

Working Paper

Challenges in Marketing Socially Useful Goods to the Poor

Bernard Garrette

HEC

Paris

E-mail: garrette@hec.fr

Aneel Karnani

Stephen M. Ross School of Business

The University of Michigan

E-mail: akarnani@umich.edu

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Abstract

Market based solutions to alleviate poverty have become increasingly popular in recent years. Unfortunately, there are very few examples of profitable businesses that market socially useful goods in low-income markets and operate at a large scale. This article examines in-depth three case studies of multinational firms that tried to market unquestionably useful products -- clean water, eyeglasses, and nutritious yoghurt -- to the poor, and did not succeed commercially. We also discuss two positive examples of profitable BOP ventures: mobile phones and detergents. The overarching lesson we draw from the case studies is that developing strategies for marketing socially useful goods to the poor, far from triggering a revolution in business thinking, requires firms to get back to the basic principles and rules of economics and business.

Keywords: Poverty reduction; bottom of the pyramid; economic development, social goods.

Market based solutions to alleviate poverty have become increasingly popular in recent years. CK Prahalad (2004) in his much acclaimed book *Fortune at the Bottom of the Pyramid* argues that private companies, especially large multinational companies, can make significant profits by marketing to the people living at the 'bottom of the pyramid' (BOP), and simultaneously help eradicate poverty. The BOP proposition of 'doing well by doing good' is, of course, very appealing and has attracted much attention. At the same time, this proposition is controversial in the current management literature. Karnani (2007a) argues that the BOP opportunity is a "mirage" and that its logic is "riddled with fallacies." Jaiswal (2008:88) contends that the "accounts of corporations succeeding at the BOP sometimes strain credulity." Based on the very examples used by Prahalad (2004), Karnani (2007a) posits that the so-called BOP activities are either profitable but not socially beneficial, or socially virtuous but not profitable.

Unfortunately, there are very few examples of profitable businesses that market socially useful goods in low-income markets and operate at a large scale (Monitor Group, 2009). There are, of course, many examples of businesses that profit by exploiting the poor. The poor are vulnerable by virtue of lack of education (often they are illiterate), lack of information, and economic, cultural and social deprivations. For example, Banerjee and Duflo (2007) show that the poor spend a "surprisingly large" fraction of their income on alcohol and tobacco. Many companies exploit this tendency and make significant profits from the sale of alcohol and tobacco to the poor (Karnani, 2009). Products such as tobacco are easy to analyze: they are profitable businesses that are socially bad for the poor, and clearly do not fit the BOP proposition.

There are other BOP examples that, while not as socially egregious as tobacco, are still of dubious social value. “The problem with the consumer-focused BOP approach is that it does not differentiate between priority and non-priority areas” (Jaiswal, 2008:94). An interesting example is the commercially successful whitening cream ‘Fair & Lovely’ marketed by Unilever. Hammond and Prahalad (2004:36) cite this as a positive BOP example and contend that a poor woman now “has a choice and feels empowered because of an affordable product formulated for her needs.” Unilever seems to be both profitable and helping the poor. Karnani (2007b:1355) demonstrates that it is “unlikely Unilever is fulfilling some ‘positive social goal’ and might even be working to the detriment of a larger social objective” by helping to sustain, even if unwittingly, sexist and racist prejudices in society. At a minimum, the poor woman buying Fair & Lovely is diverting expenditures from more essential products such as nutrition and health care. Profitable ‘BOP businesses’ that fail to alleviate poverty are just normal profit-seeking businesses under a flimsy disguise.

The real challenge is to design market-based solutions for alleviating poverty, which implies profitable businesses that provide socially beneficial products and services to the poor that genuinely improve the quality of their lives. Unfortunately, there are very few positive examples here. After an extensive survey of 270 market-based solutions in India, the consulting firm Monitor Group (2009: 27) concluded “only a small handful – mostly well publicized ones like Grameen Bank and Aravind Eye Care – attained a scale sufficient to transform a ‘business model’ into a ‘solution’.” It is true that both these examples, Grameen and Aravind, are ‘well publicized’ – almost every BOP article or book cites these examples. But, it is ironic, and instructive, that even both these examples are not-for-profit organizations, and cannot be classified as commercial successes nor as market-based solutions.

In this paper we focus on BOP businesses that are unquestionably socially virtuous and investigate how to develop profitable strategies in that context. But, instead of examining positive examples only, we choose to study in-depth three BOP initiatives that have not been commercial successes, at least not yet, and derive conceptual lessons from these case studies. We then test our conclusions on more successful BOP ventures. Our three case studies involve multinational companies – Procter & Gamble, Essilor, and Danone – that launched BOP initiatives with aspirations of creating large-scale profitable businesses marketing socially useful goods to the poor. Up to now, all three have failed to generate adequate profits. They have significantly downscaled their initial plans and converted their efforts into small experimental operations.

Examining these three cases in-depth yields several interesting insights on the key success factors for BOP initiatives. The BOP literature is full of exhortations calling for a ‘revolution’ in business thinking; Prahalad (2004:10) even asks for a “change in our genetic code.” The overarching lesson we draw from the case studies is that, far from triggering a revolution in business thinking, developing BOP strategies requires firms to get back to the basic principles and rules of economics and business. The context is different in BOP markets from more affluent markets, but durable business principles are still an effective guide to strategy development. Context changes, the logic of business does not change. The generous and well-intentioned social objectives of BOP initiatives must not hide the fact that these opportunities present tough economic and strategic challenges. The desire to do good should not blind managers to the realities of underlying economic forces that determine business success and failure.

