal structure. Some merely lack the capability to enforce the laws. India, for example, is not Congo. In India, contract law is well-developed but enforcement mechanisms are not. What, then, is the problem?

The consultants from McKinsey & Company believe that the laws on the books are not enough. It is how laws are implemented at the ground level through a system of microregulations that matters. In a study jointly conducted with the Confederation of Indian Industries (CII), the McKinsey consultants found that the cost of micro regulations in the areas of import-export, labor laws, and transactions involving land can be as high as 2 to 3 percent of GDP growth. Microregulations result from bureaucratic interpretation of the laws. The proliferation of regulations can make the system opaque to anyone but the very savvy. De Soto argued that his country, Peru, enacts more than 28,000 pieces of legislation per year at the rate of more than 100 per day. No one can keep pace with that rate of change. Interpretation of the regulations can compromise the timely execution of contracts and the clear establishment of ownership. As a result, corruption at all levels of bureaucracy can become endemic. The consequence of proliferation of microregulations can be the same as not having laws in the first place. An informal sector emerges outside the law of the land. The private sector businesses remain small and local. For large firms, corruption becomes the cost of doing business. Yet another variant of the same phenomenon is that the laws are under developed. As a result, bureaucrats have a significant influence on the interpretation of the law (or the desires of the state). In spite of this, business can flourish. China represents a case in point. Oddly enough, in China, the bureaucrats are also the entrepreneurs. It is in the interest of the bureaucrats to guarantee a level of certainty in the interpretation of the contract—implicit and explicit. In the

absence of laws and institutions that govern contracts, aligning the interests of the private sector and bureaucracy seems to have worked in building a vibrant economy in China. However, the poor in villages might be paying a price. For example, in the absence of institutions and laws, farmland can be appropriated by bureaucrats for other uses without a legal recourse for the farmer.

Given these variations, what is the secret for the evolution of a market economy in the BOP markets? What are the essential requirements for active private-sector involvement in development? I believe that the key lies in a nation's TGC

Transaction Governance Capacity (TGC)

Fundamental to the evolution of capital markets and a vibrant private sector is the need for a transparent market for capital, land, labor, commodities, and knowledge. Transparency results from widely understood and clearly enforced rules. Transactions involving these rules must be clear and unambiguous. Ownership and the transfer of ownership must be enforced. Under such a system, assets can become capital. Investors will seek the best opportunities. TGC is the capacity of a society to guarantee transparency in the process of economic transactions and the ability to enforce commercial contracts. This is about reducing uncertainty as to ownership and transfer of ownership. Transparency in the process reduces transaction costs. Clearly developed laws, transparent microregulations, social norms, and timely and uniform enforcement are all part of TGC. My argument is that TGC is more important than laws that are not enforced. BOP consumers live in a wide variety of countries with varying degrees of TGC. Consider the spectrum:

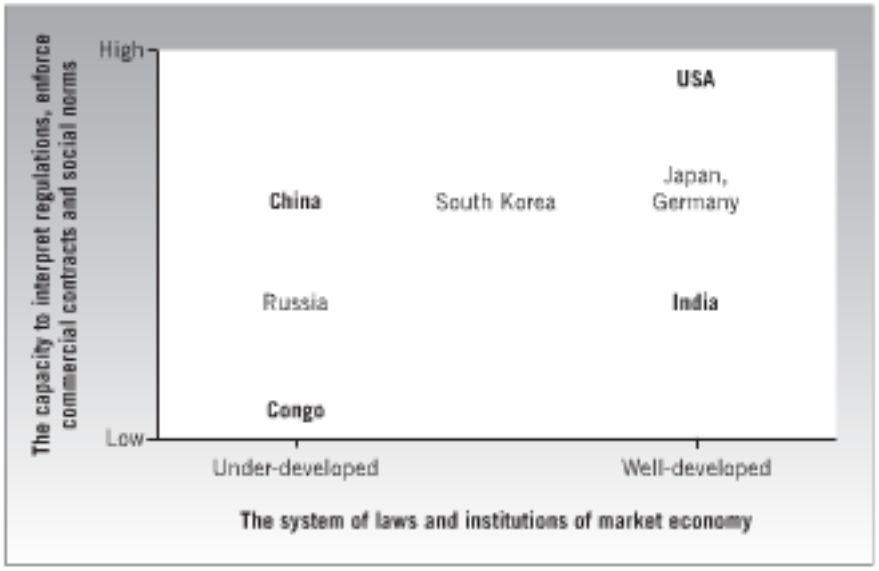
1. Countries that are arbitrary and authoritarian. Laws do not exist and the laws that do exist are not enforced. Congo is an example of this situation. Private-sector development, in the Western sense, is very unlikely here. The only FDI that is likely is focused on the extraction of mineral wealth.
2. Countries where laws and institutions of a market economy exist. The private sector is

vibrant. Still, the country does not reach its potential. India is a case in point. Alternatively, the GDP growth is great, but the underlying legal systems are not fully developed. China is an example.

3. Countries with well-developed laws, regulations, institutions, and enforcement systems. The United States is an example.

We can look at the spectrum of TGC, as shown in below figure-11.

Figure-11, TGC Specturum.



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

TGC captures the dilemma that the BOP consumers and the private sector face. A country like Congo will have a long wait before an active private sector will propel the economy. However, both China and India are growing rapidly. They are the only two large countries showing more than 5 percent GDP growth over a decade. Both countries have significant corruption. Estimates of non performing assets on the reports are as high as 50 percent of GDP for China and 20 percent for India. However, they have to travel different roads to become full-fledged market economies. As commercial transactions become large, complex, and multiyear, traditional approaches to bureaucratic interpretation and enforcement in China become problematic. China must develop laws and institutions. India must become more aggressive in enforcement. Political and

bureaucratic intransigence will hurt investments and growth.

There is a need for us to recognize that economic growth fueled by the market economy around the world is not a single, monolithic problem. Each country has its own road to travel. Easy prescriptions that suggest that enacting laws will suffice are as naive as suggesting that contract enforcement even without laws provides adequate protection. The migration path toward the goal of a fully functioning market economy will be different depending on the point of departure for each country. Private-sector investors seek certainty—enforcement—over laws on the books. Enforcement allows firms to compute the cost of doing business in a system. That is the reason that most MNCs continue to prefer China over India: a clear preference for enforcement capacity over the legal system on the books. In China, corrupt as they are, the bureaucrats and politicians can enforce a contract. However, the corrupt in India cannot necessarily enforce contracts consistently. The checks and balances built into the Indian polity, especially the press and the multiparty political system, continually unearth corruption in contracts.

Building TGC

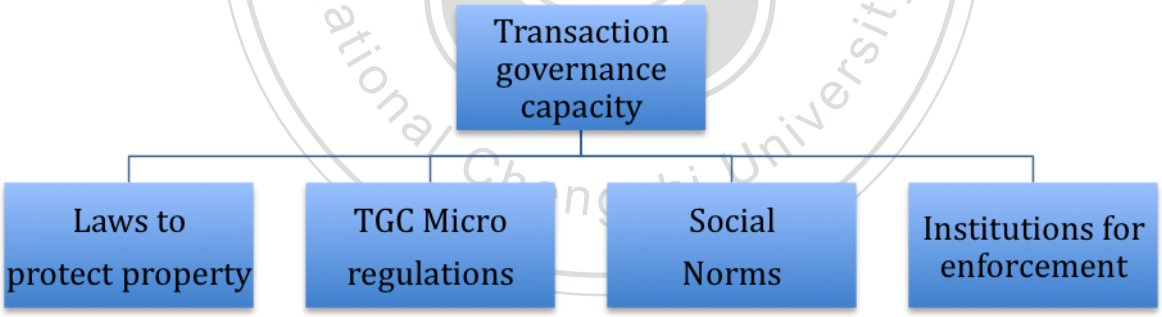
TGC is about creating transparency and eliminating uncertainty and risk in commercial transactions. The specifications for TGC are fourfold:

1. A system of laws that allows for ownership and transfer of property.
2. A process for changing the laws governing property rights that is clear and unambiguous. Democracies provide a safety net from idiosyncratic changes. For example, in the United States, the process by which new laws are enacted is clear and unambiguous. The process in democracies is arduous and open. This provides a share of voice to all the affected in shaping the laws.
3. As societies become more complex, a system of regulations that accommodates complex transactions.
4. Institutions that allow the laws to be implemented fairly, in a timely fashion, and with

transparency. TGC is more than laws or regulations. For example, de Soto found that there are 71 procedures and 31 agencies that are involved in legally acquiring and registering land in Egypt. The situation is no different in other developing countries. However, to come to the conclusion that microregulations are the problem would be premature. The United States is full of microregulations, as anyone who has tried to build a new factory can testify. The regulations are even more complex if it happens to be a chemical factory. In addition to regular procedures involved in building a factory, additional regulations for a chemical factory can add to the difficulty of getting a license. Microregulations are an integral part of any complex legal system.

TGC consists of laws, regulations, social norms, and institutions. We need to think of the various components of TGC as a portfolio, shown in below figure-12.

Figure-12,(Transaction Governance Capacity)



Each country and economy might need a different portfolio of the elements of the TGC: One size might not fit all. The goal is to increase the TGC of a society in such a way that a vibrant private sector can flourish. We need to recognize that each country is at a different starting point.

I believe that the real problem is how bureaucracies deal with citizens. Consider a farmer in India, a semiliterate person approaching government officials to register his land. He will be approached by

brokers, who are the facilitators of the transaction. They fill out the forms for the farmer, lobby with the authorities, and ostensibly make the process easy. The total cost of the transaction for the farmer consists of the fee paid to the broker for his services (an uncertain percentage of the value of the transaction), the registration fee, and the bribes paid to corrupt officials. The process is so opaque to the farmer that the broker and the officials have opportunities to be arbitrary about the quality of the title and the value of the land. More important, they have the ability to decide how long the process will take. They can give this particular case the level of priority that they think is appropriate. Corruption is about providing privileged access to resources and recognizing the time value of money. Corruption is a market mechanism for privileged access. Bureaucrats use microregulations to control access, transparency, and therefore time.

TGC is about eliminating the opaqueness in the system and providing ease of access. Changing laws and regulations does not help the ordinary citizen if the system is not transparent or if access is not easy. From the point of view of the citizen, TGC must fulfill four criteria:

1. Access to information and transparency for all transactions.
2. Clear processes so that selective interpretation by bureaucrats is reduced, if not eliminated.
3. Speed with which the processes can be completed by citizens.
4. Trust in the system (with its faults). Trust is a result of the first three criteria and is a crucial component of TGC.

The Andhra Pradesh e-Governance Story is a good example of building TGC.

8. Development as Social Transformation

We have looked at the BOP as a viable and profitable growth market. We have also understood that treating the BOP as a market can lead to poverty reduction, particularly if NGOs and community groups join with MNCs and local companies as business partners. The development of markets and effective business models at the BOP can transform the poverty alleviation task from one of

constant struggle with subsidies and aid to entrepreneurship and the generation of wealth. When the poor at the BOP are treated as consumers, they can reap the benefits of respect, choice, and self-esteem and have an opportunity to climb out of the poverty trap. As small and micro enterprises, many of them informal, become partners to MNCs, entrepreneurs at the BOP develop real access to global markets and capital and effective transaction governance. MNCs gain access to large new markets, developing innovative practices that can increase profitability in both BOP and mature markets.

National and local governments have an important role to play in this process. They have to create the enabling conditions for active private-sector involvement in creating this BOP market opportunity. TGC is a prerequisite. Governments now have new tools to create TGC in a short period of time. Further, new technologies and new approaches to reaching the BOP such as SHGs and direct distribution (creating millions of new entrepreneurs) can also create a respect for the rule of law and commercial contracts among the BOP consumers (for example, as they access credit through the microfinance route) and local entrepreneurs. The capabilities to solve the perennial problem of poverty through profitable businesses at the BOP are now available to most nations. However, converting the poor into a market will require innovations. The methodologies for innovation at the BOP are different from and more demanding than the traditional approaches, but so is the opportunity for significant profitable growth. Finally, BOP markets represent a global opportunity. Lessons learned at the BOP can transform MNC operations in developed countries as well. BOP can be the engine for the next round of global expansion of trade and good will. If we follow this approach, what impact will it have on the BOP consumers? How will their lives change?

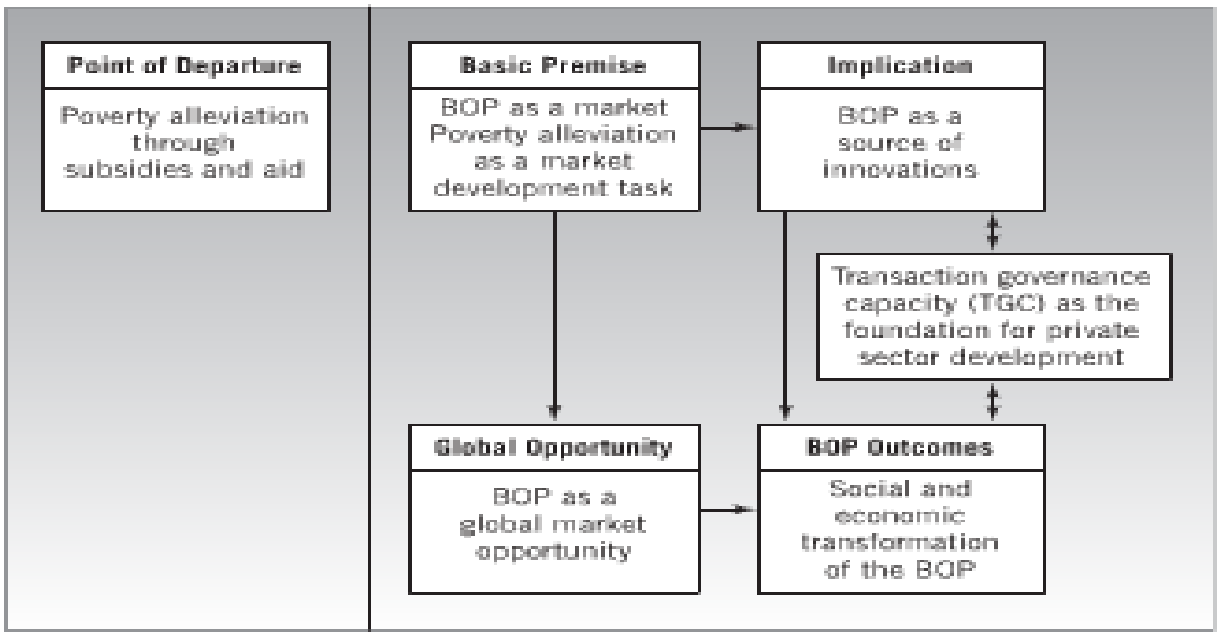
Development as Social Transformation

We have come full circle. We have made three transitions in our thinking. First, we demonstrated that the BOP—the poor—can be a market. Second, when we accept the BOP as a market, the only way to serve that market is to innovate. The BOP demands a range of innovations in products and

services, business models, and management processes. Third, these innovations must be accompanied by increased TGC, making the government accountable to the citizens and making it accessible and transparent. Market-based ecosystems can also facilitate the process of making transparency, access, and respect for commercial contracts a way of life. The intellectual transitions that are the substance of this report and its implications are shown in below figure-13.

How can these changes impact life at the BOP? As BOP consumers get an opportunity to participate in and benefit from the choices of products and services made available through market mechanisms, the accompanying social and economic transformation can be rapid. The reason for this is that BOP consumers are entrepreneurial and can easily imagine ways in which they can use their newly found access to information, choice, and infrastructure. Let us look at some examples.

