

WHAT WORKS: SERVING THE POOR, PROFITABLY

A Private Sector Strategy for Global Digital
Opportunity

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WHAT WORKS: SERVING THE POOR, PROFITABLY

INTRODUCTION

Global firms have demonstrated their ability to create wealth around the world. But the benefits of the capabilities of these firms and of the global market system do not yet reach most of the 4 billion people who live in relative poverty at the bottom of the economic pyramid. What if it were possible to expand the global market system to include those who now have no stake in it—to grow the market at the bottom, providing direct benefits and expanded opportunity to poor communities?

Two Scenarios. Consider two possible scenarios for the evolution of the global market in the coming 15 years.

The 1 Billion Market. The global economy recovers from its current stagnation, but growth remains anemic. Deflation continues to threaten, the gap between rich and poor continues to widen, and repeated incidents of economic chaos, governmental collapse, and civil war continue to plague developing regions. Terrorism remains a constant threat, diverting significant public and private resources to security concerns. Opposition to the global market system intensifies. Multinational companies find it difficult to expand, and many become risk-averse, slowing investment and pulling back from emerging markets.

The 4 Billion Market. Driven by private investment in bottom of the pyramid (BOP) markets and widespread entrepreneurial activity, assisted by policy reform, developing regions experience accelerating growth, creating jobs and wealth, bringing hundreds of millions of new consumers into the global marketplace every year. China, India, Brazil and, gradually, South Africa become new engines of global economic growth. Poverty reductions and other collateral social benefits help to stabilize many developing regions; conflicts lessen and the threat of terrorism recedes. Multinational companies expand rapidly in an era of rapid innovation and intense competition.

Both of these scenarios are feasible. A key factor in determining which comes to pass is the actions of large, multinational companies. If MNCs use their reach, scale, and resources to bring poor communities into the market and provide them with affordable basic goods and services, they can stimulate commerce and development and fundamentally change the paradigm for dealing with the poor. Achieving this goal need not require multinationals to get involved in direct social development, only that they act in their own self-interest. This synergy between the needs of the poor and the needs of MNCs for growth means that there are enormous potential benefits for companies entering and investing in BOP markets. Many innovative companies—entrepreneurial start-ups and large, established enterprises alike—are already serving the world's poor in ways that lead to expanded revenues, greater operating efficiencies, and new sources of innovation. For those companies that lead the way, building businesses at the bottom of the pyramid promises to yield important competitive advantages.

We are not suggesting that private sector actions can solve all the problems of developing countries. Targeted international aid and improved governance will still be urgently needed. But it seems clear



that the direct and sustained involvement of multinational companies could radically improve the lives of many people in poor communities and prove to be a powerful catalyst for development.

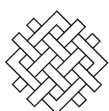
ICT for Development. The key role of the private sector is exemplified in the use of information and communication technology (ICT) as a tool for development, an area that has generated strong international interest in recent years. The G8 Digital Opportunity Task Force engaged the G8 and representatives of developing country governments, the private sector, and civil society. The UN ICT Task Force has an even broader complexion. Aid agencies, private philanthropies, non-governmental organizations, and a growing legion of entrepreneurs are focusing on the potential leverage from expanding digital networks and ever-cheaper devices. The result has been extensive experimentation and innovation, yielding insights and perspectives on which we draw in this report.

Among these insights is a growing conviction that ICT can facilitate MNC participation in BOP markets. For example, the emergence of very low cost wireless networks and access devices can help bridge infrastructure gaps in rural areas, linking the informal economy to established markets and providing distribution channels and transaction platforms. Voicemail and voice recognition software can help bridge the literacy gap, enabling service delivery to and transactions with illiterate or semi-literate people. E-commerce systems appropriate for BOP markets can eliminate intermediaries and provide transparency, reducing corruption. Technology, it is already apparent, can be as powerful a tool for addressing barriers and inefficiencies at the bottom of the pyramid as in more established markets. But with a few important exceptions, digital networks have not yet penetrated rural areas, very low cost devices are not being produced in large quantities, and applications or ventures of apparent promise have not yet reached scale or been widely replicated.

Why not? Because the poor have traditionally been seen as a problem for government and aid agencies, not as an opportunity for business. The public sector has neither the expertise nor the resources to provide goods and services on a scale sufficient to reach the approximately four billion people who currently earn less than \$2,000 a year. The private sector has both. Why not put them to use addressing the real needs—and real opportunities—at the bottom of the economic pyramid?

There is a central, profit-driven role for business in ICT-for-development. Generating the necessary investment for infrastructure and broader market development efforts, however, will depend on overcoming widespread misperceptions about the business opportunities at the bottom of the pyramid. Despite the large proportion of national economic activity that occurs in rural villages and urban slums in developing countries—more than 60 percent in India, for example—many MNC managers do not see poor communities as a significant market. The business opportunity is large, but seizing it will require an equally large adjustment in corporate attitudes, strategies, and cost structures.

In this report, we address the misperceptions, document the business case for private sector involvement at the bottom of the pyramid, illustrate the powerful possibilities of ICT as a development tool when linked to appropriate business models, and describe corporate strategies for making it happen.