We first very briefly present an outline of the three case studies. We argue that business success should be measured by economic profits, not just accounting profits, let alone 'financial sustainability'. We then present four lessons we draw from the case studies. The first lesson is that unmet needs of the poor do not necessarily constitute a market. A 'market' can exist only if there are buyers willing and able to pay a price that covers the total cost of production, including the opportunity cost of capital used. Unfortunately, due to the very meager income of the poor, markets for many socially useful goods simply do not exist. The second lesson is that firms will have to dramatically reduce costs, even if it implies reducing quality, in order to develop BOP markets. This does not imply selling shoddy or dangerous products. To profitably serve the poor, firms need to make the cost-quality trade-off appropriately in order to make the products affordable by the poor. The third lesson is that creating efficient distribution networks is critical to the success of BOP initiatives. Vertical integration into proprietary distribution channels is probably not a good solution. The final lesson is that trying to achieve multiple social objectives makes it even harder for BOP initiatives to succeed. It is difficult enough to combine profitability with selling socially useful goods to the poor without adding more constraints, such as environmental sustainability. Finally, we discuss two positive examples of profitable BOP ventures: mobile phones and Nirma (an Indian producer of detergents), and demonstrate how these success stories have avoided the pitfalls discussed above.

Case Studies

The three case studies described below are based on data from published sources and private conversations with senior executives from the companies. Where no source is cited in this paper, case study data is based on private conversations.

Essilor and Vision Correction

About 2.3 billion people in the world suffer from poor vision due to refractive error, a common disorder in the eye that blurs vision. The solution for refractive error is simple and cost effective: eyeglasses. Nevertheless, it was estimated 564 million people who need eyeglasses do not have access to them (Moses and Karnani, 2009). In the mid-2000, only 7% of the Indian population actually wore spectacles, whereas about 65% of the population needed spectacles (Garrette, *et al*, 2008).

Essilor International designs, manufactures and sells organic (i.e. plastic) optical lenses in over 100 countries all over the world. With revenues of about \$4.2 billion and a global market share of about 30%, Essilor dominates the ophthalmic lens industry.

In 2005, Essilor teamed up with Indian not-for-profit eye hospitals Aravind and Sankara Nethralaya to launch a BOP initiative targeting the Indian rural poor (Garrette, *et al*, 2008). The project started by operating four “refraction vans”, i.e. mobile optician shops, which visited villages to prescribe and sell corrective spectacles to poor people suffering from visual disorders. This innovative approach solved the problem of the rural poor not having feasible access to optician shops. A pair of eyeglasses was priced less than 200 rupees (€3 or \$4). Essilor was considering scaling up the operation; the company estimated that 1000 vans would be needed to reach the 600,000 villages of India. In 2010 however, Essilor operates 8 refraction vans only. After trying to franchise the vans to local opticians, the company has decided to operate them on its own, and to limit future investments to the amount of cash generated by the existing vans. Even with donations/sponsorships, the project hardly earns its cost of capital.

P&G and Clean Drinking Water

In 2002, 18% of the world's population (1.1 billion) did not have access to safe, affordable, sustainable source of drinking water (WHO and UNICEF, 2005). Lack of clean drinking water is not just an inconvenience; it has major health implications. 1.6 million people die every year due to diarrheal diseases (including cholera), which are waterborne diseases. Over 90% of these deaths occurred among children below 5 years of age. Other diseases caused by lack of clean drinking water include schistosomiasis, trachoma, intestinal Helminths, Hepatitis A, and arsenic poisoning.

Procter & Gamble (P&G) first researched new water-purifying technologies in 1991. In 1995, P&G formed a partnership with the US Centres for Disease Control and Prevention (CDC) to develop a low-cost water purification technology to deliver commercial and public health benefits (Hanson and Powell, 2009). After some failed attempts, these efforts culminated in the launch in the year 2000 of 'PuR: Purifier of Water', a powder that, when mixed with water, produced clean drinking water. Using PuR required only basic household equipment: a bucket and tightly woven cloth; the end result was water that was visibly clean and did not leave an unpleasant aftertaste. The branded product PuR was sold in a small sachet, which would purify 10 litres of water, and was priced at US\$ 0.10 per sachet. The product had much commercial potential, especially since its manufacture required significant proprietary knowledge that prevented unauthorized imitation.

Following positive test marketing in Guatemala, P&G rolled out the product PuR on a larger scale in 2001. These larger-scale tests, however, only yielded market penetration rates of about 15% in the Philippines and 5% in Guatemala. In 2002, P&G decided to stop the large-scale tests to learn more from further test marketing in Morocco and Pakistan. In 2004 P&G

launched PuR on a mass scale in Pakistan. However, repeat purchase rates hovered around 5%; the scale up in Pakistan had failed.

In 2005 P&G officially abandoned attempts to commercialize PuR, and transformed the project into a corporate social responsibility programme (Hanson, 2007). P&G announced its new non-commercial approach and its decision to sell PuR at \$0.04 per sachet, the cost of production, to non-profit humanitarian organizations.

Grameen-Danone and Child Nutrition

Good nutrition, especially in the case of children, is the cornerstone for survival, health and development. Undernourished children have lowered resistance to infection and are more likely to die from common childhood ailments. Frequent illness saps the nutritional status of those who survive, locking them into a vicious cycle of recurring sickness and faltering growth. In 2007, 23% of children in the world under the age of five years suffered from malnutrition, as measured by WHO standards; in Bangladesh, the comparable number was 41% (UNICEF, 2009).

In 2006, Danone, a large food and beverage multinational company, teamed up with Grameen Bank, the pioneering micro-finance organization in Bangladesh, to create Grameen Danone Food Ltd (GDFL), with the mission of alleviating “poverty by implementing an innovative business model which will bring healthy and wholesome food to the poorest everyday” (Danone Communities, 2009). GDFL developed a yoghurt product branded ‘Shoktidoi’ (which means strengthening yoghurt) specifically designed to alleviate child malnutrition. Shoktidoi is rich in proteins and calcium, and also contains living bacteria which help fight diarrhea, a common disease in Bangladesh.