Figure-13 (BOP Transitions)



Source : Fortune at the bottom of Pyramid, C.K. Prahalad

The ITC e-Choupal infrastructure was created for farmers to have access to information regarding prices as well as agriculture-related information, as shown in below table-5. The system was configured to make them productive farmers and to make the supply chain for soybeans more efficient so that there was a win for both the farmer and ITC. That was the intent.

Table-5 (ITC eChoupal Features)

Features	Description and Operational Goals
Weather	Users can select their district of interest by clicking on the appropriate region of a map. Localized weather information is presented on regions within a 25-km range. Typically, 24–72-hour weather forecasts are available along with an advisory. The advisories are pieces of information directly related to the farmer, which he can put to use. For instance, during the sowing season, a weather forecast for days following rains might include the advisory that instruts the farmer to sow when the soil is still wet. Weather data is obtained from the Indian Meteorological Department, which has a presence even in small towns and can provide forecasts for rural areas.
Pricing	The e-Choupal Web site displays both the rate at which ITC offers to procure commodities and the prevailing mandi rates. ITC's next-day rates are published every evening. The prices are displayed prominently on the top of the Web page on a scrolling ticker.
News	For the soyachoupal Web site, relevant news is collated from various sources and presented. Aside from agriculture-related news, this section also includes current affairs, entertainment, sports, and local news.
Best Practices	Here, best farming practices are documented (by crop). Here again, the information presented is actionable. For instance, in this section, the farmer would not only find what kind of fertilizers to use, but also how and when to use them
Q&A	This feature enables two-way communication. Here a farmer can post any agriculture-related question he needs answered.

It took farmers fewer than three months to understand the strength of the Internet, and they started using the system for a host of other, non-business-related and socially beneficial tasks. They found that they could connect with each other and chat about a whole range of issues, not just agriculture and prices. They found that the PC could be an entertainment device. It could be used to play movies, listen to songs, and watch cricket (a sport that is a national obsession in India). They could print out the classroom grades of their children. They also became sophisticated in tracking prices,

not just at the local mandi or ITC prices, but also for futures at the Chicago Board of Trade. They correlated intuitively the futures prices with the prices they should expect in selling to ITC or others. They established a clear link between global price movements and the prices in remote villages of northern India. Just three months earlier, they were hostages to the vagaries of the local merchants in the mandi. They also became experts at e-mail and chat capabilities. The list of dominant, unplanned activities that evolved in three to six months among the villages connected by the system is shown in below Table-6.

Table-6 (Unplanned Activities at e-Choupal: The Social Transformation)

News	Dainik jagran, Web Dunia
Market Prices	One sanchalak actually followed Chicago Board of Trade prices for a month and arrived at a correlation with the local market prices. He used this information to help other farmers decide when to sell.
Entertainment	Movie trivia. Rent CDs to watch movies on the computer. Music downloads from the Internet.
Sports	Cricket-related news.
Education	Students use the Internet to check their results and grades online.
Communication	E-mail. The sanchalaks have e-mail accounts on Yahoo! Chat. Some sanchalaks frequent chat rooms and chat with other sanchalaks and ITC managers.
General Interest/Others	Information about cell phones.

Breaking Down Barriers to Communication

ITC worked hard to create interfaces in the farmers' native language, Hindi. It also provided software that made it possible to type Hindi characters using a standard English keyboard. The preferred language for writing e-mails and other electronic communication, however, is Hinglish, or Hindi typed with English characters. The reason for this is that combining vowels and

consonants to create Hindi letters is a cumbersome affair on a keyboard. It sometimes takes three keystrokes to render one letter. All the sanchalaks agreed that this was the only aspect of computer usage they had not yet mastered.

Undeterred, the sanchalaks started to use the English keyboard to write e-mails in Hindi. They could move fast in building both the capacity to communicate with the outside world and the ability to make themselves understood. The creativity in building communication patterns can be illustrated by one of the e-mails between a sanchalak in a remote village in northern India and the researcher in Ann Arbor, Michigan. There appear to be no barriers. The student in the United States was educated, rich, sophisticated, and well traveled. The farmer probably never traveled beyond a cluster of villages, was poor and uneducated. All those boundaries were broken by the possibility of asynchronous communication through e-mail. Its not known how long it took to compose this e-mail, but suspect probably not long. It is straightforward and to the point. The e-mail is shown in below Figure-14

Figure-14 : Email communication

Date: Sunday, May 18, 2003 11:01 PM

From: arun nahar

To: <sachinr@umich.edu>

sachin ji namaste

aapka mail padkar khushi hui aapki english meri samajh mae aati hai agribusiness mae jaivik khad(bio-fertilizer) ke bare mae aapke kyaa vichar hai present polution ko dekhate hua future plan ke bare mae socha ja sakta hai public chemical less product khana pasand karte hai aane wale 10 years organic product ke honge organic product bio-fertilizer se taiyar hote hai village mae organic product taiyar kiye ja sakte hai in product ko sahi market dene ke liye aap network bana sakte ho

thanks

The English translation of this e-mail is as follows:

Date: Sunday, May 18, 2003 11.01 PM

From: arun nahar

To: sachin@umich.edu

Mr. Sachin, greetings

I was delighted to read your mail. I was able to understand your communication in English. What is your opinion about bio-fertilizers in agro-business? Considering current pollution, we can develop trends. People prefer meals, which are prepared with "chemical less products." For the next 10 years, markets will be dominated by organic products. Organic products can be produced with bio-fertilizers in our village. ("We can do it"). In order to market this product, can you develop the distribution network?

The use of the infrastructure in creative ways is not confined to the sanchalaks. Across the board, BOP consumers can use the systems they have access to in ways unimagined by those providing the systems What is the real change for those at the BOP? The real advantages of a private-sector network can be captured, as shown in below Table-7.

Table-7 (The Drivers of Social Transformation)

Dimension of Social Transformation	**Traditional**	**Emerging**
Access to information	Limited	Unlimited; large firms, government, and bureaucracies in areas of interest to them.

Community	Locationally bound, typically a cluster of villages	Could be regional, national, and global.
Patterns of interaction	Limited	Infinitely more; word of and access to knowledge mouth turbocharged.
Ability to make independent choices	Low	High and can get very sophisticated through dialogue and interaction.

The simple case of the ITC e-Choupal, if repeated 1,000 times, can transform a country. We find increasingly that women from different villages who have never met each other are in chat rooms discussing complex issues like interest rate fluctuations and political positions to take with respect to specific issues. They also use it for more family oriented topics. In one chat room on the n-Logue network in southern India, the women were discussing the status of their grandchildren or other relatives living abroad. The newly found advantages are the building blocks of a market economy: transparency of information, universal access, dialogue among various thematic communities that form autonomously, and a discussion of the risks and benefits of various courses of action, such as Should I sell my corn today or hold back? These four building blocks are dialogue, access, risk benefits, and transparency (DART). These are the same building blocks that are leading to more consumer activism in developed markets.

BOP Consumers Upgrade

Contrary to popular belief, BOP consumers are always upgrading from their existing condition. MNCs and large firms oriented toward the top of the pyramid sometimes look at what the BOP consumers use and think of it as downgrading from the products they are selling. These products are seen as cheap. On the other hand, for the BOP consumers, the newly found choice is an upgrade from their current state of affairs. For example, when Nirma, a startup, introduced a detergent

powder in India, the established firms in that business—both MNCs and large Indian firms—considered the product as low end and not of interest to them. At that time, the total tonnage for high-end products was about 25,000 tons. Nirma was a new category, upgrading the BOP consumers from poor-quality, locally made soaps, and the brand built an impressive market of 300,000 tons. The lessons were not lost on the incumbents. The size of the market at the BOP is significant (300,000 tons versus 25,000 tons at the top of the pyramid), but more important, Nirma was a product uniquely fashioned for the poor who wash clothes under a tap or in a running stream rather than in a washing machine. The same process is evident in a wide variety of businesses, including financial services. When the BOP consumers opt for a loan from a bank, as opposed to a local moneylender, they are upgrading. When they use iodized salt over the locally available unbranded salt, they are upgrading. When they get access to good-quality building materials and a design for how to add an additional room from CEMEX, they are upgrading. The examples can be multiplied. The message is simple: For the BOP consumer, gaining access to modern technology and good products designed with their needs in mind enables them to take a huge step in improving their quality of life.

Gaining Access to Knowledge

We have already examined the benefits of access and transparency and how that impacts the asymmetric information that was (and is) the norm in most BOP markets. However, when BOP consumers get access to digital technologies, the pattern of access to knowledge changes. For example, in the EID Parry Agriline example used in this report, the farmers had a concern about the quality of a particular crop: betelnut. They used their PCs and the attached cameras to send pictures of the affected leaves to a central agronomy center 600 miles away. They received advice from the agronomists at a remote location. That certainly improved their ability to solve the problem. Examples such as this one are proliferating by the day. It is becoming well accepted in some parts of India that telemedicine is the way to go to get remote diagnostics based on PCs. Shanker

Netralaya, for example, brings world-class eye care to rural India. It has vans fitted with optometric equipment that connect via satellite hook-up to the hospital. Senior doctors can review complex cases on a two-way video conferencing hook-up and discuss with the patients their problems. They can also offer a diagnosis based on images presented on a split screen. They can then recommend a course of action. This incredible access to high-technology solutions is changing the way we think about the BOP consumers. Increasingly sensitized to what is possible, they are also demanding high-technology solutions to their problems.

Identity for the Individual

One of the common problems for those at the BOP is that they have no identity. Often they are at the fringe of society and do not have a legal identity, including voter registration, driver's license, or birth certificate. The instruments of legal identity that we take for granted—be it a passport or a Social Security number—are denied to them. For all practical purposes, they do not exist as legal entities. Because they do not have a legal existence, they cannot be the beneficiaries of a modern society. Voter registration in vibrant democracies, such as India, provides one form of identity. Erstwhile communist regimes had a system of documenting everyone, including the location to which they belonged. In Shanghai, for example, all the migrant workers were undocumented for a long time. They did not officially belong to Shanghai and, therefore, could not participate in programs such as government assigned housing.

This picture starts to change as a private-sector ecosystem emerges.The individuals in an SHG have an identity. They are recognized as legal by the ICICI Bank. They all have a name, a designation, a group to which they belong, and a scheme in which they participate. The same is true of the eSeva service provided by the government of Andhra Pradesh. Now all citizens who pay their utility bills or register births and deaths have an identity. In fact, many BOP consumers are elated to see their names on a computer screen. This is universal. The poor in Brazil, when they shop in Casas Bahia, get an identity. They get a card from the company, and that tells the world who they are. Consumers

proudly display their Casas Bahia cards as proof of their existence and their credit worthiness. A similar situation exists in Mexico. When CEMEX organizes women, it not only gives them the tools and the materials required for them to build a kitchen; it also gives them a legal identity. The women are bound to the firm and vice versa. Neither party can break the contract without penalty. That is a proof of legal identity. The importance of legal identity cannot be underestimated. Without it, BOP consumers cannot access the services we take for granted, such as credit. Hernando de Soto documented the problems of a lack of legal identity at the BOP. The status of a non person in legal terms can confine people to a cycle of poverty.

Women Are Critical for Development

A well-understood but poorly articulated reality of development is the role of women. Women are central to the entire development process. They are also at the vanguard of social transformation. For example, Grameen Bank's success is based on lending only to women. The entrepreneurs who used the micro finance made available were women. The Grameen phone ladies are the entrepreneurs. In the cases in this report, there is adequate evidence of the role of women in building a new society at the BOP. The SHGs at ICICI Bank are all women, as are the Shakti Ammas at HLL. These women are entrepreneurs responsible for saving and accessing credit. In the case of CEMEX, the company works only with women. Amul, a milk cooperative, depends on women for their milk origination in villages. Women also collect the cash for the milk and, therefore, have achieved a new social status. Access to economic independence can change the long tradition of suppression of women and denial of opportunities. The success of Avon, Mary Kay, and Tupperware in the United States and other parts of the world is also based on the role of women entrepreneurs. Although the evidence is overwhelming, little explicit attention has been paid to actively coopting women in the efforts to build markets and lead the development process. MNCs and large firms will do well to keep this in mind in their efforts to create new markets at the BOP.

Evolving Checks and Balances

It is natural for us to ask, If the involvement of the private sector in BOP markets can have such a significant impact on social transformation, do we need checks and balances? Yes. We need to make sure that no organization abuses its power and influence, be it corrupt governments or large firms. Fortunately, checks and balances are evolving rapidly. The spread of connectivity—wireless and TV—makes it impossible for any group to abuse its position for long. Further, civil society organizations are always on alert. However, the most important protection is informed, networked, and active consumers. The evolution of the BOP consumer is ultimately the real protection.

The social transformation that is taking place in markets where the public and the private sectors have been involved at the BOP is quite impressive. BOP consumers have constantly surprised the elite with their ability to adapt and their resilience. As we described in this section, they do the following:

1. They adapt to new technology without any difficulty and are willing to experiment and find new and unforeseen (by the firms) applications for the technology. Nobody thought that the farmers from the middle of India would check prices at the Chicago Board of Trade.
2. Technology is breaking down barriers to communication. Given that BOP consumers can increasingly enjoy the benefits of dialogue, access, risk benefit analysis, and transparency (DART) and make informed choices, the chances of change in tradition will be improved. BOP consumers now have a chance to upgrade and improve their lives.
3. By gaining access to a legal identity, they can participate more effectively in society and gain the benefits of the available opportunities. They do not have to remain marginalized.
4. Finally, the emancipation of women is an important part of building markets at the BOP. Empowered, organized, networked, and active women are changing the social fabric of society.

Taken together, these changes will lead to significant social change and transformation.

9. CEO Reactions to the Concept of BOP

Several CEO of the firm have supported & agreed the fundamentals laid down in BOP process. It demonstrate their growing interest in embracing the opportunities in BOP markets and the innovations they foster. It reflect the voices of a wide variety of firms and, more importantly, individuals. It is hope that these perspectives will motivate more CEOs.

List of Firms who have supported BOP process in the business activities:

1. Microsoft
2. Bharti Airtel
3. Thomson Reuters
4. Royal DSM
5. ING
6. GlaxoSmithKline (GSK)
7. Unilever
8. Philips Electronics
9. University of Maastricht
10. Acumen Fund

10. Making it Happen !

Let us begin with each of the principles involved in innovation for the BOP, identify the rationale for it, and analyze examples that illustrate what can be done to incorporate it.

1. **Price Performance**

Addressing the market opportunity at the BOP requires that we start with a radically new understanding of the price-performance relationship compared to that currently employed in developed markets. This is not about lowering prices. It is about altering the price-performance

envelope. Price is an important part of the basis for growth in BOP markets. GSM handsets used to sell for $1,000 in India. Not surprisingly, the market was quite limited. As the average price dropped to $300, sales started to increase. However, when Reliance, a cell phone provider, introduced its Monsoon Hungama (literally Monsoon Melee) promotion that offered 100 free minutes for a mobile, multimedia phone with an up-front payment of $10 and monthly payments of $9.25, the company received 1 million applications in 10 days. Of course, price is a factor. Equally important is the performance associated with the price. The applications available through the Monsoon Hungama offer, for a mere $10 down payment, are quite incredible, including news, games, audio clips of movies and favorite songs, video clips, astrology and numerology, city guides, TV guides, stock quotes, and the ability to surf the Internet. The phone itself is fashionable and state of the art, using CDMA technology. Today, India is the fastest growing wireless market in the world. During the last quarter of 2003, India was adding 1.5 million new subscribers per month! Both GSM and CDMA technologies are readily available, as are a host of features and pricing options. The regulatory process is also rapidly evolving. This milieu can be confusing at best. However, most value-conscious consumers do not seem to be concerned. There are so many comparisons of the alternate technologies, features, and payment schemes that are debated in newspapers, on TV and radio, and in magazines, that consumers are well informed. Even those who cannot read tend to consult with others who can. Word of mouth is so powerful that the consumers seem to have found an efficient process— combining analyses offered by journalists, companies, consumer reports, and their friends—for evaluating the price-performance options available to them.