UNTAPPED OPPORTUNITY

As a market, the bottom of the pyramid is clearly different from those that multinational firms currently serve. It comprises more than 65 percent of the world's population, the 4 billion people with purchasing power of less than \$2000 per year. Despite the size of this market, it remains largely untapped and unserved by MNCs. Companies tend to assume that people with such low incomes have little to spend and buy little beyond food and shelter. They also assume that inadequate infrastructure, illiteracy, currency fluctuations, corruption, bureaucratic red tape and other barriers make it difficult to build a profitable business serving poor communities.

These assumptions are often wrong. Many multinationals already successfully do business in developing countries—primarily serving the small upper-middle-class segments of these markets—and large national companies in countries such as India are already moving aggressively to serve rural communities. Their experience shows that barriers to commerce, although real, are much lower than is commonly thought. Indeed, once the misperceptions are removed, the enormous potential that lies at the bottom of the pyramid becomes clear.

The Poor Live in Very High-Cost Economies. As a direct consequence of the lack of competitively and efficiently-provided services, the poor live in very high-cost sub-economies. Consider a BOP household anywhere in the world.

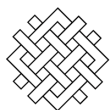
Urban slum dwellers without access to municipal water pay 4 to 100 times as much for drinking water as do middle and upper class families. In Lima, Peru, for example, a poor family pays 20 times what the middle class pays.

Credit is often unavailable, or available only from local moneylenders who charge 10 to 15 percent interest per day. Interest rates of 1,000-2,000 percent per annum are not uncommon. The lucky small-scale entrepreneurs who get loans from a non-profit microfinance institution still pay 40-70 percent interest per year—rates that in most developed countries would be considered illegal.

Connectivity is often unavailable to the poor, or consists of unreliable public call phones. A rapidly-spreading alternative in urban areas is cellular phones with pre-paid cards. In Brazil, for example, such phones are available with as little as \$10-\$20 of pre-paid airtime. However, the effective cost of this phone service is \$1.50/minute, as much as 10 times the rate for conventional subscription cellular services.

Food often costs at least 20-30 percent more in poor communities. This is true even in downtown Detroit, Los Angeles or San Diego. The poor do not have access to Walmart or Sam's Club and have to depend on high-cost local grocery stores and inefficient supply chains, in developed and developing countries.

Let us look at one poor community—Dharavi, a shantytown of more than one million in the heart of Mumbai, India—in some depth. We compare the costs of essentials in Dharavi with those of Warden Road, an upper middle class community in a nice suburb of Mumbai.



	Dharavi (A)	Warden Road (B)	(A)/(B)
Cost of credit (annual interest)	600-1000%	12-18%	60-75X
Municipal grade water (cu.m)	\$1.12	\$0.03	37X
Phone call (per minute)	\$0.04-.05	\$0.025	2X
Diarrhea medication	\$20	\$2	10X
Rice (per kg)	\$0.28	\$0.24	1.2X

The situation in urban slums around the world is no different. Clearly costs to the poor could be dramatically reduced if they could benefit from the scope, scale and supply-chain organization of large enterprises, as do their middle class counterparts.

Exploiting or Helping the Poor? Given the controversy over globalization, many MNC managers are concerned that entering BOP markets would be perceived as exploiting the poor. But when a microfinance institution such as Grameen Bank charges 50 percent effective annual interest, is it exploiting or helping the poor? The alternatives for many poor borrowers would be 1,000 percent interest or no loan at all. If a large financial firm such as Citigroup were to leverage its reach and size and charge 20 percent per year interest (twice the rate it charges to its upper middle income clients), would it be exploiting or helping the poor? We believe firms that build the capability to provide services and compete in poor communities can generate an acceptable return on investment—and help the poor dramatically reduce their costs and improve their standard of living. Furthermore, the issue is not just cost, but also quality—the quality of water, the range and fairness of financial services, the variety and quality of food. The informal economy that now serves poor communities is an unorganized system that is full of inefficiencies and intermediaries or middlemen who exploit those inefficiencies. Creating real markets among the poor—with adequate information, competition, and choice—can change the situation. Allowing the benefits of organization, logistics, information technology, and scale to bear upon the problem can lead to a “win-win” solution. If we can remove the inefficiencies of the unorganized sector, we will find an attractive market—for consumers and for firms.

The Poor Have Purchasing Power. Another enduring myth is that the poor have no money. While their incomes are low, the aggregate buying power of poor communities is substantial. Villagers in rural Bangladesh have an average per capita income of less than \$200 per year. Yet as the Grameen Telecom example illustrates, the aggregated buying power of a whole community can be commercially significant. But it is also of interest that the customers of these village phones spend an average of 7 percent of their income on phone services—a far higher fraction than consumers in traditional markets. The reason is straightforward. The villagers, at the mercy of middlemen and generally isolated, find that connectivity dramatically improves their productivity and their quality of life.