As a 'social business', GDFL was set up to generate enough revenues to sustain itself but not to earn economic profits nor to pay dividends. The partners agreed to re-invest all the cash generated back into the business. The expected profits were 3% of sales over the long term. The venture's first plant was supposed to start operating in early 2007, to break even in 2008, and to run at full capacity in 2010. The long term plan was to expand all over Bangladesh by building fifty factories.

The first GDFL factory is smaller, simpler, and less automated than Danone's usual plants; the GDFL plant has a capacity of 3000 tons per year compared to 400,000 tons at Danone's biggest dairy plant in Europe. The yoghurt Shoktidoi was introduced at a price of 5 takas (\$0.07) per 80 gram serving. In 2008, the price was changed to 6 takas per 60 gram serving. GDFL's initial plan was to distribute the yoghurt only through female sales representatives – Shokti ladies – who would sell the product door-to-door.

The sales volume has been disappointing and the Shokti ladies distribution strategy has not worked as expected. GDFL sold only 150 tons of yoghurt in 2008 and expected to sell 500 tons in 2009, compared to capacity of 3000 tons. Sales through urban grocery stores targeted at the middle class account for 80% of sales, and only 20% of its sales are through Shokti ladies to the rural market. Danone executives now believe that urban sales are needed to subsidize the rural sales. GDFL had an operating loss of 21 million takas (\$0.3 million) in 2008, and is expected to generate roughly the same level of loss in 2009 even though volumes are supposed to grow. GDFL has nevertheless decided to build a second factory in Bangladesh (Danone Communities, 2009).

How to measure profits? The 'cost of capital' issue

A lot of misunderstanding on the BOP business opportunity results from confusion with the notion of “social business”, as put forth by the Nobel price winner Muhammad Yunus (2007). Yunus founded the Grameen Bank and other “social business” based on the theory that the poverty problem can be solved by creating what he calls “not-for-loss” businesses, by analogy to ‘not-for-profit’ initiatives. While traditional not-for-profit initiatives might not be sustainable in the long run because they depend on donations, not-for-loss businesses are viable because they cover their operating costs. But, the problem with not-for-loss businesses is that they still do not cover the opportunity cost of capital.

Yunus deliberately ignores the cost of capital, whereas private profit-seeking firms cannot afford to do so. The objective of private firms is not just accounting profits, but rather ‘economic profits’, defined as accounting profits minus the opportunity cost of capital. The ability to generate accounting profits is not enough; economic profitability is necessary to make a project truly viable in the long run, and scalable by attracting additional capital.

Regardless of the social (or environmental) benefits of a project, if this project generates return on investment lower than the cost of capital, it is doomed to remain under-funded and to operate on a small scale, because it will have access mostly to donations, and not to free-market equity funding. ‘Investors’ in social businesses are really acting as philanthropists.

Vikram Akula, who runs SKS, a \$250m microfinance firm in India, challenges Yunus’s view in the following way: *“When I started SKS ten years ago, [...] I established it as a nonprofit with lots of small donations from friends and relatives. I had certainly admired Grameen Bank’s group-lending model, but wasn’t a big fan of Yunus’s theory that microfinance firms should be*

merely self-sustaining companies –what he calls “social businesses”. I felt that if the industry were going to provide the estimated \$300bn of credit needed by the poor, it would have to tap larger, commercial capital markets –and that meant structuring our business so that investors could expect significant returns.” (Akula, 2008; p.55).

A clear distinction should be made between businesses that are to create shareholder wealth, “social businesses” that are supposed to cover their operational costs but do not create shareholder wealth, and charities which require ongoing cash infusions to cover their operating costs. Charities need donations to survive; social businesses need donations to grow; businesses do not need donations. Private businesses try to create shareholder wealth, social businesses try to maintain wealth, and charities are designed to voluntarily redistribute wealth.

One way to support initiatives for which the return on capital is not expected to be sufficient is to fund them as social businesses through separate foundations. For example, Danone has created the ‘Danone Communities’ fund in order to decouple such social business initiatives like the Grameen-Danone joint venture from its mainstream business operations. The Danone Communities fund invests in social business initiatives as well as in financial securities. Its overall return is supposed to just beat the risk-free rate of return. The concept is therefore that shareholders do not donate the money; they entrust the money to the fund. However, these shareholders are, in effect, making a charitable donation of the difference between the cost of capital and the return they get. It is worth noting that, in 2009, only 10% of Danone Communities’ resources are allocated to social businesses, the rest being invested in risk-free placements. Even when setting the profitability target significantly lower than the cost of capital, attractive social business opportunities seem to be lacking at the BOP!

Social businesses are not consistent with the concept of 'market based solutions to poverty'. Surely, market based approach implies that companies achieve economic profits, not just that they do not have an operating loss.

The unmet needs trap

The unmet needs of the poor at the BOP are often presented as offering a huge untapped business opportunity (Prahalad, 2004). For example, half of the world population on average needs to wear spectacles. But in India the penetration of eyeglasses is dramatically lower at only 7% because the poor do not have access to eyeglasses. It is often concluded from this that there must be a huge business opportunity for a firm to market eyeglasses to the Indian BOP. Werhane *et al* (2010: 52) argue for the distinction between *size* and *opportunities* for business (italics in the original). The current market size is small, but the future opportunities are big. There are many people, at least a billion, living in abject poverty with many unmet needs – this constitutes a business opportunity.