How can we provide a high level of price-performance to a consumer population that exists on less than $2 per day? The changes in price- performance that are called for must be dramatic. Let me illustrate. Consider a cataract operation. It can cost as much as $2,500 to $3,000 in the United States. Even most of the poorest in the United States can get access to this surgery through health insurance (Medicare and Medicaid). In other developed countries such as the United Kingdom, the

nationalized health services pay the cost. Now, consider the poor in India or Africa. For these mostly uninsured individuals to even consider cataract surgery, it would need to be priced around $50, a fraction of what it costs in developed markets (about 50 to 75 times less than in the United States), and the quality of surgery cannot be any less. Variation in quality in restoring eyesight is unacceptable. For a successful cataract operation in BOP markets, the quality of surgery must also include postoperative care of semiliterate patients in unsanitary environments. Commitment to quality in BOP markets must be broad-based: identifying patients for surgery, most of whom have had limited medical care in the past, much less visits to the hospital; preparing them for the procedure; performing the operation; and postoperative care. The Aravind Eye Care System, the largest eye care facility in the world, is headquartered in Madurai, India. Doctors at Aravind perform more than 200,000 state-of-the-art cataract surgeries per year. Their price is $50 to $300 per surgery, including the hospital stay and any complications in surgery. However, more than 60 percent of Aravind's patients get their surgeries for free with no out-of-pocket payments by patients, insurance companies, government, and so on. With only 40 percent of paying patients at such seemingly low prices, Aravind is nevertheless very profitable. The cost of the surgery, for all the patients taken together (paying and free) is not more than $25 for a basic cataract operation with intra-ocular lens (IOL).

Similarly, access to financial services for the poor provides a challenge to conventional wisdom. Saving with a bank is a new idea for most people at the BOP. They have hardly any savings to begin with and whatever they have they wear it on them (as jewelry) or keep under their mattresses. Simple steps such as saving $1 per week and starting an account with as little as $20 can provide the impetus to cultivating the savings habit among the poor. Building the savings habit and giving them access to the basic building blocks of financial services must precede providing them with access to low-cost loans or rain and crop insurance. How does a large global bank approach this market and provide world-class (if a limited range of) services starting with a $20 deposit? Citicorp started $25 deposit-based banking services, called Suvidha, in Bangalore, India. Suvidha was

oriented toward the urban population and was entirely based on an ATM, networked, 24/7 model. In the first year, Citibank enrolled 150,000 customers. This was the first time a global bank approached consumers with a $25 deposit option. Now several Indian banks offer similar service, both branch-based and ATM-based, in both rural and urban areas.

BOP markets, be they in telecom, personal care, health care, or financial services, impose interesting business design criteria. MNCs have to fundamentally rethink the price-performance relationship. Traditional approaches to reducing prices by 5 to 10 percent will not suffice. We should focus on an overall price-performance improvement of 30 to 100 times. This calls for a significant forgetting curve in the organization—an ability to discard traditional approaches to price- performance improvements. However, these efforts can be justified only if the markets are large and global and the returns are more than commensurate with the risks. Although the margin per unit might be low, investor interest in BOP markets is based on expectations of a large- volume, low-risk, and high-return-on-capital employed business opportunity. BOP markets represent an opportunity to create economic value in a fundamentally new way.

2. **Innovation: Hybrids**

The BOP market opportunity cannot be satisfied by watered-down versions of traditional technology solutions from the developed markets. The BOP market can and must be addressed by the most advanced technologies creatively combined with existing (and evolving) infrastructure. More than 70 million Indian children suffer from iodine deficiency disorder (IDD), which can lead to mental retardation. A total of 200 million are at risk. IDD in many parts of Africa is equally daunting. The primary source of iodine for most Indians is salt. Indians do eat a lot of salt, but only 15 percent of the salt sold in India is iodized. Iodine is added by spraying salt with potassium iodate (KIO3) or potassium iodine (KI) during manufacturing. Salt, to be effective as a carrier of iodine, must retain a minimum of 15 parts per million of iodine. Even iodized salt in India loses its iodine content during the harsh conditions of storage and transportation. Indian cooking habits account for

further iodine loss. The challenge in India (and similar markets in Africa) is clear: How do we create iodized salt that will not lose its iodine content during storage, transportation, and cooking but will release iodine only on ingesting cooked food?

In an effort to address the immense iodine loss in Indian salt, HLL, a subsidiary of Unilever, recognized that chemicals can be protected by macro and molecular encapsulation. HLL first attempted macro encapsulation (similar to coating medicine with a covering). Although this process kept the iodine intact, it was difficult to guarantee the exact amount of iodine as the miniscule size of the salt crystals complicated the process. HLL thus decided to try molecular encapsulation. Called K15 (K for potassium, 15 ppm), the technology encapsulates iodate particles between inorganic layers, protecting iodine from harsh external conditions. The inorganic layers are designed to only interact with and dissolve in highly acidic environments (that is, a pH level of 1 to 2, as in the stomach). Here, iodine is released only upon ingesting food, only negligibly before that. The tests to validate this technology under the harsh conditions of Indian spices and cooking methods required that the researchers resort to techniques developed by the Indian Atomic Energy Agency, using radioactive tracers. The tracers did not alter the chemistry of the iodine but could detect it throughout the simulated cooking process. To be marketable, though, the iodized salt so developed must also retain its attractiveness (whiteness, texture) and, needless to say, must be priced comparable to iodized salt using the traditional methods (ineffective as a carrier of iodine) and noniodized salt. The technical breakthrough in applying molecular encapsulation of iodine in salt is now a patented process. Unilever is already leveraging this innovation from HLL to other countries such as Ghana, Ivory Coast, and Kenya, where IDD is a problem.

The concept of hybrids appears in strange places. Consider that the dairy industry in India, Amul, is organized around 10,675 cooperatives from which it collects 6 million liters of milk. Amul collects milk from the farmers in villages by providing village collection centers with more than 3,000 Automatic Milk Collection System Units (AMCUS)—an integrated milk-weighing, checking (for fat content), and payment system based on electronic weighing machines, milk analyzers, and a

PC-based accounting and banking system for members. Amul makes 10 million transactions and payments in the neighborhood of Rs. 170 million. Payments can also be made instantaneously. This integrated electronic system sits in the middle of the traditional Indian village in the milk cooperatives. Many of the farmers feel that, for the first time, they have been treated right—the weighing and testing are honest, they are paid without delays, and they can now become part of the national milk network without leaving their villages.

3. **Scale of Operations**

It is easy to succeed in a limited experiment, but the market needs of 4 to 5 billion people suggest that the experiments must be commercially scalable. NGOs and other socially concerned groups are by far the lead experimenters in BOP markets. For example, we can demonstrate that a combination of photovoltaic and wind-based energy systems can be built for less than $1,000, consistently deliver the necessary power, and be acceptable as a single-family or village solution. However, how do you scale it to cover 1.5 billion people who live without access to grid-based electricity? What is involved in scaling these successful experiments? Can small local entrepreneurs and NGOs accomplish this transfer of technology across geographies?

Scale of operations is a prerequisite for making an economic case for the BOP. Given a stringent price-performance equation and low margins per unit, the basis for returns on investment is volume. Only a few BOP markets are large—China, India, Brazil, Mexico, and Indonesia. Most of the markets, such as the African nations, are poor and small. The prerequisite for scalability of innovations from these markets is that they are supported by organizations that have significant geographical ambitions and reach. MNCs are ideally suited for this effort. Further, size allows MNCs to make the necessary financial commitments behind potentially successful, innovative ideas. How can HLL leverage its learning, know-how, and know-why developed in marketing salt in India and take it to Nigeria, Chad, Ivory Coast, and China?

It is clear, therefore, that pursuing the promise of BOP markets challenges the dominant logic of

both MNCs and NGOs. MNCs can benefit from learning how to engage with NGOs and local community- based organizations to co-create new products, services, and business. NGOs can benefit from partnerships with MNCs, through which they can leverage MNC know-how and systems to scale innovations broadly.

4. **Sustainable Development: Eco-Friendly**

The poor as a market are 5 billion strong. This means that solutions that we develop cannot be based on the same patterns of resource use that we expect to use in developed countries. Solutions must be sustainable and ecologically friendly.

Consider the use of water. In the United States, domestic use of water per capita is around 1,932 cubic meters per person per year. In China, it is 491 cubic meters and in India, 640 cubic meters, respectively. There is not enough water available in most parts of the world to support demand. Even if it is available, the quality of water available varies from indifferent to poor. For example, in Chennai, India, there is an attempt to collect rainwater from rooftops and store it in wells. So far, scarcity has not altered usage patterns. Water usage continues to be a critical component of high standards of living in the Western world. The question that BOP markets pose for us is this: Can we develop products that provide the same level of functionality with no or minimal use of water? For example, can we wash clothes without water? Can we refresh ourselves without a shower? Can we flush toilets without much water, as is done in airplanes? Can we recycle water for multiple uses within an apartment complex (in urban settings) and within a village (in rural settings) in a closed loop system? Can we conserve water in agriculture through innovative cultivation methods?

In the United States, each person generates 4.62 pounds of waste per day. If everyone in China adopted Western standards of waste per capita, there would be more than 5.5 billion pounds of waste per day. There are not enough places to dump this amount of garbage. Packaging can play a crucial role in the sustainable development of markets in the BOP. With 5 billion potential users, per-capita consumption of all resources, including packaging materials, can be crucial. Even

recycling systems might not be practical as the rural markets are dispersed and waste collection for recycling might not be economically viable. At the same time, packaged goods are one way of ensuring product safety. The dilemma is real. So far, MNCs and others have not suggested a practical solution to the packaging problem, nor do we have a comprehensive approach to energy and water use. Water might get the attention of MNCs sooner than energy as the availability of quality water, even for human consumption, is becoming difficult in BOP markets and, in some cases, developed markets as well. The growth of bottled water is an indication of this trend.

The goal here is not to be alarmists. The BOP will force us to come to terms with the use of resources in ways that we have not so far. Whether it is in the use of fossil fuels for energy and transportation, water for personal cleanliness, or packaging for safety and aesthetics, ecological sensitivity will become paramount. I believe that more innovative, sustainable solutions will increasingly emerge from serving the BOP markets than from the developed markets.

5. **Identifying Functionality: Is the BOP Different from Developed Markets?**

Recognizing that the functionality required in products or services in the BOP market might be different from that available in the developed markets is a critical starting point. In fact, developers must start from this perspective and look for anomalies from their prior expectations based on their experiences with developed markets. Take prosthetics as an example. The artificial limb, as a business and good medical practice, is not new. It has been around for a long time and every war, starting with the American Civil War, has given a boost to its usage. Lost limbs due to accidents, polio, or war are common. India is no exception: There are 5.5 million amputees and about 25,000 to 30,000 are added each year. However, most of the patients needing prosthetics are poor and illiterate. For a poor Indian, regaining the ability to walk does not mean much if he or she cannot squat on the floor, work in the field, walk on uneven ground, and not wear shoes. As Mr. Ram Chandra, talented artist, sculptor, and inventor of the Jaipur Foot, the Indian alternative to traditional prosthetics, said, Indians do not wear shoes to the temple or in the kitchen. Jaipur Foot's

design considerations are based on unique functionality, specific to this market, and are easy to recognize, as shown in table below. The design requirements can be divided into two parts. Design must take into account the technical and medical requirements for various foot movements, but this is not enough. We can build a prosthetic that can perform all the functions required. However, if it is not within reach of the target customer—here the BOP patient—it does not help. Therefore, we need to superimpose the business requirements, not just appropriate prices, but how the individual is likely to use the prosthetic.

Table – 8 (Jaipur Foot: Design Considerations)

Activity	**Technical Requirements Functionality 1**	**Business Requirements Functionality 2**
Squatting	Need for dorsiflexion	Work needs, poverty, lack of trained manpower, time for fitting
Sitting cross-legged	Need for transverse rotation	Work needs, poverty, lack of trained manpower, time for fitting
Walking on uneven ground	Need for inversion and eversion	
Barefoot walking	Need for natural look	

The design considerations isolated by the design team of the Jaipur Foot were uniquely oriented to BOP problems (for example, in India, Afghanistan, Bangladesh, Pakistan, Cambodia, Congo, and Vietnam) in fitting prosthetics and are not the problems that designers would contend with in the United States. Functionality 1 describes the technical requirements that are unique to BOP consumers in India. Contrary to popular assumptions, this set of design parameters increased the

required functionality of prosthetics compared to what is available in the United States or Europe. Functionality 2 describes the additional unique requirements at the BOP level. For example, farmers in the BOP must work in standing water in paddy fields for about eight hours every day. Vendors in the BOP must walk long distances (about 8 to 10 km per day). Therefore, prosthetics for consumers in the BOP must be comfortable, painless, and durable. The poor cannot afford frequent replacements or hospital visits. They travel from all over India with their families to get treatment at Jaipur Foot but cannot afford boarding and lodging, much less stay for an extended time in a new location. The prosthetics must be custom-fitted in a day. From the perspective of Jaipur Foot, the prosthetics must be fitted with less than fully trained physicians, as there is a shortage of doctors and hospital space. The job of fitting a custom-developed artificial leg must be deskilled. On top of this, prices must be reasonable, as most clients are poor. They cannot afford the typical $7,000 to $8,000 per foot cost of prosthetics. At best they can afford $50. This might appear to be a daunting and impossible task. How can one develop a prosthetic that is more advanced in functionality, for 1/200 of the cost, can be custom-fitted by semiskilled paramedics in one visit (one day at the clinic), and last for a period of four to five years? By accepting these prerequisites, the Jaipur Foot team, led by master craftsman Ram Chandra and Dr. P.K. Sethi, a trained physician, developed a prosthetic that meets all of the criteria for less than $30. This innovation has helped farmers to farm again and a renowned Indian classical dancer to perform onstage fitted with a prosthetic. The needs of consumers in BOP markets might not be obvious either to the firms or to the consumers. Certainly, the consumers might not know what can be accomplished with new technology to improve their productivity. Managers need to invest the necessary effort to gain a granular understanding of the dynamic needs of these consumers.

India is a country with more than 1 million retail shops. Most of the shops are tiny (around 300 to 400 square feet) and cater to the immediate neighborhoods in which they operate. Despite space constraints, each might offer well over 4,000 stockkeeping units (SKUs). These stores stock unpackaged (for example, rice, lentils, oils, salt) and packaged products that are both unbranded and

branded. Most of the store owners are semiliterate and work long hours. The average sales volume per month is about Rs. 400,000 ($9,000) with thin margins. Can these stores be possible targets for a state-of-the-art point-of-sale (POS) system? TVS Electronics, an Indian firm (and a part of the TVS group of companies), focused on this market as a potential opportunity for a POS system. To start, its engineers spent several weeks in the store observing operations and the store owners approach to management. More than 1,000 hours of video ethnography and analysis by engineers preceded the design of the POS system. The specification of the system was set as follows:

1. Robust system (must accommodate heat, dust, poor training and skills).
2. Stock management with alerts.
3. Payment modalities (cash, credit card).
4. Identification of slow-moving items.
5. Bill printing in multiple languages (English and 11 Indian languages).
6. Power back-up (built-in uninterruptible power supply).
7. Handheld bar code reader.
8. Internet-enabled.
9. Easy-to-learn and easy-to-use interface.
10. Priced attractively for this market.

As of the end of 2003, TVSE machines were field tested in more than 500 stores. The company already has on order more than 5,000 units in industries as varied as petrol stations, railway stations, and pharmaceutical outlets. The design of the POS and its cost structure allow TVSE to migrate this platform seamlessly to other applications.

6. **Process Innovation**.