The major flaw in this logic is that an unmet need does not constitute a market. A market exists only to the extent that there are buyers willing and able to pay a price higher than the total costs, including the opportunity cost of capital, of the sellers. The perceived consumer value must exceed the price; and the buyers have to be willing and able to pay this price. A firm is willing and able to sell at this price only if its revenues exceed its total costs. The size of a market and the price of the product are determined by the intersection of the demand and supply curves. If the supply and demand curves do not intersect, there will be no market, even if there is an unmet need. For example, there is a need for homes that utilize only solar energy. But the price consumers are willing to pay for solar energy is too low compared to

cost of manufacturing solar panels and energy storage devices – there is an unmet need but no market. This is an old and basic principle in economics, but it applies equally to BOP opportunities as to any other market. The basic rules of economics have not been repealed for the poor. The poor clearly have unmet needs for eyeglasses, clean water and nutritious food; but, our three case studies demonstrate that Essilor, P&G and Danone are struggling to find business opportunities here.

Assessing the size of the unmet need is easy; but that should not be confused with an estimate of the potential market opportunity. For example, assessing the size of the unmet need for eyeglasses in India is quite easy. A starting plausible assumption is that the percentage of the population having refractive problems is the same in India as other countries for which detailed data is available. The number of eyeglasses sold in India is also readily available. Hence, it is fairly easy to assess the size of the unmet need for eyeglasses. But, estimating the size of the potential market is far more difficult. Assuming a price of \$4 per pair of glasses, how many poor Indians will be able and willing to buy eyeglasses is a very difficult question to answer. Conducting market research in the BOP context is significantly more difficult than in more affluent and developed markets. The logistics of reaching the poor is more demanding and expensive. The poor are often not well informed about the product and cannot easily answer a questionnaire about future willingness to buy the product. There are few comparable (or reference) products from which one can extrapolate by analogy. Assessing the size of the unmet need for eyeglasses in rural India is easy; assessing the size of the market opportunity for eyeglasses is extremely difficult.

A more extreme reason why BOP markets are small is that many poor people are not well informed or not well educated enough to fully appreciate the value of the product or service

being offered. For example, a survey conducted by the Monitor Group (2009:43) in India found that 60% of the respondents would not switch to purified water “even if it was free”. It is difficult to understand such responses given the evidence that water borne diseases are a major cause of poor health among the poor. In a similar vein, Ramke *et al* (2007) found that 55% of rural women in a survey in Timor-Leste were unwilling to pay even \$1 for eyeglasses; this in spite of the significant impact of eyeglasses on worker productivity and quality of life.

Confusing unmet need and market size leads to disappointing performance. For example, while child nutrition is obviously a salient need in Bangladesh, the BOP market for GDFL’s Shoktidoi yoghurt was grossly overestimated. Since its launch in February 2007, the factory has never operated at more than 25% of its production capacity, even though the plant is dramatically smaller than Danone’s traditional units in developed countries. This is even more disappointing since 80% of the current sales are to the urban middle class rather than to the rural poor, the primary target of the original project.

The size of the BOP market, like any other market, can grow bigger if the supply or demand curves shift outwards. The demand curve can shift out if the income of the BOP increases, or if the poor assign a higher perceived value to the product due to getting better educated about its benefits. Educating the poor about the product benefits is expensive, and increases the costs of the firm taking on this task. The supply curve can shift out if technological innovation significantly reduces costs, such as in mobile telephony. Unfortunately, such shifts in the supply curve have not occurred for the great majority of the BOP unmet needs, and certainly not for our three case studies involving eyeglasses, clean water and child nutrition.

Moral indignation and righteous sense of social injustice are appropriate responses to the extent of unfulfilled basic human needs of the poor, such as clean water, sanitation, nutrition, shelter, energy, basic health care and education. But, if the market size is too small compared to the unmet need, market based solutions are not a feasible way to alleviate poverty. Philanthropic responses – traditional charity organizations or ‘social businesses’ – will work better. The problem with that is ‘scalability’. Unfortunately, the scale of philanthropy – even taking into account such large donors as Bill Gates and Warren Buffet -- is too little compared to the immense size of the unmet needs. Governments must play a critical role in this context.

Private companies trying to implement market based solutions to alleviate poverty by marketing socially useful goods to the BOP have to expand the market. The key issue is designing the product in such a way as to make the price truly affordable by the poor.

The affordability trap

BOP proponents argue that since the poor account for the majority of the world’s population, their aggregate buying power is in fact large even though their individual income is very low (Prahalad, 2004). In addition, the poor do buy “luxury” items and they do value brands if they are given access to them, and they pay “high” prices because of distribution inefficiencies. As a consequence, there is a potential to provide them with low cost products by efficiently organizing the supply chain. This view urges multinational corporations to target the BOP market with their existing products, or adaptations of the existing products without sacrificing quality. This often results in marketing products that are in fact much too expensive and not affordable by the poor (Karnani, 2007a).

There are two lessons to be learnt here. Firms should not overestimate the purchasing power of the poor. Second, firms should adjust the cost-quality trade-off much more significantly to conform to the lower purchasing power of the poor.

Overestimating purchasing power

A surprisingly common mistake is that firms and researchers convert income of the poor using purchasing power parity (PPP) exchange rates, but convert product prices using financial exchange rates. This mistakenly makes products seem more affordable by the poor. Since financial exchange rates are about 3-5 times higher than PPP exchange rates for most developing countries, this has a big impact on the apparent affordability of products.

Prahalad (2004) makes this mistake throughout the book.

Many researchers in the development field define the poor using the World Bank's \$2 per day standard, which was formulated in PPP terms at 1993 prices; this translates to about Rs. 30 per day in India, using the approximate PPP rate of Rs. 15 per dollar (without adjusting for inflation). Stating the price of a sachet of PuR at \$0.10 makes it seem that the sachet costs 5% ($\$0.10$ divided by $\$2.0$) of the poor person's daily income. But since the price was converted at the financial exchange rate of Rs. 45 per dollar, the sachet actually costs 15% of the poor person's daily income. It is not surprising that the repeat purchase rates for PuR were very low.

Another cause of overestimation of the purchasing power is that firms do not fully appreciate the consumption patterns of the poor. Basic necessities account for a large fraction of their meagre income, not leaving much room for other expenditures.

Essilor justifies setting the price of eyeglasses at Rs. 200 on the grounds that spectacles are priced at around one week of base salary in developed countries.¹ A European can afford to spend 200 Euros, about 2% of his annual income on eyeglasses. Essilor uses appropriate exchange rates and takes into account the low income of the poor by considering prices as a fraction of income; even then it ends up overestimating the market potential. A poor Indian cannot afford to spend the same percentage of his annual income on eyeglasses since a much larger fraction of his income is needed for more 'necessary' needs. The poor Indians spend about 80% of their income on food, clothing and fuel alone (Gangopadhyay and Wadhwa, 2004), making it difficult to buy a product even as useful as eyeglasses. This partly explains why the proportion of prescriptions that convert into actual purchases in Essilor's BOP initiative is below 40%.

Cost-quality trade-off

In order to make products affordable by the poor, firms need to achieve large price and cost reductions. A significant improvement in technology could reduce costs dramatically, as for example in telecommunications. Unfortunately there have not been such technological leaps in most other product categories. It is thus often necessary to reduce quality in order to reduce costs significantly; the challenge is to do this in such a way that the cost-quality trade-off is acceptable to poor consumers (Karnani, 2007a). All the three companies in our study fail to achieve the appropriate cost-quality trade-off and end up trying to market products that are too expensive and not affordable by the poor.

Shoktidoi is a dairy product and its storage and transportation requires refrigeration, which is obviously a problem given the climate and infrastructure in Bangladesh. Marketing a dry or

¹ Rs. 200 per week is consistent with the poverty line of Rs. 30 per day discussed earlier.

stable grocery product for child nutrition that does not require refrigeration would have been much less costly. GDFL's choice of yoghurt was probably driven by the fact that Danone had divested its biscuit and grocery businesses several years ago, and dairy products is one of its main lines of business now. Rather than starting with the problem – child nutrition – and finding the most cost-effective solution, Danone starts with the product it markets in affluent countries and tries to adapt it to the BOP markets. The other two companies, P&G and Essilor fall into the same 'adaptation trap'.

Essilor's BOP initiative sold organic lenses, which are more expensive (and better quality) than simple glass lenses, probably because Essilor does not manufacture glass lenses anymore. The Essilor refraction vans are staffed by an optometrist and a technician who perform an eye-test for each patient and then prescribe and deliver customized spectacles. This is an expensive business model. An alternative and cheaper approach would be to sell pre-manufactured 'reading glasses' that do not require individual customization. The appropriate strength of eyeglasses can be chosen based on a simple test such as looking at a newspaper or threading a needle, and does not require a trained optometrist. Even in developed countries, many people buy reading glasses in grocery stores without needing a prescription. The limitation, of course, is that reading glasses are useful only for presbyopic (or long-sighted) people. Of patients requiring eyeglasses, about 75% suffer from presbyopia, which is an almost inescapable consequence of aging. Thus, a very simple low cost solution would be effective for 75% of the patients. There might even be potential to sell pre-manufactured eyeglasses for myopic (or near-sighted) patients; this obviously implies lower quality and less customized eyeglasses, but at a much lower cost. Realizing that it was falling into the 'adaptation trap' by offering to the BOP market the same degree of customization as it does in more affluent markets, thus making the product too expensive for the poor, Essilor

recently decided to allow the refraction vans to also distribute ready-made glasses without prescription. These low-range products, which can be sold at Rs 50 (\$1), are outsourced from external low cost providers. In parallel, Essilor has increased the price of its prescription spectacles from \$4 to \$5, which resulted in a 40% decrease in volume. Thanks to these changes in pricing and product mix, in addition to cost reduction initiatives, Essilor's BOP operation has finally turned profitable. However, Essilor is unwilling to commit new capital to the project.

A major cause of the commercial failure of PuR was that the product was too expensive at \$0.01 per litre of water purified. P&G used flocculation² technology that is superior to simple chlorination of water. A bottle of locally produced hypochlorite solution that treats 1000 litres of water costs only \$0.10, and is effective at removing most bacteria and viruses that cause diarrheal disease (CDC, 2008). Some users object to the taste and odour of chlorine. There are also concerns about the potential long-term carcinogenic effects of chlorination by-products. The poor unfortunately face a choice between a superior product that they cannot afford and a less effective product with negative side-effects that they can afford. The CDC considers chlorination a viable option depending upon local conditions because of the immediate and larger benefits of reducing diarrheal diseases. A different low cost approach is community filtration plants that sell purified water at \$0.0025 per litre, which is one-fourth the price of PuR (Monitor Group, 2009:41). P&G too falls into the 'adaptation trap'. Rather than starting with the problem – clean drinking water – and finding the most cost-effective solution affordable by the poor, P&G starts with the business model it uses in affluent markets. As part of its expansion efforts in the late 1990s, P&G purchased Recovery Engineering Inc. and

² Flocculation refers to the chemical process by which fine particles are caused to clump together into floc, which can then be readily filtered from the liquid.

its PuR brand water treatment appliances. These products were designed primarily for consumers in the United States who wanted to improve the taste and health safety of tap water.