A significant opportunity for innovation in BOP markets centers around redefining the process to suit the infrastructure. Process innovation is a critical step in making products and services

affordable for the poor. How to deliver is as important as what to deliver.

We referred to the Aravind Eye Care System, a profitable institution where 60 percent of the patients are nonpaying patients and the remaining 40 percent pay about $50 to $300 for cataract surgery. What is the secret? The visionary founder of Aravind Eye Hospital, Dr. Venkataswamy (Dr. V, as he is affectionately called), says he was inspired by the hamburger chain, McDonald's, where a consistent quality of hamburgers and french fries worldwide results from a deeply understood and standardized chemical process. In-depth attention to inputs and process steps guarantees high-quality outputs. Dr. V has developed and standardized the Aravind process, in which the first step is more than 1,500 eye camps where the poor are tested for vision problems and those needing help are admitted. They are then transported to hospitals. This is different from the more popular on-site eye camps in villages and small towns in India. The conditions of sanitation and medical care in such camps cannot be controlled, and they can be in specially designed hospitals developed for this purpose. In the Aravind process, technicians, often young women drawn from the local areas and trained in eye care only, supplement the work of doctors. Patient preparation and postoperative work are done by these technicians. Doctors perform only surgeries. The process flow allows a doctor and two technician teams to perform more than 50 surgeries per day. Because the process is so well developed, technicians and doctors are so carefully trained, inputs are fully controlled, and the system and values are rigidly enforced, Aravind boasts of an outcome rate that is among the best in the world. The IOL, part of the modern cataract operation, is manufactured at Madurai, the central hub of Aravind, and exported to multiple countries, including the United States.

Amul, the largest and best-known dairy in India, is yet another example. Amul, as a system, is one of the largest processors of raw milk in India. Milk collection is totally decentralized, yet Amul has innovated processes by which collection is reliable and efficient. Villagers, with a buffalo or two, bring their collection to the village collection center twice daily. The milk is measured for volume and fat content and the villager is paid every day. The collected milk is transported to processing

facilities in refrigerated vans. Amul's centralized, large, and highly efficient world-class processing facilities pasteurize and package the milk for retail consumption. Amul also converts raw milk into primary products—milk powder, butter, and cheese—and secondary products such as pizza, ice cream, and Indian sweets. Amul handles marketing and promotion for a heterogeneous customer base centrally.

The Aravind and Amul stories appear to be quite different, but they have many similarities. At the heart of their extraordinary success lie the process innovations they made.

7. **Deskilling of Work**

In most BOP markets, there is a shortage of talent. Work must, therefore, be deskilled.

One of the major goals facing the developing world and, by implication, the developed world, is active surveillance of the spread of infectious diseases. The spread of Severe Acute Respiratory Syndrome (SARS) across Southeast Asia and from there to Canada is a case in point. The World Health Organization (WHO) and Centers for Disease Control (CDC) recognize that active monitoring of the origination of these diseases in remote regions of the world is critical. Voxiva, a startup in Peru, created a system to monitor disease patterns. Peru suffered a devastating attack of cholera in 1998 in which more than 11,000 people perished. Peru offers a challenge for the active monitoring of diseases in the remote and mountainous regions where access to the Internet and PCs is scarce. Voxiva created a device-agnostic system. Health workers in remote areas can contact health officials in Lima, Peru, through wireless devices, landlines, or the Internet using a PC. More important, each of the health workers in remote areas was given a card with pictures of the progress of the disease. For example, the symptoms of smallpox over a period of time were captured in photographs. Anyone looking at a patient could relate the actual lesions on the patient to the corresponding picture and make a judgment on how severe the disease was. He or she simply had to telephone the central health authorities in Lima and identify the location and the severity of the case by mentioning the number of the picture on the card. The card, in a sense, was a way of capturing

the knowledge of experts and identifying the stages of severity. With this simplified diagnostic process, health workers in the field need not be highly trained, nor do they need access to a complex communications network. They just need a telephone to call the health officials in Lima. Voxiva deskilled the diagnostic and surveillance problem in two ways: by reducing the need for a complex technology backbone for real-time communication and for diagnosis of the problem at the local, unskilled level as well.

CEMEX, a Mexican multinational firm in the cement business, started a project called Patrimonio Hoy (Patrimony Now) to help the poorest people build their own homes. The poor in Mexico add, whenever they can, an additional bathroom, kitchen, or bedroom to their homes; endeavors that are expensive. They often do not know exactly which materials are required. They often cannot afford to buy all the materials needed at the same time. For example, they might buy and store sand in the street, in front of their homes, until they can afford to purchase other materials. A significant amount of the materials would be wasted or lost. In response, CEMEX started a program of savings for the poor. A group of three women could start the savings program, and over 76 weeks they would save enough to buy a bathroom or a kitchen. The women knew before they started the savings program what kind of a room they could add, including its size, appearance, and materials needed to build it, including cement, steel, paints, tools, and so on. All the necessities would come in a package, and CEMEX would hold it in storage until the customers were ready. Further, they provided technical assistance and advice from skilled technicians on how to do it yourself. Since the launch of this program, CEMEX has helped more than 300,000 families build additions to their homes.

8. **Education of Customers**

Innovation in BOP markets requires significant investments in educating customers on the appropriate use and the benefits of specific products and services. Given the poor infrastructure for customer access, innovation in the educational process is vital.

More than 40 percent of India is media-dark, so TV- and radio-based messages are inappropriate methods to reach these consumers and educate them on product and service benefits. Not surprisingly, in BOP markets, education is a prerequisite to market development. Consider, for example, the incidence of stomach disorders, especially diarrhea, among children. More than 2 million children die of this malady every year, a totally preventable cause of death. The cure is as simple as washing one's hands with soap before eating. HLL discovered that by this simple process, diarrhea-related fatalities could be reduced by at least 50 percent. Incidentally, HLL could also increase its volume of soap sold. However, the problem was how to educate people on the need for washing hands with soap and to convey the causality between clean- looking but unsafe hands and stomach disorders. HLL decided to approach village schools and educate children on the cause of disease and how to prevent it. HLL built simple demonstrations using ultraviolet dirt and bacteria detectors on clean-looking hands. The point was that washing hands in contaminated running water might give the appearance of cleanliness, but such water harbored invisible germs that cause the damage. They co-opted teachers and NGOs and used their own evangelists who went to village schools and spread the messages of cleanliness, washing with (HLL) soap, and disease prevention. The children often became the most educated in the family on hygiene and, therefore, began educating their parents. The children became the activists and the advocates of good and healthy practices at home and HLL reaped new profits.

To access and educate consumers at the BOP, more than a single format and approach is called for. Often, collaboration between the private sector firms, NGOs, the public health authorities (Ministers of Health), and the World Health Organization can be of great value. However, collaboration is not without its attendant problems. Although all these organizations might agree on the broad agenda of improving public health, each has a slightly different approach and mandate (that is, politicians are also very concerned about public image). As HLL learned, collaborating with local authorities and the World Bank can cause innumerable and unforeseen problems. Although this multiparty collaboration is difficult, collaborating with the ministers (and their

bureaucracies) who have as their mandate better health can be a positive step. NGOs, which are also focused on improving the lives of the poor and have deep local knowledge, can be a great help, after they can accept a commercial solution (as opposed to a charity-based or government- subsidy-based approach) to the problem.

The methods used for educating consumers can also vary. In media- dark zones, billboards painted on walls have been a staple in most developing countries, as are truck-mounted demonstration crews with catchy jingles that attract crowds in villages. In the case of Aravind Eye Hospital, well-publicized eye camps in villages conducted with the cooperation of local enterprises, NGOs, and schools are a good way to educate people on eye care and access patients who need surgery. Aravind developed a strict procedure for holding these eye camps, which are used for preliminary examination of patients. All surgery is performed in specially designed hospitals.

9. **Designing for Hostile Infrastructure**

The BOP markets exist in a hostile infrastructure. Design of products and services must take this into account.

Consider the design of PCs for a rural network application in northern India. ITC was building this network for connecting Indian villages in a seamless supply chain. E-Choupal, literally the village meeting place, was designed to enable the farm community and ITC to collaborate and have a constant dialogue. The PCs placed in the village had to work under conditions unthinkable in the West. For example, the voltage fluctuated between 90 and 350 volts against a rated 220-volt transmission. Sudden surges in the current were quite the norm. Early installations were burned out and rendered useless in a short time. Further, the supply of electricity was uneven, often available for only two or three hours per day. ITC engineers had to add to the installation an uninterruptible power supply system, including surge protectors and a solar panel that would allow at least three to four hours of uninterrupted, quality electricity to operate the system. For communication, they had to depend on the satellite network rather than regular landlines. All this added to the cost. However,

without this complete system that can operate in the hostile village environment, the entire project would have failed. Consider the provision of good-quality water for the BOP market. Water treatment must eliminate particulate pollution, microbes, viruses and cysts, and organic and inorganic compounds. In addition, if we can supply improved taste and nutrition, it could be a welcome benefit. Systems have been developed to eliminate the bad stuff from water, including simple filters to complex systems. However, purified water from these systems can still be parceled out in unhygienic containers and touched by unclean hands. The benefits of water purification can be totally offset by what can best be described as the last step problem: the last step from the purifier system to consumption. Part of the system design must include the way water is dispensed and stored immediately before actual consumption.

10. **Interfaces**

The design of the interface must be carefully thought through. Most of the customers in BOP markets are first-time users of products and services and the learning curve cannot be long or arduous.

In designing the POS system for grocery stores, one of the main considerations was the nature of the interface. For example, each store had its own terminology and there were no set standards. Further, each store, based on its clientele, had a particular portfolio of fast-moving items. The software architecture, therefore, had to be designed so that the system could be customized easily and rapidly for each store.

Interface design can also provide some interesting and unexpected surprises. For example, in the case of rural agricultural kiosks, EID Parry found that its customers prefer an English-language interface to their PCs rather than the local language (Tamil). Wireless customers in India and Bangladesh took to the new technology more rapidly than expected. Indian housewives—rich and poor alike—are avid users of SMS messaging; on average they send 60 messages per day. Farmers in the ITC e-Choupal network, in a short period of time, were sufficiently knowledgeable to

navigate the Web to check on soybean prices at the Chicago Board of Trade or the latest cricket score. The BOP can be a source of surprises on how rapidly new technologies are accepted and assimilated.

The PRODEM FFP interface in Bolivia is yet another case of creative interface design. The retailer Elektra in Mexico caters to BOP customers and also introduced fingerprint recognition as a basis for operating the ATMs in its stores so customers need not remember their nine-digit ID codes. The opportunities for innovation—iconic, color-coded, voice- activated, fingerprint and iris recognition (biometric-based) interfaces— are more likely at the BOP than in developed countries. How we interpret the future of interface design is critical and significant research is necessary.

11. **Distribution: Accessing the Customer**

Distribution systems that reach the BOP are critical for developing this market. Innovations in distribution are as critical as product and process innovations.

ICICI started as an institutional lender and has grown to become the second largest bank in India. Its move into retail banking started in 1997. As such, it is a newcomer and has had to compete with banks such as the State Bank of India with more than 14,000 branches and a 200-year history in retail banking. To compete, ICICI redefined distribution access; by moving away from the approach of building branches as the primary source of access to retail customers, ICICI was able to innovate. ICICI defined access through multiple channels. Today it is the largest PC-based bank in India with more than 5 million active PC banking customers. ICICI also has the largest and fastest-growing base of ATMs in India. As of August 2003, it had an installed base of 1,750 ATMs. Further, in acquiring The Bank of Madura (which had built a strong base of rural distribution through self-help groups in southern India), it gained access to 10,000 such groups involving more than 200,000 customers. In addition to its own initiatives in building retail access, ICICI also formed partnerships with large rural marketers such as ITC and EID Parry to access farmers through their networks. Over a period of six years, through this unconventional approach to retail customer access—PCs,

ATMs, self- help groups, NGOs, microfinance organizations, large rural marketers and their networks, Internet kiosk operators, and some traditional branches of their own—ICICI had a retail base of 9.8.million customer accounts and was growing at a rapid rate.

HLL, a subsidiary of Unilever, is a well-established marketing powerhouse in India. HLL serviced urban markets through dealers and suppliers and boasted the best distribution access in India. However, the company found that it was unable to access remote villages through the traditional system. As a result, HLL started a program whereby village women are involved in distributing their products in villages that were not fully serviced by HLL's existing systems of suppliers and dealers. The program, called Shakti, empowers women to become entrepreneurs. HLL's CEO, M.S. Banga, believes that this additional arm of distribution will eventually provide coverage in the 200- to 300-million-person market at the BOP currently not served by existing systems.

Avon has been extremely successful in using direct sales in Brazil. Avon built a $1.7 billion business based on direct selling. Avon representatives become experts who provide guidance to customers, minisuppliers, distribution channels, and providers of credit. Amway has had similar success in India and has built a direct distribution system covering more than 600,000 Amway representatives and a total revenue base of Rs. 500 crores ($110 million).

12. **BOP Markets Essentially Allow Us to Challenge the Conventional Wisdom in Delivery of Products and Services**

By its very nature, success in BOP markets will break existing paradigms. All examples used in this report challenge conventional wisdom. They challenge the current paradigms in innovation and product and service delivery in fundamental ways.

For example, Jaipur Foot and Aravind Eye Hospital challenge the assumptions behind how health care can be delivered. By focusing on one disease and one major process, these great institutions have pioneered a way of gaining scale, speed, extremely high quality, and unbelievably low costs. Their systems are being replicated by others in India and around the world. For example, several

hospitals in India are increasingly specializing in cardiac care. The cost of a bypass operation in India is now as low as $4,000, compared to $50,000 in the United States. In fact, Indian groups are now negotiating with The National Health System in the United Kingdom to fly British patients into Delhi and operate on them at lower costs, including travel, than they could in the United Kingdom without compromising quality of care.

BOP markets accept the most advanced technology easily. In the wireless market, CDMA coexists with GSM in India. Customers and operators see 3G as a viable alternative. Access to audio and video clips and news and stock quotes are considered basic services. These services are available at $10 down per handset and $0.02 per minute of long- distance calling. Building a customer base of 1 million new customers in 30 days also appears to be normal.

As the innovation for public health surveillance invented by Voxiva has demonstrated, innovations from the BOP can travel to advanced countries. Voxiva's solution is now being used by the U.S. Food and Drug Administration (FDA), Department of Defense, and the Centers for Disease Control (CDC).

Energy innovator E+Co is demonstrating that it is possible to develop hybrid systems that are local, economic, and sustainable. Although not yet a full-fledged commercial success, this experiment is challenging current thinking about reliance on grid-based electricity.

Enabling people to buy by accessing markets creatively and designing affordable products for them breaks the long-held assumption that BOP markets are not viable. A wide variety of firms—HLL, CEMEX, ITC, Amul, and ICICI—are demonstrating that this can be done profitably.

BOP markets break our traditional ways of thinking and acting. This might be their biggest allure and challenge alike. Unless we are willing to discard our biases, this opportunity will remain invisible and unattractive.

11. Final Message to Managers

Getting the right combination of scale, technology, price, sustainability, and usability requires that managers start with a zero- based view of innovations for the BOP markets. Managers need a new philosophy of innovation and product and service delivery for the BOP markets. The 12 principles that constitute the minimum set of a philosophy of innovation are critical to understand and apply. Needless to say, they challenge the existing assumptions about product and market development. By forcing managers in large enterprises to rethink and reexamine their assumptions about form and functionality, about channels and distribution costs, BOP markets can serve as catalysts for new bursts of creativity. The biggest advantage is often in challenging the capital intensity and the managerial cost structures that have been assumed in MNCs.

Large firms, especially MNCs, can learn a lot from their active participation in BOP markets. It can help them improve their own internal management processes and bottom line.