Firms targeting the BOP markets need to emphasize the appropriate cost-quality trade-off from the perspective of the poor. A simple or minor adaptation of the business model from affluent markets usually results in products that are too expensive and not affordable by the poor. A significant reduction in quality might be necessary. Selling low quality products to the poor might seem unethical. But, selling products at the appropriate cost-quality trade-off is not only ethical, it is socially virtuous. If the poor cannot afford customized eyeglasses, they are better off with approximately correct pre-manufactured spectacles than no eyeglasses at all. The appropriate reference point for quality is not the standard prevailing in affluent markets, but rather the status quo in BOP markets, which usually is unfulfilled basic needs. A low quality product is better than no product at all.

The dilemma, from the perspective of the multinational firm is that at the appropriate cost-quality trade-off, the price and the margin may be too low to earn significant profits. PuR does not generate enough sales volume at the price of \$0.01 per litre to be commercially viable. The market for hypochlorite solution has very low entry barriers, many local small producers and is not profitable enough to attract P&G. This is the central dilemma of marketing socially useful goods to the poor. The core challenge of market based solutions to poverty is finding business models that sell socially virtuous products to the poor and are *simultaneously* profitable for private companies.

Moreover, the new business model required to target the poor consumers may conflict with the established strategy and brand image of the firm. It is unlikely that P&G would risk its global brand image by marketing a water chlorination product with potential long-term carcinogenic effects even if the immediate gains from reducing diarrheal diseases were greater on the balance. Essilor's core business all over the world uses the distribution channel of opticians and optometrists to sell value-added, customized eyeglasses. Essilor has been understandably reluctant to market pre-manufactured, standardized eyeglasses through direct distribution to the poor; this conflict might be confusing and upsetting to the end consumers and the distribution channels, and endanger its core business.

The distribution trap

In many BOP initiatives, creating efficient and viable marketing and distribution support networks is an even bigger challenge than reducing the manufacturing cost of the product. Distribution networks to serve the poor, especially in rural areas, do not exist or are very inefficient. Creating socially responsible distribution is essential for the success of market based solutions to poverty (Vachani and Smith, 2008). At the same time, creating a distribution network to reach the poor might be too expensive and contribute to the commercial failure of the project.

Many multinational companies launching BOP initiatives are forced to create distribution networks from scratch in order to reach the poor rural consumers. This creates difficulties that are often underestimated. The strategic trend among large companies in developed countries has been to de-integrate their activities: unbundle the value chain, outsource what they can, and focus on their core business. Multinational firms are often ill equipped to

forward integrate into distribution, especially in the unfamiliar environment of the BOP in emerging economies.

Essilor's core strategy is to sell all its lenses through its own prescription laboratories, but not to integrate forward into retail that remains the job of independent opticians or chains of optical shops. Essilor's traditional clients are opticians, not patients. When considering the BOP opportunity in India, Essilor first went to Indian opticians and tried to get them engaged in the project. However, most of them rejected the idea, arguing that it was too costly, too demanding and unprofitable to serve the rural poor. Essilor then decided to forward integrate into retail distribution by operating refraction vans, basically mobile optician shops. With this move, Essilor entered a business that the local specialists deemed unprofitable, and was beyond the company's core competencies; it also became a low price competitor to its traditional customers.

GDFL did not initially consider supermarkets and grocery stores to market Shoktidoi because they operate only in urban areas and serve the middle class, rather than the BOP population. Building on Grameen's microfinance experience (micro-loans are distributed by 'Grameen ladies'), GDFL decided to create a team of independent female sales representatives, Shokti Ladies, who sell Shoktidoi door-to-door, directly to the consumers. The company believed the Shokti Ladies were the only relevant distribution channel.

Danone executives now acknowledge that the Shokti Ladies strategy has been a failure. GDFL started with 60 Shokti Ladies in February 2007. They all left in April 2007 when production stopped at the factory. A new hiring campaign was launched and the number of ladies peaked to 273 in February 2008. But it dropped to 17 in September 2008 when

demand decreased dramatically, following a price increase that was triggered by a sudden rise in the price of milk. By December 2008, GDFL was left with only 37 ladies.

The best performing Shokti Ladies sold 100 yoghurt packages a day, which is half of the expected sales level. Selling Shoktidoi is not a full-time job; Shokti Ladies can not make a living working for GDFL alone. In 2008, when GDFL realized that the Shokti Lady scheme was not sustainable, it decided to market Shoktidoi through small general stores in parallel. In June 2009, shops accounted for 80% of sales of Shoktidoi. By using this distribution network, GDFL is marketing to the urban middle class much more than to the rural poor. GDFL has in fact created a traditional consumer goods business that subsidizes the loss-making BOP operation. Shoktidoi prices are significantly higher in urban areas: 12 takas per 80 gram serving in the capital Dhaka, compared to 6 takas per 60 gram serving in rural areas. Moreover, urban sales are supported by traditional marketing techniques targeting middle class consumers, such as TV advertising campaigns and product range extensions (e.g. flavored yoghurts and drinks). Thanks to this new revenue stream, GDFL forecasts to sell 1500 tons of yoghurt in 2010 (i.e. 50% of the factory's capacity) and to break even in 2011 (Danone Communities, 2009). Meanwhile, it has re-launched its rural marketing initiative: by October 2009, 560 shokti ladies were in business, with a new management and a revised training and compensation scheme.