From reseacher's point of view, I would advise the MNCs for **GO** decision!

12. **Business Case – BOP Strategy for Mobile phones industry**

This section has been analyzed from mobile industry point of view. In this section, I have suggested 12 principles of innovation which can be applied to the mobile industry to address BOP markets. First & foremost BOP market should be seen as new business development, companies should refrain from tried & tested methods used in the developed markets. As usage, spending patterns, network quality & users demand are different in these two markets. For example, BOP consumers may be happy if the basic calls & sms are working with good quality of services (QoS). But in developed word, the mobile users may be asking not only goodquality voice calls, but also uninterrupted mobile bandwidth connections (GPRS/data based on 3G/2G technologies). As a researcher, following are the principles which mobile companies should adopt to serve BOP market.

Price Performance

This is not about lowering prices. It is about altering the price-performance envelope. Price is an important part of the basis for growth in BOP markets. GSM handsets used to sell for $1,000 in India. Not surprisingly, the market was quite limited. As the average price dropped to $300, sales started to increase. However, when Reliance, a cell phone provider, introduced its Monsoon Hungama (literally Monsoon Melee) promotion that offered 100 free minutes for a mobile, multimedia phone with an up-front payment of $10 and monthly payments of $9.25, the company received 1 million applications in 10 days. Of course, price is a factor. Equally important is the performance associated with the price. The applications available through the Monsoon Hungama offer, for a mere $10 down payment, are quite incredible, including news, games, audio clips of movies and favorite songs, video clips, astrology and numerology, city guides, TV guides, stock quotes, and the ability to surf the Internet. The phone itself is fashionable and state of the art, using

CDMA technology. Similar approach in other developing markets are required.

Innovation: Hybrids

The BOP market opportunity cannot be satisfied by watered-down versions of traditional technology solutions from the developed markets. The BOP market can and must be addressed by the most advanced technologies creatively combined with existing (and evolving) infrastructure. For mobile industry, mobile should not be able to help make voice calls, sms etc but also be able to provide payments solutions, utility bills, weather information & e-governments activities. All these facilities are available in the developed word. But a better approach is required from the company to match price-performance to cost-quality balancing.

Scale of Operations

It is easy to succeed in a limited experiment, but the market needs of 4 to 5 billion people suggest that the experiments must be commercially scalable. In earlier sections, it has been proven that BOP markets are huge & can become a engine for growth. Companies needs to be smart enough to find out the demands of BOP customers & build features in the phones. That way product can be the mass market product & bring economy of scales for mobile companies.

Sustainable Development: Eco-Friendly

The poor as a market are 5 billion strong. This means that solutions that we develop cannot be based on the same patterns of resource use that we expect to use in developed countries. Solutions must be sustainable and ecologically friendly. Companies need to think about the packing used in making mobile phones (environment friendly material). It has also been belived that some mobile companies are trying to make phones using paper rather than using plastic, rubber or steel parts. Similarly charger for the phones can use kinetic power of bicycle or scotter etc. All these experiements has been done by various industries. But there is a need to commercialize the technology.

Identifying Functionality

Recognizing that the functionality required in products or services in the BOP market might be different from that available in the developed markets is a critical starting point. In fact, developers must start from this perspective and look for anomalies from their prior expectations based on their experiences with developed markets. Mobile companies needs to find out what is required by BOP customers. For example mobile payment solutions, utility payments. E-government activities, weather activities should be done by the phone for BOP users. Or alternatively BOP users wants phone to be also additionally loaded with watch, timer, camera, online TV functionality. Since most of BOP consumers may not bought camera or TV in their lifetime. Also mobile phone should support the various languages, since most of the BOP users are not educated.

Process Innovation.

A significant opportunity for innovation in BOP markets centers around redefining the process to suit the infrastructure. Process innovation is a critical step in making products and services affordable for the poor. How to deliver is as important as what to deliver. Basically mobile phone companies should develop the suitable product based on their existing functionalities. One size may not fit all. This requires lot of innovation in production as well as distribution & marketing skills.

Deskilling of Work

In most BOP markets, there is a shortage of talent. Work must, therefore, be deskilled. To be cost effective, companies must involve the BOP users in production process & de-skill the distribution network. Use some of the BOP SME/entrepreneurs to be involved in distribution as well as marketing network.

Education of Customers

Innovation in BOP markets requires significant investments in educating customers on the appropriate use and the benefits of specific products and services. Given the poor infrastructure for customer access, innovation in the educational process is vital. The methods used for educating consumers can also vary. In media- dark zones, Mobile companies could use billboards painted on walls, truck-mounted demonstration crews with catchy jingles that attract crowds in villages for

their product or functionality demonstration.

Designing for Hostile Infrastructure

The BOP markets exist in a hostile infrastructure. Design of mobile phones should take into account dusty, noisy environment & dirty hands. Infra structure is poor. During the distribution the phones should be able toi withstand shocks. Charger should be able to withstand voltage fluctuated between 90 and 350 volts against a rated 220-volt transmission. Sudden surges in the current were quite the norm.

Interfaces

The design of the interface must be carefully thought through. Most of the customers in BOP markets are first-time users of products and services and the learning curve cannot be long or arduous. The interface should support touch, traditional keys & multiple language support.

Distribution: Accessing the Customer

Distribution systems that reach the BOP are critical for developing this market. Innovations in distribution are as critical as product and process innovations. Moble distribution should include the SME/enterpreneuers from the BOP market. This way trust will be build & BOP users will be engaged.

BOP Markets Essentially Allow Us to Challenge the Conventional Wisdom in Delivery of Products and Services

By its very nature, success in BOP markets will break existing paradigms. All the changes required in product, business process to serve the BOP users in mobile industry will challenge conventional wisdom. Unless mobile makers are willing to discard biases, this opportunity will remain invisible and unattractive.

Annexure

Case – 1, Jaipur Rugs: Connecting Rural India to Global Markets

The Jaipur Rugs case explores how a company can benefit the poor by connecting them with global markets. Jaipur Rugs makes this connection by building and orchestrating a global supply chain on a massive scale—one focused on developing human capability and skills at the grassroots level, providing steady incomes for rural men and women in the most depressed parts of India and connecting them with markets of the rich, such as the United States. Thousands of independent workers are organized to produce consistently a very high quality product, on a complex decentralized basis through a system of organization that is unique. The company not only uses traditional weavers but also teaches, in remarkably short time, the craft to people who do not have a tradition of weaving. Raw materials are sourced from around the world, processed into rugs with traditional and new designs in rural India while maintaining quality control of end products. Jaipur Rugs provides a unique and dynamic example of how a profitable commercial connection between the poor and the rich—across the world—can be done.

Approximately 300 direct, full-time employees:

- 7 family members
- 226 headquarters employees
- 70 regional branch office staff, including 40 area commanders
- Approximately 40,000 contractors (indirect employees):
- 28,000 weavers
- 12,000 other laborers involved in the manufacturing process

The coordination of activities across multiple legal entities gives Jaipur Rugs

- Access, but not ownership, to specific skills
- Influence, but not control, over key processes

- Decentralization of investment

Business System Building Blocks

Four foundational building blocks allow Jaipur Rugs to profitably influence quality and rapidly adjust to marketplace demands, while executing the extremely complex process of handing over raw materials to an autonomous group of individual contractors.

Deeply Rooted Relationships

Driven by Social Values

- Competitive wages—Wages paid by the company give people options to have a better quality of life than the alternative work available in villages.
- Investment in skills training—The main activities of the Jaipur Rugs Foundation are to recruit and train new weavers for the company. Because of the social impact that Jaipur Rugs has on many regions of the country, the government subsidizes the cost of looms and training in certain regions.
- Access to healthcare and education—The Jaipur Rugs Foundation leverages alliances with other NGOs that provide health care and education to the weavers.
- Opportunities for aspiring entrepreneurs—When he recognizes contractors who do good work and have the right attitude, Chaudhary believes in giving them loans so that they can become key links in the overall production process. As a result of his recognition of their talents, many contractors see their incomes, social standing, and capabilities multiply. Because Jaipur Rugs demonstrates strong social values, its contractors recognize the difference in working for Jaipur Rugs versus other companies. This recognition elevates the relationship between contractors and the company from a contractual agreement to one of multifaceted value for both. These strong relationships help Jaipur Rugs influence the quality of its products, despite utilizing such a highly

Decentralized production process.

Jaipur Rugs benefits from a business model focused on converting fixed costs into variable costs, which allows them significant flexibility: Work is decentralized—Rug production is done on a pay for performance basis, depending on the quality and the quantity produced. As a result, the company's largest costs—labor and raw material—are variable.

Reducing Capital Intensity

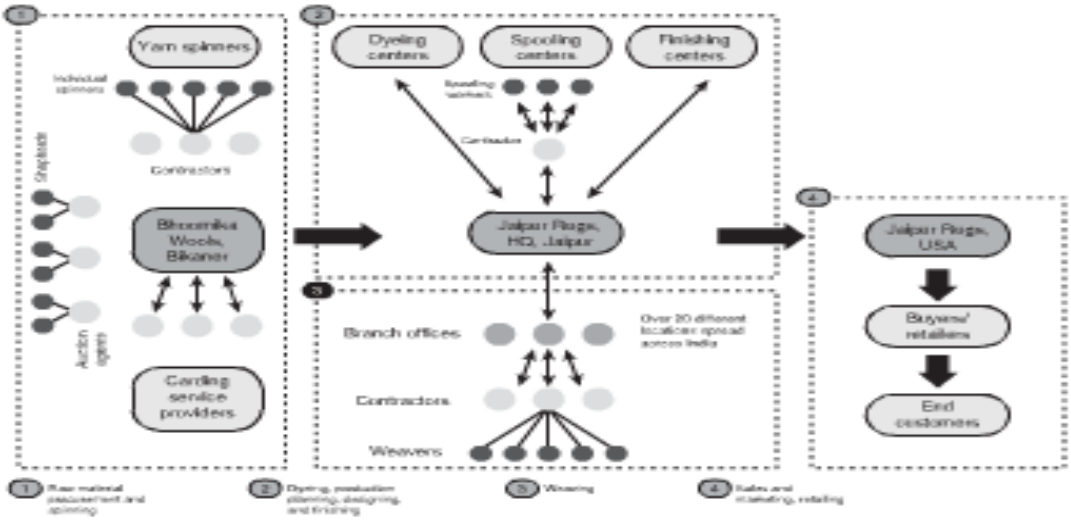
- Investment is decentralized—By using contractors for its manufacturing operations, Jaipur Rugs reduces its capital needs by not owning the key manufacturing assets, such as the dyeing, washing, machine carding, machine spinning operations, and most weaving looms.
- Management influence over key functions is highly leveraged— The company directly employs only 300 people, yet influences 40,000 artisans who act as entrepreneurs and contractors.

Technical Architecture

The company's technical architecture combines information technology (IT) infrastructure, human interaction, loyalty, and training. Jaipur Rugs' investment in IT infrastructure includes an Enterprise Resource Planning (ERP) system to optimize its geographically diverse supply chain, allow for the continuity of work, institutionalize quality control, and achieve scale. The company also focuses on creating welldesigned communications networks to deliver raw materials, communicate with weavers, and track the progress of work in remote villages with no electricity. These communications networks are used by the company's branch office staff to effectively manage a highly human capital-intensive process.

Production

The Jaipur Rugs production process is a complex system that begins with global sourcing of raw materials and ends with worldwide distribution of the finished products. In between, the rugs are produced by 28,000 rural artisans across seven states in north and west India, supported by more than 12,000 additional production workers and a comprehensive system of quality control and logistics.



CASE – 2, Casa bahia : Retail for the poor

Companies as savvy as Sears and Wal-Mart have sought to do business in Brazil but failed. Casas Bahia, though, successfully developed a model that serves the Bottom of the Pyramid in that country. The company succeeded in serving the large, lucrative market represented by the poor through innovation and the right financial approach.

Casas Bahia is a family-owned business started more than 50 years ago by Samuel Klein. After surviving two years in a Nazi concentration camp, Klein left his homeland in 1952 to start a new life in Brazil. To support his family, he sold blankets, bed linens, and bath towels door to door in São Caetano do Sul. That business transformed through the years into the largest retail chain in Brazil, selling electronics, appliances, and furniture. With a 4.2 billion real (the Brazilian currency) annual revenue, 330 stores, 10 million customers, and 20,000 employees, Casas Bahia has established itself as a successful and sustainable business serving Brazil's poor.

In 2003, the population in Brazil was 184 million, more than 80 percent of whom were at the Bottom of the Pyramid. The Bottom of the Pyramid, though, represents significant purchasing power in Brazil's economy (specifically, 41 percent of the total spending capacity). This R$124 billion accounts only for the formal reported economy. According to some estimates, the informal market in Brazil for the Bottom of the Pyramid reaches an additional 50 percent. In Brazil, 45 percent of total appliance and furniture spending is done by the Bottom of the Pyramid. Of particular interest is the high penetration of major appliances, such as television sets and refrigerators, at the Bottom of the Pyramid in Brazil. It is not uncommon to find households with a television or refrigerator yet lacking basic infrastructure, such as toilets and telephone lines. Those at the Bottom of the Pyramid in Brazil spend based on their needs. In a tropical climate, a refrigerator is a necessity. Everyone, regardless of class, feels the need for entertainment. For the poor in Brazil, that comes in the form of television or radio. For the market to connect with the products, though, some innovation was needed because 70 percent of Casas Bahia customers have no formal or consistent income. These customers are primarily maids, cooks, independent street

vendors, and construction workers whose average monthly income is a bare minimum wage, whereas many do not declare an income at all. Yet this large portion of the population still wanted and needed appliances. Casas Bahia took an innovative approach and devised a unique financing model to serve this market. Part of the solution is the now famous carnê, or passbook, that allows its customers to make small installment payments for the merchandise. Payment schedules range from 1 to 15 months. The passbook is available only at Casas Bahia stores, and every month consumers must enter a store to pay their bill. The method also maintains relationships with clients. Financed sales represent 90 percent of all sales; 6 percent are cash payments and 4 percent are via credit card.

All customers who want to finance a purchase must submit to an SPC credit check. If the customer has a negative SPC score, Casas Bahia cannot complete the transaction until the customer resolves the credit problem. If the customer has a positive score, there are two alternatives. If the merchandise costs less than R$600, no proof of income is required; a valid permanent address suffices. Casas Bahia developed a proprietary system to evaluate prospective clients when merchandise costs more than R$600. Clients receive a credit limit based on total income, both formal and informal, occupation, and presumed expenses. This scoring process takes less than one minute. If the system approves the prospect, the salesperson can continue with the sale. Clients rejected by the system are directed to a credit analyst for further evaluation. This is where the importance of building a relationship is prominent. Based on training, the credit analyst asks a series of questions to determine a client's creditworthiness. The entire process typically is finished in 10 minutes or less.

The proprietary system that determines the creditworthiness of new clients also evaluates existing clients for potential new purchases. Based on the same factors previously noted, in addition to payment history, the system automatically produces a new credit limit. This ability is key in the cross-selling process. When the customer comes into the store to pay a monthly installment, the Casas Bahia salesperson sees that a new credit limit is available for the client. This salesperson has

the opportunity to make a tailored cross-sale in the amount of the new credit limit.

CASE-3, CEMEX: Homes for the Poor

The ability to build and finance a quality home has been beyond the means of most of the world's impoverished. These people are often ignored by major corporations because it is thought they have too little money and are too difficult to reach. CEMEX, the largest cement manufacturer in Mexico, second-largest in the United States, and thirdlargest cement company in the world, has through innovation found a profitable and empowering means of housing the poor for profit, instead of leaving that to governments or not-forprofit organizations.