Proprietary, exclusive, one-product distribution channels do not enjoy economies of scope and are very expensive, and unlikely to be the solution to the distribution challenge. This is part of the cause of the lack of profitability of the GDFL and Essilor ventures. The exclusive one-product distribution channel of Shokti Ladies is infeasible because of very high costs: no economies of scope, and inadequate economies of scale due to low volumes. Essilor

understood this problem and tried to de-integrate from distribution by franchising its refraction vans to opticians. Potential franchisees immediately asked for permission to use the vans to distribute other products than spectacles equipped with Essilor lenses – they immediately realized the need for economies of scope. In addition to reading glasses, some opticians also suggested selling non-competing items such as cell phones. Essilor management has been reluctant to accept these proposals.

Some corporations try to solve the problem by partnering with local non-profit institutions that benefit from a strong legitimacy and are already in contact with clients. Danone teamed up with the Grameen Bank which is highly respected in Bangladesh thanks to Muhammad Yunus' unquestionable reputation. They got mixed results however when trying to replicate the "Grameen Lady" scheme. Essilor piggy-bagged on the existing "tele-ophthalmology" operations of two hospital chains, Aravind and SN, which are also highly respected for their ability to provide the poor with affordable cataract surgery. In both cases, these alliances were instrumental in making "pilot" operations happen by taking advantage of existing non-profit distribution channels.

While alliances with non-profit organizations may be instrumental to ignite operations, they cannot be relied on to scale up the business. As discussed earlier, social businesses have problems attracting enough capital to grow the business to a large scale. Aravind and Sankara Nethralaya were able to partner with Essilor to initiate the project with four refraction vans. It is unlikely they would have been able to participate equally if the project were to expand to 1000 vans to cover all of India. If the project is to grow as a purely commercial venture, then it has to overcome the 'distribution trap'.

The multiple objectives trap

We have argued above that trying to combine socially useful products with firm profitability is a major challenge. BOP initiatives often make this problem even harder by adding other social and environmental objectives.

GDFL started out with ambitious environmental sustainability objectives. The initial plan was to package Shoktidoi in cups made of Poly Lactic Acid (PLA), which is manufactured from corn and is bio-degradable. The plant would re-cycle PLA waste to produce bio-gas which would be used for lighting and heating purposes. Delivery would be done by cycle rickshaws to avoid fuel consumption. GDFL also planned to encourage customers to bring their own cans to refill yoghurt rather than buy pre-packaged yoghurt. Most of these environmental friendly plans now have been abandoned because they increased the complexity and cost of the project. GDFL now uses polystyrene (an oil derivative) packaging.

GDFL also wanted to create jobs for poor women as a social objective of the venture. This was consistent with the Grameen philosophy of developing and empowering women through micro-entrepreneurship as way to fight poverty. As discussed above, the Shokti Ladies scheme too has proven to be problematic.

Because of the alliance with eye care hospitals Aravind and Sankara Nethralaya, the Essilor venture also had the social objective of diagnosing eye diseases. All “eye camps” therefore involved two vans, operated by six people: Essilor’s “refraction van” focused on mounting and selling spectacles while the hospital’s “tele-ophthalmology van” performed eye disease diagnosis. However, the staff included only an optometrist (not an ophthalmologist), whose training is focused on refractive error, not on eye diseases. When the optometrist suspected

an eye disease (in particular eye cataracts which is a major cause for blindness in India), the optometrist could route the patient to the “tele-ophthalmology van” to perform an eye fundus (which is the interior of the eye) examination. The technician conducting the eye examination was in contact with an ophthalmologist in the base hospital using a satellite communication link, hence the “tele-ophthalmology” concept. This, of course, increases the cost and complexity of the initiative. It might have been better to have a narrower focus only of correcting refractive problems without adding other public health objectives.

Multiple objectives – such as profitability, generating employment, environmental sustainability, public health – are often in conflict, at least in the sense of drawing on a pool of limited resources and impose trade-offs. The danger is that attempting to achieve too many objectives simultaneously leads to the project’s commercial failure and demise, and none of the objectives being achieved. Perfection is the enemy of the good. Much of the strategy literature emphasizes the value of ‘focus’. BOP initiatives are well advised to focus on ensuring the product being marketed is in fact useful to the poor, and that the project is economically profitable to enable scaling up.

Positive Examples

While not common, there are some positive examples of profitable BOP ventures that provide socially beneficial products and services to the poor. We will discuss two such examples here, mobile phones and Nirma (an Indian producer of detergents), and demonstrate how these success stories have avoided the traps discussed above.

Mobile phones

Mobile telephony is probably one of the best, and well-publicized, examples of successful BOP ventures. In 1995, there were more phone lines in Manhattan than in all of Sub-Saharan Africa. Today, penetration of mobile phones in Africa is 28%. More people in China and India own mobile phones than in North America and Europe combined (Rashid and Elder, 2009). In India, about 45% of BOP households own a mobile phone, a penetration rate greater than that for radios, and second only to televisions (LIRNEasia, 2009).

The main perceived benefit of mobile phone usage among the poor is improved communication with family and friends. In addition, several studies have focused on the positive impact of mobile phones on the livelihoods of farmers, fishermen, and small entrepreneurs (see Rashid and Elder, 2009). There is also much enthusiasm about the potential for mobile phones to deliver other services to the poor, such as public health, financial services, education, government services, and disaster warnings (Lehr, 2008)

It is easy to argue that the poor need mobile phones. The industry has successfully avoided the 'unmet needs' trap and 'affordability' trap by reducing the total cost of ownership (TCO). According to Nokia research, the TCO across 77 developing countries was \$10.88 per month in 2008, down by 20% from 2005 (Nokia, 2009). Nokia believes that a TOC of \$5 or less per month would enable the poor to purchase a mobile phone. In 2008, 12 countries had achieved this \$5 target, including India, China, Pakistan, Bangladesh and Indonesia.

The TOC is comprised of three elements: handset (7%), service (79%), and taxes (14%). Technological advances, the learning curve and scale economies are largely responsible for the tremendous decrease in cost of the handsets and mobile services over the last few

decades. The worldwide mobile communications industry association GSMA's Emerging Market Handset program achieved its goal of reducing the price of entry-level handsets to less than \$30 in 2006 (GSMA, 2006). The cost structure of mobile phone service has two important characteristics: 1) high fixed cost and low marginal cost, and 2) services sold to affluent people and to poor people use the same capital-intensive infrastructure. This implies that it is economically profitable to cross-subsidize and sell services to the poor even at very low prices, so long as the price is above marginal cost. According to a study conducted by the consulting firm BDA with chamber of commerce Ficci in India, the top 9% of mobile phone users contribute 29% to the industry revenues and 45% of the profits; the lower end of the pyramid -- 71% of subscribers -- contributes a mere 27% to revenues and only 15% to profits (Jain, 2009).

The industry has further reduced the cost, and especially the marginal cost of serving the poor, by selling prepaid phone services. This reduces the phone operator's costs involved in credit checks, billing, and bad debts; instead of paying interest on working capital the firm earns interest on the prepaid balances. Virtually all BOP customers are prepaid subscribers.

In addition, in many developing countries, there is a flourishing market for used mobile phones that further reduces the entry price for poor consumers. An innovative approach to reducing costs has been the shared-access model, whereby one person or organization owns the mobile phone subscription and rents airtime to others. Grameenphone has formalized this on a large scale through its Village Phone program, which makes microloans to poor entrepreneurs to buy a mobile phone, an external antenna (for better reception), and a discounted subscription. The Village Phone program has more than 362,000 operators in Bangladesh, and has been replicated in several other countries.

The poor have low costs because their usage of value-added, and more expensive services such as financial payments, government services, downloading music, email, Internet browsing is "extremely low" (LIRNEasia, 2009). In Bangladesh, 94% of the poor phone users further lower their cost by sending and receiving 'missed calls', that is calling a number and deliberately hanging up before the other person picks up the call. Missed call can be used to send a pre-negotiated message (such as 'pick me up now'), relational sign (such as 'I am thinking of you'), and request a call back. Depending on the number of rings, different messages can be conveyed. This practice is growing rapidly throughout developing countries and is known by several names: beeping, flashing, pranking, and fishing. This is of growing concern to network operators since missed calls burden the infrastructure and do not generate revenues (Donner, 2007).

The industry has clearly avoided the affordability trap and created a real market for mobile phone services. The industry has also avoided the distribution trap by selling prepaid cards through a large variety of retail shops including general merchandise kiosks. It is even possible to electronically buy prepaid credits and to transfer credits from one phone to another, further facilitating distribution. Even though mobile phones can be used to deliver other services (such as public health) that would be socially valuable, the industry did not weigh down the BOP venture with multiple objectives.

Nirma

Unfortunately, the tactics discussed above that reduce costs in mobile telephony are not transferable to most other industries, especially the significant improvements in technology. The only other way to reduce costs is to reduce quality -- the challenge is to do this in 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 Karsanbhai 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 Limited (HLL). "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). Nirma also spent less on advertising and promotions than Hindustan Lever. 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 that of Nirma had gone up to 62%. By reducing the price, Nirma had succeeded at creating a new market: detergent targeted at the BOP. Reacting to Nirma, Hindustan Lever entered this market in 1987 with a new brand: Wheel.

The primary common element between these two successful BOP examples is the tremendous emphasis on cutting costs and hence reducing prices. It seems the poor like inexpensive, low-quality products. This is not because they cannot appreciate or do not want good quality. They simply cannot afford the same quality products as the affluent; so, they have a different price-quality trade-off. They are even willing to put up with a detergent that sometimes causes blisters! The standards to judge what is acceptable have to be from the perspective of a poor person who before could not afford any detergent, and not from the perspective of an affluent person who routinely buys a high-quality detergent.

Nirma's "extremely simple distribution system stood in sharp contrast with HLL's multilayered system" (Ahmad and Mead, 2004). When Patel started the company, to reduce costs, he

did not employ a field sales force nor owned a distribution network, and negotiated prices with trucking suppliers on a daily basis. This reinforces our earlier discussion about carefully managing distribution channels to reach the BOP.

Conclusion

Companies, academia, civil society and governments have devoted increasing efforts and attention to generating market based solutions to alleviate poverty. In spite of this, there are very few examples of profitable businesses that market socially useful goods in low-income markets and operate at a large scale. Combining social virtue with profitability while achieving scale is a major challenge. The desire for a positive outcome should not blind managers and policy makers to the difficulty of the challenge.

This paper examined in-depth three BOP ventures that have underperformed and two success stories, and extracted conceptual lessons. The dominant lesson we draw from the case studies is that developing BOP strategies requires firms to get back to the basic principles and logic of economics and business: focused objectives, understand the customers, and appreciate the role of economies of scope and scale. The biggest difference between BOP and affluent markets is the obvious but under-emphasized fact that the poor have very low purchasing power. Designing the business model to serve BOP markets has to start with this basic insight rather than a minor adaptation of the business model successful in affluent markets.

There is no fortune at the bottom of the pyramid. Marketing socially useful products to the poor offers only limited business opportunities. However, companies that make the relevant trade-offs will profit from seizing these opportunities. The current situation of BOP businesses

might be analogous to the “New Economy” fad in the late 1990s. There were then many dot.com gurus calling for a change in the business paradigm, and myriads of start-up firms launched new “business models” that denied basic economic principles. However, after the bubble burst, a few winners did emerge, such as Amazon and Google. Tomorrow’s BOP champions are probably hidden somewhere in the current experiments that firms are launching. We hope that the conclusions we have derived from our study will help them to emerge.

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