During the Mexican economic crisis in 1994 through 1995, CEMEX experienced a huge drop in domestic sales. Part of this stemmed from legal barriers that broke down, paving the way for international competition. Quick analysis of where revenues were specifically hemorrhaging most led to an astute observation that involved taking a closer look at the Bottom of the Pyramid market. CEMEX analysts knew sales were down, but a key awareness was that whereas sales were down by as much as 50 percent in the formal market, sales in the less-wealthy segment informal selfconstruction market were down by only 10 percent to 15 percent. The company realized the high level of dependency on the formal segment left it vulnerable to the business cycle swings in Mexico. According to an estimate made by CEMEX, the do-it-yourself segment accounted for almost 40 percent of cement consumption in Mexico and has a market potential of $500 to $600 million annually. However, that segment also represented a portion of the population existing for the most part in a state of poverty. The company realized the key difference between the formal segment and the informal segment was in the average revenue per customer. CEMEX figured that by converting the low-income population (that forms a majority) into customers, the steady revenues from this segment could be impressive. Part of CEMEX's awareness involved considering the obstacles of reaching this market in an effective, efficient, and sustainable way. Clearly, hard work and innovation would eventually be needed, but getting a clear big picture first was vital.

Market research based on various demographic factors—social, religious, political, and financial. The study also analyzed the various construction practices and methods, brand perception, and image of various cement brands. The team realized that financing was the foremost and most difficult challenge to overcome for low-income customers. Unless the poor obtain access to credit, it would be difficult to sell the idea of constructing a complete house in the near future. The second challenge was that most families employed local semi-skilled or unskilled masons who built rooms without any planning. The lack of technical expertise resulted in a lot of raw material waste. Often, the masons did not order the right amount of material, and families did not have a safe place to store the excess raw materials. They had to leave the material outside their houses to the mercy of nature and theft. The team identified three keys areas of improvement/change for CEMEX:

1. Identify ways to provide access to credit for the poor before selling cement.
2. Improve the brand perception of CEMEX as a socially responsive company to earn trust in the people, especially the poor.
3. Change/improve distribution methods and construction practices to make it cost-effective for CEMEX, its distributors, and the low income customers.

CEMEX realized, too, that women are the key drivers of savings in families. In the Mexican society (and most other societies), women are entrepreneurial in nature, and they actively participate in the tanda system. Regardless of whether they are homemakers, outside-the-home workers, or small-business owners, they are responsible for any savings in the family. Research conducted by the Patrimonio Hoy team revealed that 70 percent of those women who saved were saving money in the tanda system to construct homes for their families. The men in the society consider their job done if they bring in their paycheck at the end of the day. The women actually manage expenses with the limited allowance that they receive per day from the men. They have to find creative ways to allocate money from the allowance as savings to build a house, spend on children's education, and so forth. The homes are overcrowded, and this overcrowding has its own set of social problems, including friction within the family and children taking to the streets

As a bold cultural innovation, CEMEX modified the existing tanda system within the Mexican communities and called it Patrimonio Hoy, revolutionizing the idea of savings by changing the basic spending pattern of the poor in Mexico. In this system, poor people not only save their money, but also obtain access to credit based on their savings and payment discipline—a new model that moved away from a savings-only or a credit-only system to a savings-credit system. Recognizing the inefficiencies inherent in the original tanda system, Patrimonio Hoy has strict rules and standards for the program.

- Socios/partners—Socios are the actual customers who enroll in Patrimonio Hoy. The socios get together and form a group, restricted to three people. The reason for such a small group size is that it is easier to enforce payment discipline in a smaller group, and the group tends to form stronger relationships to help each other out during an emergency.
- Promoters—Promoters play a key role as ambassadors for Patrimonio Hoy. Ninety-eight percent of the promoters are women. They work on a commission basis that depends on the number of socios they help enroll and on the duration of the stay of the socio within the program.

Patrimonio Hoy (PH) is an initiative of CEMEX that allows low income families to obtain access to services and building materials on credit through a well-planned savings scheme. The overall objective of Patrimonio Hoy is to improve the quality of life of low-income families (Bottom of the Pyramid) by empowering them through a market-based solution to address their housing needs. This represents a win-win situation, whereby the company makes profits and customers receive improved access to products and services, which contributes to their economic and social inclusion. This brief survey of new initiatives related to the Bottom of the Pyramid demonstrates the awareness and willingness of CEMEX to go beyond the achieved programs and goals and find new ways to reach the Bottom of the Pyramid. At the same time, the financial crisis that began in late 2008 has had a negative impact on the business activities of the construction materials industry. However, evidence suggests that in times of worldwide financial crisis, a program like PH should

not be reduced or abandoned, one reason being that the initiative is selfsustainable and underpinned by a robust social responsibility approach. For instance, CEMEX conducted research on the Bottom of the Pyramid after the Mexican economic crisis in 1995 –1996. One finding was that the informal sector (Bottom of the Pyramid) is less affected by crises of this nature than the formal one.

CASE-4, Hindustan Unilever: Lifebuoy Soap

Diarrhea is the third-highest cause of death in the world in the category of infectious diseases, behind only acute respiratory infections and AIDS. It accounts for 2.2 million deaths annually. The paradox of diarrheal disease is that the solution is known and inexpensive, but it is difficult to reach and educate the poor about the need to wash their hands with soap. Diarrheal disease is particularly prevalent in the developing world and takes a tremendous toll on the public health, especially among the poor and children. India alone accounts for 30 percent of all diarrheal deaths in the world. In fact, in India, 19.2 percent of all children suffer from diarrhea. Access to safe water and sanitation facilities and instruction on better hygiene practices represent relatively simple preventive measures, yet getting the message to the poor was a hurdle that in India took an innovative approach combining the efforts of Hindustan Level Limited (HLL), the largest soap seller in India and a subsidiary of Unilever, in a public-private partnership for a solution—marketing a common consumer good: soap. Hands are the main vector of diarrheal pathogens, transferring them from surface to surface and person to person. Hands are used to feed children and prepare food, and in an Indian context, people do not typically use knives and forks. A lack of sanitation facilities is also widespread throughout India. The majority of India's population is poor, with approximately 83 percent of the population (885 million people) earning a median household income of less than 2,000 rupees ($43) per month. Almost 35 percent of the country is living below the poverty line. Hand-washing habits also differ between urban and rural areas. Twenty-six percent of urban Indians (173 million) and 74 percent of rural Indians (492 million) do not wash their hands with soap every day. Although the penetration of soap in Indian households is actually high, with 95 percent of Indian households owning soap, 665 million Indians do not use soap every day. Others use substitute products such as clay, ash, or mud. After visiting the toilet and before and after every meal, 62 percent of the population used water plus ash/mud, 24 percent used water alone, and only 1 4 percent used soap and water. If a solution to diarrheal disease is simply washing hands with soap, why is this problem still stunningly pervasive?

Historically, this issue has been approached as a public-health issue that could be solved through large infrastructure projects, a timely and costly proposition for governments in developing countries. In addition, three other reasons are ascribed for the persistent incidence of diarrhea. First, the disease fell into the multiple domains of Ministries of Public Health, Water, or Environment. However, no group ever assumed full responsibility for the that command more public attention, leaving diarrheal disease to be championed by no one. Third, behavior programs to address diarrheal disease are difficult to design and implement, and are more complex and problematic than expected.

Changes in consumer beliefs and behavior are especially difficult to engineer in India. First, a deep understanding of the current practices, motivations, and hindrances preventing the use of soap and hand washing is required. This understanding is difficult to obtain in a country dominated by local cultures. India's billion citizens are spread across 25 states and 7 union territories. They speak more than 15 official languages and 325 different dialects, many of which are so different they are only understandable to those in a small geographic area. Second, messages on health and hygiene to create behavior change are difficult to communicate to dispersed populations. Many rural parts of India are media dark areas, where citizens have little to no access to mass-media channels. Only 22 percent of the population has a TV, and only 43 percent has a radio. This lack of a mass-communication venue adds complexities and costs to education campaigns, requiring targeted messages distributed through unconventional means.

In the fall of 2000, as part of its research centered around hand washing, HLL learned of a public private partnership (PPP) being developed between the World Bank, the Water and Sanitation Program, the London School of Hygiene and Tropical Medicine, UNICEF, USAID, and the Environmental Health Project. The PPP envisioned a large-scale hand-washing intervention that used lessons learned from pilot projects to promote the approach on a global scale. They entitled the initiative the Global Public-Private Partnership for Handwashing with Soap (later to become Health in Your Hands—A Public Private Partnership).

The initiative developed hand-washing education messages that each private partner incorporated into its own marketing campaigns. The hand-washing program resulted in a 30 percent increase in hygienic hand-washing behavior in mothers and an estimated 1,287,000 fewer days of diarrhea per year for children less than five years of age in the two lowest socioeconomic groups.

At the same time HLL was trying to expand the soap market through the PPP, one of its oldest and most successful soap products, Lifebuoy, was losing top-line growth at the rate of 15 percent to 20 percent per year, starting in 1999. The Lifebuoy brand team was trying to determine appropriate next steps to revive the ailing brand and began to look toward hand washing. As a means of countering sales declines, the Lifebuoy brand looked to HLL's work on the PPP for new ways to attract and win customers.

The team decided to leverage the historical brand platform of health by tying soap usage to the eradication of family health problems. HLL also linked the data demonstrating how soap can help eliminate common health problems, such as diarrhea, to Lifebuoy, finding that members of families often experience stomach infections (diarrhea), eye infections, and infected sores. The team also changed the target audience from men to entire families, to expand its audience for the health message and to cater to the increased influence of women on household purchases. HLL hoped this revitalized health platform would create relevance for the new Lifebuoy target consumers and reassure existing customers that it was still health soap.

To address the health needs of one billion Indians, the team created a educative campaign with the help of agencies about harmful affects of not washing hands.

CASE – 5, Hindustan Unilever: Iodized Salt (Annapurna Salt)

Iodine deficiency disorder (IDD) is the world's leading cause of mental disorders, including retardation and lowered IQ. Research indicates that 30 percent of the world's population is at risk of IDD. Well-balanced diets provide the required amount of iodine, making the poor particularly susceptible to this condition. A beggar on the street with a prominent goiter on his neck is one visible sign of IDD. Children living in iodine-deficient areas have an average IQ 13 points less than that of children in iodine-sufficient areas. The most severe form of this disease is hypothyroidism and is prevalent among young children in remote areas where the daily iodine intake is less than 25 micrograms (mcg). Hypothyroidism causes cretinism, gross mental retardation, and short stature. In India, almost 90 percent of the population earns less than $3,000 per year; over 70 million are already afflicted with IDD, and another 200 million are at risk. Because even the poorest people eat salt, it is globally recognized as the best vehicle for supplementing diets with iodine. However, many still do not receive the required amount of iodine from salt because

- Only about 25 percent of edible salt in India is iodized.
- Many consumers are not educated as to the human body's requirements for iodine, despite the availability of iodized salt in the marketplace.
- Even those who understand the importance of iodine might be reluctant to pay the premium for iodized salt over the cost of noniodized salt.

Traditionally, iodized salt loses a significant amount of iodine in storage, transportation, and Indian cooking. Even consumers who purchase iodized salt for its health benefits might not actually receive the recommended daily allowance of iodine. The paradox of IDD is that the solution is known and is inexpensive. The issues are how to reach and educate the poor while, at the same time, getting salt producers to innovate inexpensive methods to guarantee a minimum level of iodine concentration in salt. In developing countries, such as India, traditional methods of iodizing salt are no guarantee that the salt will retain its iodine content as it reaches the consumer.

Under pressure from the world health community, China (1995) and India (1997) banned the sale of noniodized salt. India's Universal Salt Iodization law mandated that all salt manufacturers add at least 15 parts per million (ppm) of iodine to edible salt. The law was hailed as a positive step by the health community. However, it was vehemently protested by independent salt producers who accounted for nearly one third of India's salt production that was consumed by 200 million people. These producers argued they could not afford the additional cost of purchasing iodine, machinery, and packaging to iodize salt. Salt industry employees continued to consume noniodized salt. (This population is now afflicted with some of the highest incidences of IDD.). Although a few manufacturers voluntary added iodine, most uneducated consumers continued to purchase the lower-priced uniodized salts, perpetuating IDD. Since 2000, a few individual states, including Gujarat, have reversed the federal government's repeal and forced manufacturers to iodize salt.

Environmental factors such as air moisture, high temperatures, poor quality of raw salt, impurities in salt, low environmental pH, and time before consumption can all exaggerate the instability of salt iodized with potassium iodate, resulting in excess iodine loss. Most Indian salt is farmed in desert areas near India's coastline and must be transported long distances to reach consumers, adding storage time and exposure to external conditions. According to the National Institute of Nutrition (NIN) in Hyderabad, India, Under Indian climate and storage conditions, iodine loss in fortified salt has been observed to be 25 percent to 35 percent in the first three months and 40 percent to 70 percent by one year. Indians unique cooking style leads to further iodine loss. Traditional Indian cooking calls for salt to be added before food is fully heated, boiled, fried, or cooked; this contrasts with most Western cooking, in which salt is added for taste after food has been completely cooked. In addition, the varying pH levels of Indian spices interact with salt and result in further iodine loss. The loss of iodine in Indian culinary practices ranges from 20 percent to 70 percent. The cumulative effect of heat, storage, and cooking can result in an almost complete loss of iodine by the time the consumer eats salt.

Although many brands of salt are also iodized, Annapurna, a product of Hindustan Lever Ltd.

(HLL), was the first to be marketed based on the iodized and healthful platforms. As the government of India and the International Council for the Control of Iodine Deficiency increased attention on the problems of iodine deficiency and the role salt could play to combat IDD, HLL seized the opportunity to become the first to market salt on an iodized platform. Though other branded salts were iodized, none were advertised as such. HLL became the first corporation to address IDD-related health concerns such as mental retardation and goiters and, subsequently, earned an endorsement from the International Council for the Control of Iodine Deficiency.

CASE-6, Jaipur Foot: Prosthetics for the Poor

At age fourteen, Sudha Chandran, an aspiring dancer, lost her right foot and part of her leg in a car accident. Devastated and convinced she would never walk again, let alone dance, she spent several months on crutches. Then one day in 1984, she read about Jaipur Foot. A prosthetic foot in the United States costs on average $8,000. This cost is far beyond the means of the poor in developing countries, and even many of the poor in the United States. As many as four billion people, in India and the rest of the world, live in poverty on less than two dollars per day. When someone loses a limb, the inability to work is catastrophic, often for a whole family. The Jaipur Foot is tailored specifically to the lifestyles of the poor and costs only about $30—affordable to all, and it is often given away free to many of the handicapped poor who have lost a limb. Here is a working model of a nongovernmental, nonreligious, and nonprofit organization able to financially sustain itself while helping the world's disabled poor.

There are 10 to 25 million amputees in the world, a figure that grows by approximately 250,000 each year. People in developing countries are particularly susceptible to the loss of lower limbs4 from disease (70 percent), trauma (22 percent), congenital or birth defects (four percent), and tumors (four percent). In developing countries with recent war-torn histories, such as Afghanistan, land mines account for a significant number— approximately 300,000 children are severely disabled because of land mines, with an additional 15 ,000 to 20,000 new victims each year.5 In Afghanistan alone, there are nearly 10 million land mines. Diseases such as diabetes and even polio are the cause of even more of the amputees.

The Jaipur Foot was first developed in 1968 by Ram Chandra, one of Jaipur city's finest sculptors. Concerned by the inadequacy of performance and the cost of imported artificial limbs, he began work on a rubber foot, which he refined with the help of Dr. P. K. Sethi, an orthopedic surgeon, Dr. S.C. Kasliwal, and Dr. Mahesh Udawat into what became known as the Jaipur Foot. To facilitate the spread of the foot, its creators decided not to patent it. Their society, Bhagwan Mahaveer Viklang Sahayata Samiti (BMVSS), was organized in 1975 to treat amputees and to distribute the

product at as low a cost as possible, or for free when necessary.

The Jaipur Foot was designed to simulate normal foot movements and provide a quality solution for the masses that also allowed the poor to continue to earn a livelihood. Aspects specific to the cultural and working needs of the poor included being suitable to activities such as squatting, sitting cross-legged, walking on uneven ground, and barefoot walking. Other constraints the designers had to consider included the following:

- Poverty—The cost of fabrication, with the possibility of adjustments and alignments, had to be low (while creating an effective product).
- Closed economy—Limited import of foreign materials in India meant the foot had to be fabricated from readily available local materials.
- Work lifestyle—Most amputees work hard and long hours in an agricultural economy. Days spent without limbs threaten livelihood and sustenance, which is reason to seek an acceptable prosthesis that could be fitted quickly.
- Cultural issues—The everyday lifestyle involved sitting crosslegged, walking barefoot on uneven ground, and squatting.
- Limited training manpower—Lack of skilled labor relative to the huge demand for prostheses necessitated a simplified manufacturing process that could be performed with limited training.

The distribution of the Jaipur Foot occurs at BMVSS sites (of which there are seven in India, two in Jaipur alone) and at camps, including camps in 19 countries, including Afghanistan, Bangladesh, Dominican Republic, Honduras, Indonesia, Malawi, Nigeria, Nairobi, Nepal, Panama, Philippines, Papua New Guinea, Rwanda, Somalia, Trinidad, Vietnam, Zimbabwe, and Sudan. At a main site, such as one in Jaipur, a full-time doctor is on staff; other doctors contribute time to ensure the proper prosthetic fit and follow-up. Each foot is fitted by a technician, an artisan who makes the equivalent of $1,200 annually, about twice the per-capita income in India. The actual cost of

materials used for an above-the-knee prosthetic foot is about $ 7.68, which includes the Jaipur. Foot itself and the simulated joints for a below-knee limb. The most expensive piece of equipment used in a prosthetic fitting is the vacuumforming machine used to get an exact replica of the mold of the patient's remaining limb (stump). These run about $4,000 and last from five to seven years.

About 60 patients each day obtain prostheses from Jaipur Foot's main facility in Jaipur, India. Remarkably, unless other medical conditions intervene, each patient is custom fitted with a prosthesis in one day—usually within three hours. The goal is to return the patient to his or her profession and an independent life after the patient's first visit to the clinic. The society's services do not just include a speedy fitting of a prosthesis. The operating process also attends to psychological needs, and there are on-site meals and overnight accommodations for patients at no cost. Free meals and accommodations are also provided for the patient's family members who can therefore provide on-site support and comfort.

BMVSS has laid down extremely simple procedures for reception, admission, measurement taking, manufacturing, fitting, and discharge of patients. Unlike in all other medical centers all over the word, patients are admitted as they arrive without regard to the time of day. In addition, patients are provided boarding and lodging facilities at the centers of BMVSS until they are provided with limbs, calipers, or other aids. In most orthopedic centers around the world, patients must come back several times for a custom fit. This process can take several weeks. Such a system is unsuitable to poor patients who find it extremely difficult, both in physical and financial terms, to come back a second time from long distances. Jaipur Foot is custom fitted on the same day (in fact, in less than four hours). Most significant, the prosthetics, orthotics, and other aids and appliances are provided totally free of charge to the handicapped. But for this policy, more than 90 percent of the patients would have remained deprived of artificial limbs, calipers, and other aids and appliances. The setting up of patient-oriented value and management systems was an equally important innovation.

BMVSS has ten branches in India. In addition, approximately 60 workshops fabricate or fit the Jaipur Foot in India. The society also has aided the establishment of several centers abroad. Funded

by the Indian government and philanthropic groups, BMVSS and similar organizations offer medical care, room, board, and a prosthetic at no cost to the patient. It also has helped launch free clinics in more than a dozen countries.

The determination was made at the outset that the Jaipur Foot prosthesis would be provided at a low cost, or free when necessary, which necessitated a nonprofit framework. The prospect of no (or little) incoming funds for prostheses fitted forced administrators to focus on containing costs. In particular, emphasis was placed on the cost of the materials used to construct the Jaipur Foot, the capital equipment required to fabricate the foot, and the method by which the foot was fitted to a patient to make the prosthesis widely available.

Cost-efficiency is reflected in Jaipur Foot's annual expenses. Jaipur Foot's expense breakout for the 2002 fiscal year underscores the efficiency of expense and underpins the society's effort to serve as many patients as possible given its financial resources. About 90 percent of the company's expenses in the 2002 fiscal year were directly related to the cost of producing and fitting prostheses for the poor. Another 7 percent of the company's expenses went toward other forms of charitable assistance. Only 4 percent of its expenditures went toward administrative and overhead expenses.

The number of limbs fitted every year by Jaipur Foot is about 16,000. Between March 1975 , when BMVSS was established, and March 2003, the society fitted 236,717 limbs in India (and 14,070 others around the world). B MVSS is still finding innovative ways to help the poor. With all of its innovations in technology and management, and understanding the needs of its patients, BMVSS has developed a unique business model.

This model spreads the Jaipur Foot technology that allows rickshawwallah (pedicab operators) amputees to perform their job, farmer amputees to be farmers, and in the case of fourteen-year-old Sudha Chandran, classical Indian dancer amputees to be classical Indian dancers.

CASE-7, Aravind Eye Care: The Most Precious Gift

For an estimated 45 million people worldwide, and nine million in India, the precious gift of sight has been snatched away, most often quite needlessly. One man, seized with a passion to eradicate needless blindness, decided to do something about it.

In 1976, Padmashree Dr. G. Venkataswamy, retired from the Government Medical College, Madurai, as the head of the Department of Ophthalmology. Rather than settling for a quiet retired life, Dr. V was determined to continue the work he was doing at the Government Medical College, especially organizing rural eye camps to check sight, prescribe needed corrective glasses, do cataract and other surgeries as needed, and advise corrective and preventive measures: in short, provide quality eye care. This was to be provided to the poor and the rich alike. His vision was simple yet grand: Eradicate needless blindness at least in Tamil Nadu, his home state, if not in the entire nation of India. Cataract surgeries done on poor patients from eye camps. From the beginning, a policy was put in place—there would be paying as well as free patients. The paying patients would be charged only moderately and not more than comparable hospitals in the city charged. There were to be no five-star customers to cross-subsidize. The poor patients. Dr. V was certain that high productivity and volumes were necessary if the hospital were to be viable and generate a surplus to provide expansion funds.

Indeed, the hospital generated a surplus from the beginning, and using such surplus it was possible to open a 30-bed hospital within a year, in 1977. A 70-bed hospital meant exclusively for free patients was built in 1978. The existing paying hospital building was opened in 1981, with 250 beds and 80,000 square feet of space over five floors. The initial focus was on cataract surgery, but other specialties such as retina, cornea, glaucoma, pediatric ophthalmology, neuro-ophthalmology, uvea, low vision, and orbit were gradually added. No compromises were ever made on the equipment; they were of the best quality, and many were imported. However, the rooms (including those of doctors), waiting halls, and examination rooms were utilitarian. In 1984, a new 350-bed free hospital was opened to cater exclusively to free patients in Madurai. In stages, the number of

beds increased to the present 1,468 beds (1,200 free and 268 paying) in the hospitals in Madurai. In addition, other hospitals in other towns in Tamil Nadu were being opened. In 1985, a 100-bed hospital at Theni, a small town 80 kilometers west of Madurai, was opened, mainly to cater to additional eye camp patients. A hospital with 400 beds was opened at Tirunelveli, a town 160 kilometers south of Madurai, in 1988. In 1997, an 874-bed hospital was opened in Coimbatore, the second-largest city of Tamil Nadu, to cater to the needs of the population in that area. In 2003 , a 750-bed hospital was opened in Pondicherry (a Union Territory but within the geographical area of Tamil Nadu) to cater to the people living in northern Tamil Nadu. In total, the five Aravind Eye Hospitals (AEH) had 3,649 beds, consisting of 2,850 free and 799 paying beds.

Though the initial focus was on building hospitals and reaching out to the poor to do cataract surgeries, it was soon clear to Dr. V that to reach their goal of eradicating needless blindness, several other activities had to be put in place. Thus, over the years, these activities were added, and Aravind Eye Hospitals evolved into the Aravind Eye Care System, Eye camps represented a popular way to reach out to rural communities. These camps were formed in different villages, with prior publicity in the form of posters, loudspeaker announcements from vehicles, and pamphlets. Charitable trusts or individuals sponsored the eye camps and contributed to the publicity necessary to get people to the camps. The government and institutions such as the World Bank covered the costs of surgery and treatment. The eye camp checkups and subsequent treatment were free for the patients. On the day of an eye camp, patients were examined, and those requiring surgery were advised of such. In some camps, surgeries were done in situ in makeshift tents. AEH believed this was neither hygienic nor productive, so it performed the surgeries only in its base hospitals. Follow-up checks and prescriptions for glasses were made in subsequent camps or during patients' visits to hospitals.

Aravind Eye Care System's purchase of the best equipment available includes an IT system that tracks all patients, regulates workloads, and closely monitors postoperative complication rates. The contrasting utilitarian rooms for doctors and staff confirm that the emphasis is placed on quality

care for patients. Doctors and staff work longer and harder than in other health-care programs, in large part driven by the spirit of Dr. V's original commitment. The dedication of the earliest doctors and staff of the system extends itself with training and recruitment programs, among which is the Aravind Eye Hospital (AEH) & Post Graduate Institute of Ophthalmology, initiated in 1982, which had admitted around 30 resident doctors as of 2003 .

We do commit ourselves totally to the cause of eradication of avoidable blindness. That means we have to do a certain number of surgeries every day. (Each doctor does about 2,600 surgeries per year; the all-India average is about 400.) We have a unique culture based on service. The system also recruits and trains its own ophthalmic assistants (900 on staff each year, and 99 percent of those trained stay in the system). Nurses, like the doctors, are there because they want to be. As one nurse said, I work more than the government hospital nurses do; I get paid a little less or at par with them, but I get much more respect in the society. When I go in the bus, someone will recognize that I work in AEH and offer me a seat or be nice to me. I really feel happy about it.

The staff strength of the Aravind Eye Hospital, Madurai, as of February 2003, was 762. For about 113 doctors, there were 307 nurses, 38 counselors, and 304 other staff. The pattern of staffing in other units is broadly similar.

The Aravind Eye Care System at present is comprised of five hospitals; a manufacturing wing that produces intraocular lens, suture needles, cataract kits, pharmaceuticals, and instruments related to eye care; an institute for training; an institute for research; an international eye bank; four managed care hospitals; community outreach; and well-structured IT systems. In the financial year 2007 to 2008, the Aravind Eye Care System screened 2,396,100 outpatients and performed 285,745 surgeries, making it the largest eye care provider in the world (in terms of volume). The consortium of nine hospitals, including Aravind Managed Care Hospitals, performed one million eye surgeries each year. The nine hospitals worked with at least 100 hospitals each in their regions to deliver quality and affordable eye care. The Aravind Eye Hospital is now working with 249 hospitals in the country and abroad.

An average day at Aravind Eye Hospital network includes

- 6,000 outpatients in hospitals
- 4 to 5 outreach screening eye camps
- Examining 1,500 people
- Transporting 3 00 patients to the hospital for surgery
- 850 to 1,000 surgeries
- Classes for 100 Residents/Fellows and 300 technicians and administrators

Aravind is known the world over for its innovative approaches, which have become a replicable model ensuring efficient service delivery. Community outreach, a cornerstone of Aravind's high-volume work, is one such approach that encourages active involvement of the community in providing eye care services. This approach, complemented with appropriate systems and processes at all levels of the organization, enables it to perform high-volume, high-quality, and affordable eye care services.

CASE-8, ICICI : Financial Services for the Poor

The world's poor traditionally are trapped in the dilemma of having neither money nor the means to borrow any. Micro financing to the level of their needs has not been part of the agenda of formal banking, until now. For the poor in India, particularly in rural areas, ICICI Bank, the second-largest banking institution in the country, is beginning to convert the poorest of the poor into customers and, thus, at the same time empower them.

Ms. Pundiselvi, in the village of Nahramalaiphur, for instance, procured a bank loan to lease a small parcel of land to raise chilies for cooking and flowers for decorative purposes. The cost of the land was 10,000 rupees ($200) for the season, and the seeds cost a few thousand rupees. So far, Ms. Pundiselvi has paid back 7,000 rupees ($140), or 70 percent of the loan, from income generated from her land. In the same village, Ms. Saraswathi owned and operated a small grocery shop with a small inventory and limited selection of goods. With a 10,000 rupees ($200) loan, she expanded her existing shop and now enjoys a boost in monthly income. Ms. Saraswathi has never missed a monthly payment and has paid back 6,000 rupees ($120), or 60 percent of her loan. One enterprising woman pooled the money from a loan with other family assets and dug a new well for her village. She charges other farmers and villagers 25 rupees ($.50) per hour to pump water for irrigation purposes. The irrigation system the pump feeds has also increased the yield of her own nearby fields.

Traditionally, banking in India has focused on upper-income groups, principally in urban areas. With a rural population of 741.6 million in India, the rural penetration of banks is as low as 18 percent. Micro financing, even in the formal sector, has existed for some time, but it usually has been characterized by its nonsustainable donor-led model. The poor of India, in the absence of formal institutions, often must resort to the informal sector, which is characterized by monopolistic practices and exorbitant interest rates—at times even in the form of human capital. Informal systems may be inefficient and even exploitive due to their monopoly power. Interest rates in the informal market vary from 3 percent to 10 percent a month. Vegetable vendors are known to

borrow at even 10 percent a day to finance their daily working capital needs. Yet formal financial intermediaries, such as commercial banks, typically do not serve poor households. The reasons include the high cost of small transactions, the lack of traditional collateral, geographic isolation, and simple social prejudice.

The Reserve Bank of India, also through the National Bank for Agriculture and Rural Development, started a pilot project in 1991 for purveying micro credit to the rural poor by linking self-help groups (SHGs) with banks. Providing credit to poor farmers and opening costly rural branches were seen as loss-making or break-even propositions at best. ICICI, however, viewed these reforms as an opportunity. ICICI took a proactive approach when entering the retail banking sector, not only to satisfy the regulations, but also to go above and beyond.

ICICI outlined three strategic goals: to increase banking penetration in rural areas through innovative ways of defining distribution points, to prepare rather than react to the increasingly important rural market, and to support the downtrodden as a good corporate citizen. All these goals were aimed at enabling the poorest of the poor. Our aim was to move from physical branch banking to virtual banking. Block by block, we slowly built up a clicksand-mortar strategy. In rural areas, only one million households have bankers because educated urbanites do not want to live in these areas, and often there is a dearth of qualified locals. To minimize the costs associated with expanding rapidly and to gain qualified rural staff, ICICI decided to partner with nongovernmental organizations and micro finance institutions currently in the field. By piggybacking on the established network of these rural-oriented players, ICICI believed it could gain knowledge about the market it intended to serve and eventually increase its banking presence. ICICI has combined the social mobilization strength of nongovernmental organizations and micro finance institutions with the financial strength of the bank. ICICI developed two innovative models geared toward serving the bottom of the economic pyramid:

- Direct-access, bank-led model—Catalyzed by the merger with the rural banking institution Bank of Madura, this model utilizes the power of ICICI to promote and grow SHGs and to

increase dramatically the scope and scale of rural savings and lending.

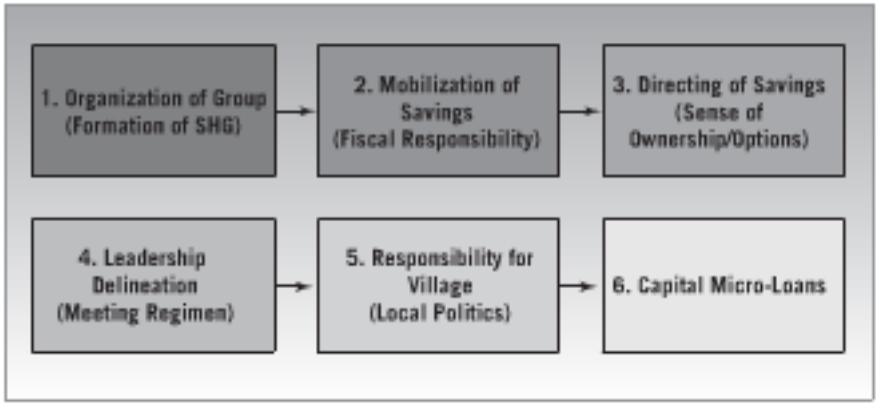
- Indirect-channels partnership—This model leverages the relationships, knowledge, and rural network of organizations in the field to avoid the costly brick-and-mortar expansion process and thus helps efficiently cultivate ICICI's banking presence.With the Grameen Bank model in Bangladesh (providing small loans to clients below the poverty line), believed the efforts in Bangladesh could be replicated in India. In 1995, it developed and implemented the Rural Development Initiative, focused on economic empowerment of the poor in rural areas.

Group (SHG).

- A group of 20 women from the same village whose individual annual incomes placed them below the poverty line. Multiple groups could be formed in the same village.
- The members did not participate, as of yet, in the formal banking sector.
- Leaders should be selected from within the group to bear responsibility for collecting the savings, keeping the accounts, and running the monthly meetings.
- Upon formation of the group, the bank would undertake to educate these women as to the basic concepts of banking and encourage them to begin a savings program for themselves, thereby creating new customers for the bank.

After one year of training and monitoring the regularity of meetings, loans were dispersed to the group in the average amount of 10,000 rupees ($200) per member. This was a considerable loan, above the amount normally given for consumption purposes, to begin a small business or expand an existing operation in agriculture, for instance. The loans were given based on need, not in ratio to existing savings deposits.

The SHG vehicle allowed for many other positive intangible changes in the participants' self-esteem and confidence as they were allowed to decide on and influence events in their own homes and villages. The maturation of an SHG followed the general pattern shown in Figure.



By March 2003, more than 8,000 SHGs had been formed. The acceleration and success of the program depended on training and empowerment of the women participating in the existing SHGs. Between 2003 and 2008, ICICI lent more than $3.5 million to micro finance borrowers through this model.

CASE-9, ITC e- Choupal: Technology for the Poor

Most people would agree that information technology has changed their lives—linked them to the global community, enabled them to share vital business data, and even provided entertainment and opportunity. For the rural poor, in countries such as India, this connection of the times to the world has been denied and has been far out of their reach, until now.

Picture, though, an agricultural village where a farmer goes to a computer and does something as simple as check the weather. In the past, unreliable weather information might result in prematurely planted seeds being washed away by early rains. Other farmers exchange information about crops and agriculture, mutually investigating approaches that allow them to compete in the outside world, not just locally. Or the village of Khasrod, where 2,000 local students printed out their report cards, saving them days of waiting or a long trip. Children also now use computers for schoolwork and even games. Like youngsters everywhere, those in the villages use computers to investigate the latest movies, cell phone models, and sports news. Some even explore their aspirations for the future in a world now within reach. They are, for the first time ever, connected.

This communication miracle—the empowerment of India's agricultural poor—began simply enough as a company's effort to reengineer the process of more efficiently and fairly getting the farmers' soya crop to market. The ITC Group, one of India's foremost privatesector companies, with a market capitalization of approximately $4 billion and annual revenues of $2 billion, had to initiate challenging social changes in addition to business changes to make this miracle happen.

The innovation—placing as many as 2,000 computer kiosks in rural agricultural villages as part of information centers (e-Choupals)—required ITC to address an existing traditional system governed by the Agricultural Products Marketing Act (1937), which had led to the establishment of a marketing channel through mandis, delivery points where farmers bring their produce for sale to traders and to be taxed. Inefficiencies, and corruption, had led to an outdated monopolistic system that unfairly restrained the farmers. ITC made a commitment in mission and resources to change the system in a way that would be fair to the farmers and yet profitable to ITC.

E-CHOUPALS

The e-Choupals, information centers containing a computer linked to the Internet, represent an approach to seamlessly connect subsistence farmers with large firms, current agricultural research, and global markets. The name is derived from the Hindi word choupal, meaning a traditional village gathering place. The network of these, each operated by a local farmer in each community called the sanchalak, allows for a virtual integration of the supply chain and significant efficiencies over the traditional system.

Traditional mandi (market place) trading was conducted by commission agents called adatiyas (brokers who buy and sell produce). They are of two types, as follows:

- Kachha adatiyas are pure purchasing agents and buy only on behalf of others.
- Pukka adatiyas, on the other hand, finance the trade as representatives of distant buyers and sometimes even procure on their own account.

Buying and selling was based on oral agreements, mutual understanding, and community norms. The mandi system reflected the heavily regulated government intervention in days of production shortfalls, controlled land ownership, input pricing, and all aspects of product marketing. Produce could only be sold in government-recognized locations to authorized agents. Processing capacities, private storage, forward trading, and transport were restricted. The result was corrupt, ineffectual, and archaic systems. Typical inefficiencies and sources of unfairness of the mandi system from the farmers perspectives include the following:

- The farmer does not have the resources to analyze or exploit price trends.
- When the mandi opens in the morning, farmers bring their trolleys to display areas within the mandi. Buyers inspect the produce by sight. There is no formal method of grading the produce, and the only instrument used is the moisture meter. Formal testing for oil content is not performed, and neither are global safety checks performed.
- After potential buyers have inspected the produce, a mandi employee conducts the auction in

which commission agents place bids. The farmers have a largely negative opinion of the auction for nonfinancial reasons. They feel a systematic loss of dignity in the auctioning process. The fact that their lifework is auctioned off is seen as an insult. The final indignity is that the farmer cannot refuse the sale at the auctioned price. The agents belong to a close-knit community that is socially and economically distinct from the farming community. Although they might not collude in pricing, they do collude in establishing the practices of the trade. These practices uniformly exploit the farmer's situation.

- Mandi laborers bag and weigh the produce. A traditional compensation of these laborers is the sale of spilled produce. They,therefore, ensure that some portion of the produce is spilled in the weighing area, and then gather and sell this grain at the end of the day.
- The exploitative tone of interaction also runs through the payment process. The farmer is never paid in full at one time. Payments are stretched over time. The farmer often travels many hours to get to a mandi. Repeating the trip costs him time and money. The farmer bears all the cost of bagging and any overnight-stay costs. The farmer is also at the agent's mercy because the grain has already been delivered. Apart from the multiple trips to the agent's office, the farmer gets no interest for the delayed payment and bears the cost of the time and travel. In addition, crushers pay agents usurious rates for the privilege of delayed payment.

When ITC entered this industry, produce was bought and crushed by small crushers who were also traders. The company soon realized it needed a greater presence in the chain to better understand product dynamics. ITC then began renting processing-plant time and buying soya from mandis. ITC's procurement has grown rapidly since, and its initiative has seen the introduction of professional practices, transparency, and formal contractual relationships between agents and buyers. A unique set of tactical, strategic, and social imperatives drove ITC to conceive the e-Choupals and reengineer the entire value chain by deploying them. The e-Choupal network was

conceived to achieve virtual vertical integration: by extending ITC's engagement all the way to the farmer in the field.

CASE-10, Voxiva: Health Alerts for All

Over the past two decades, the spread of new diseases such as HIV/AIDS, severe acute respiratory syndrome (SARS), hepatitis C, and dengue haemorrhagic fever, and outbreaks of traditional diseases such as typhus and diphtheria, have generated a renewed awareness of the global threats posed by infectious diseases. Indeed, infectious diseases, such as cholera, meningococcal disease, and measles, cause 63 percent of all childhood deaths and 48 percent of premature deaths. Approximately 300 million people have acute cases of malaria, 90 percent of them in Sub-Saharan Africa. Infections also cause cancers, cardiovascular, and respiratory/digestive deaths. The overall toll of infectious diseases is significant around the world. The threat of rapid national, regional, and global spread of infectious diseases poses a new challenge: early detection and coordinated and rapid reaction by publichealth authorities locally and globally. A basic surveillance system built on a low-cost communications infrastructure is critical. The innovation from Voxiva, Inc., in tackling such a challenge in Peru is proving to be robust, with applications in developed countries such as the United States and developing countries such as Afghanistan, Iraq, China, and India.

According to the World Health Organization, Reporting systems are the intelligence network that underpins disease control and prevention. Without this framework in place, it is impossible to track where disease is occurring, measure progress in disease control targets, monitor antimicrobial drug resistance, or provide an early-warning system for outbreaks and the emergence of new diseases. Surveillance data also is needed to assess where resources should go for maximum costeffectiveness. Research in public health, around the world, has resulted in four simple conclusions to minimize the spread of disease:

1. We need widespread recognition that infectious diseases present a significant threat to global health, both in human and economic terms.

2. Active surveillance is critical for early detection. Often, the difficulty is the surveillance in remote regions of the developing world with poor communications and health infrastructure.
3. Early detection and subsequent relevant action reduce the probability of the spread of a communicable disease.
4. The ability to communicate between groups affected and public health authorities who can trigger the appropriate actions is critical.

Voxiva, Inc., considered these four factors when tackling a challenge with their technological solution. Though Voxiva first designed their platform around an epidemiological application, these criteria have applied to other types of cases found the world over, such as reporting crime, supplying blood to hospitals, and testing new vaccines. Though these solutions might seem obvious for people who never leave home without a mobile phone, Voxiva looked beyond the U.S. borders to rural areas where 70 percent of the world's poor live with limited access to telecommunications. Voxiva exists to bridge a communications gap, at the same time targeting a market that makes less than $2 a day. Its value added is socially admirable, and at the same time it seeks to be profitable. Its basic assumption is that there are a lot more telephones in the world than computers, and that telephones are a much more accessible and practical tool for conveying urgent data and information. Voxiva challenges an implicit assumption held by many: Computer usage must proliferate in rural communities to connect the poor. In bypassing this assumption, Voxiva provides a solution divorced from hardware configuration. Instead, it adds value by streamlining the flow of critical information through the existing telecommunications infrastructure.

Voxiva leverages the convergence between the public and private sector, creating a social venture with the goal of creating a better world by promoting public health in developing economies. These ventures are driven by profits, scalability, and ROI as much as by the social good they can do. The health-care industry relies heavily on the management of critical information, and technological solutions hold great promise for providing support for challenging and complex interdependent

managerial decisions and interventions that characterize health practice. The health-care sector is second only to the business sector as a major user and promoter of tools and methodologies to harvest knowledge through intensive use of ICT. As a social venture, Voxiva (with its credibility and track record) has positioned itself not only as an expert in public health, but also as a business truly interested in solving public-health problems.

CASE-11, E+Co: Energy for Everyone

It is possible to combine clean and distributed energy development (a significant component of sustainable development) and provide access to electricity for the poor. The success of E+Co's investments in Tecnosol, in Nicaragua, with the local entrepreneur as the driving force in the market, demonstrates that locally based nongrid energy systems can work.

Globally, approximately 1.8 billion people lack access to electricity, and 2.4 billion people use wood fuels for cooking. The poor spend roughly $20 billion per year for ad-hoc solutions, such as kerosene lamps, candles, charcoal, firewood, dung fires, and batteries, just to meet basic energy needs. Lack of modern forms of energy, particularly electricity, keeps people from escaping poverty and becoming more productive, and these substandard substitutes are often more expensive and more damaging than modern alternatives. For these reasons, electricity access has been a top priority for world governments, multilateral development organizations, and nongovernmental organizations for more than 50 years. However, the number of people without access to modern forms of energy has remained approximately the same despite these efforts.

In 1994, E+Co, a rural energy finance company, was formed to pioneer a different approach to the global energy problem. Focusing on local entrepreneurs, E+ Co combines the traditional training and support services of a nongovernmental organization with the capital investment strategies of private equity and banking firms. The result could lead to a dramatic rethinking about how to reach and provide access to energy to the world's poor. The Fortune at the Bottom of the Pyramid

Focusing on local entrepreneurs, E+Co combines the traditional training and support services of a Non governmental organization with the capital investment strategies of private equity and banking

firms.

E+ Co had its genesis through pilot activities chartered by the Rockefeller Foundation, and led by Phil LaRocco, to develop new concepts for public private partnerships in the area of rural energy. They saw an opportunity to install a fundamental building block that would support and reinforce every other important social need in rural societies, including increased economic output (and reduced waste); greater access to information and education; and improved health, especially from the reduction of pollution from wood, kerosene, and other fuels. The foundation recognized, however, that rural energy did not have a one-size-fits-all solution that could be developed in a lab, easily replicated, and scaled worldwide.

Over 10 years, E+ Co invested in 90 energy enterprises, reaching more than 200,000 people with modern energy across a variety of technologies and geographical contexts. The firm intentionally cast a broad net by working in more than 20 countries on multiple continents as it has sought to experiment, replicate, and prove its model. This phase of experimentation revealed four main conclusions:

1. There is a willingness and capacity to pay for modern forms of energy at the Bottom of the Pyramid.
2. Renewable energy technologies are an appropriate and increasingly reliable solution.
3. Private enterprises serving local markets are a necessary component for the provision of clean energy.
4. Local entrepreneurial talent with rural reach is a crucially valuable and widely available resource in communities around the world. The demand for electricity in rural unelectrified areas is largely driven by the need for basic lighting and productive uses such as irrigating fields or operating machinery. One light bulb can keep a store open through the night or provide light for reading, household chores, and even basic security.

Rural customers around the world are estimated to spend between $8 and $12 per month for lighting services, including candles, kerosene, dry cells, or battery charging. These sources of

energy are dirty and inefficient, and on a per-kilowatt basis, they cost anywhere from 5 to 100 times more than modern fuels and electricity. The paradox is that the poor are spending a disproportionate share of their income on a product that richer people can get cheaper and of higher quality.

Although the cost of energy would appear to be the main driving concern of rural households, experience indicates that high quality and reliability are the most valued attributes of an energy system. Willingness to pay for electricity that is reliable, safe, and of high quality is often higher than what is currently spent on energy services. Modern distributed energy in developing nations might take many forms, but among the most exciting is the potential for widescale adoption of renewable energy technologies. Renewable energy is characterized as an energy resource that is inexhaustible in a reasonable period of time. The global renewable resource base is considered large but is currently being utilized far below its potential. The most advanced renewable energy technologies include solar photovoltaics, wind power, biomass, geothermal, and hydropower. A main advantage of renewable energy technologies is that the majority of the cost is up front,

while the fuel costs are for the most part free.

Addressing the energy problem at the Bottom of the Pyramid involves elements relevant to both developing and developed countries:

- Sustainable development
- Clean and distributed energy technologies
- Local knowledge and global reach
- Private enterprise with supporting policies
- Investment (public and private) to reach scale

A new energy future is being sculpted in both developing and industrialized countries reflecting these themes. This future entails energy being generated from renewable sources and delivered close to the site where it will be consumed. Although technologies that are allowing this transition to take place have been formulated largely in the north, developing countries are taking the lead in their dissemination. The results from this phenomenon could significantly impact the way the

energy sector evolves. Through both economies of scale in manufacturing and an approach that emphasizes locally managed and controlled energy delivery, the success of energy enterprises using renewable energy technologies at the Bottom of the Pyramid might prove to be the most important innovation in the energy sector for years to come.

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