The Grameen Telecom example also illustrates a larger myth, that the purchasing power of the poor will be used in ways similar to the middle class. In fact, priorities for spending in poor communities may be quite different from those at the top tiers of the economic pyramid. With dysfunctional distribution channels, the choices available to poor communities are quite limited. Saving to build a home in the future versus buying a television set now is a choice that suggests sophisticated economic reasoning. Buying a house in Mumbai, for most people in the bottom of the pyramid, is not a realistic option. Neither is getting access to running water. They accept that reality and spend their income



on things that they can get now. The result is what often seem counterintuitive economic choices. In the Mumbai shantytown of Dharavi, for example, 85 percent of households own a television set, 75 percent own a pressure cooker and a mixer, 60 percent own a gas stove and 21 percent have telephones. The poor use their limited resources in ways that reflect their reality. The same phenomenon can be observed in the United States. For example, despite a perception that does not associate the inner city with a preference for cappuccino or Grande Latte, the top 5 percent of revenue earners for Starbucks are inner city branches.

Many BOP Markets are Geographically Concentrated. Emerging markets are centered on megacities. For example, in 1990, there were 59 cities in Africa, 118 in Latin America and 359 in Asia with over one million people each. By 2015, it is estimated that there will be 225 cities in Africa, 225 in Latin America and 903 in Asia respectively with over a million people. At least 27 cities will have a population of 8 million or more. This implies that about 1,300 cities will account for a population of 1.5 to 2.0 billion people. These clusters may represent about 1.0 billion BOP consumers served primarily by the informal economy in clearly identifiable and restricted locales. Access to these markets can be very efficient.

Each of these cities has its own version of shantytowns or slums, often the result of migration by the poor from villages to cities. Each shantytown is an economic ecosystem with its own peculiar characteristics. For example, it is common to see retail shops, small businesses, schools, clinics, moneylenders and gangs. Further, these represent an unbelievable concentration of people. One in five residents of Rio de Janeiro—an estimated 2.0 million people—live in one of the 600 favelas that surround the city, where in 1991 the population density was estimated to exceed 30,076 people per square kilometer. The density of population may be as high as 17,000 people/km² in Dharavi, the shantytown in Mumbai. Urban slums represent a powerful economic concentration too—in Rio, a total purchasing power of \$1.2 billion (\$600 per person). Shantytowns in Johannesburg or in Mumbai are no different.

There are very few reliable estimates of the value of commercial transactions within or from a slum. Dharavi—in just 175 hectares—boasts 6 churches, 27 temples, and 11 mosques as well as schools, hospitals, and scores of businesses ranging from leather, textiles, plastic recycling, and surgical sutures to gold jewelry, illicit liquor, moneylending, soaps and detergents, and food products. Business scale varies from one-person, “from my loft” operations to well-organized and well-recognized brand name products. Dharavi is estimated to generate about \$450 million in manufacturing revenues, or about \$2.5 million per hectare of land. Dharavi is not just a slum; it is a manufacturing location as well, and established shantytowns in São Paulo, Rio, and Mexico City are equally productive.

Rural Areas Have Substantial Economic Potential. The implicit assumption is often that rural populations are uniformly poor. But poverty cuts across rural and urban areas. So does wealth. The statistics from a detailed survey in India illustrate the point, finding that there are as many middle class consumers in rural areas as in urban areas. Indeed, 60 percent of India’s GDP is generated in rural areas. It is important to note that the rural populations are harder to reach; but they may have, for that reason, more of a dormant purchasing power. The critical issue for rural areas, however, is distribution access, not lack of buying power. And as noted above, information and communications technology infrastructures—especially wireless—may not only be the least costly infrastructure and capable of being most rapidly deployed, but can provide marketing and distribution channels to reach rural communities.



The Poor Welcome New Technologies. There is a deeply-held belief that the poor cannot use advanced technologies. The evidence we are aware of suggests that the opposite is true. Poor rural women in Bangladesh have had no difficulty using a GSM cell phone, despite having no prior experience with phones of any type; many of the Grameen Telecom village phone entrepreneurs, despite their illiteracy, have memorized country codes and proudly help customers call anywhere in the world. In an experiment in Andhra Pradesh, in India, Swayam Krishi Sangam (a community organization) fitted Palm Pilots with smart cards and organized village women to start a savings scheme. The smart card became the bank passbook, keeping a record of all transactions. The villagers had no trouble understanding how the little smart card held all their transactions, and their willingness to replace a century-old system of bookkeeping with hi-tech new devices leads SKS to believe it will be able to scale up operations in the near future. Telecenters in El Salvador operated by Infocentros provide Internet conferencing to poor businessmen to negotiate sales of their crops. In Kenya, NairoBits is successfully training slum teenagers to be Web page designers. In an experiment in coastal villages in India, local women were trained in less than a week to use a PC to interpret real-time satellite images of the concentration of schools of fish in the Arabian Sea, and could successfully direct their husbands to the right spots to catch fish. The Digital Dividend Clearinghouse (see Box) contains many examples of advanced technologies being used by the rural and urban poor.

These examples underscore the readiness of poor communities to adopt new technologies, if they in fact improve economic opportunities or quality of life. The lesson for multinationals approaching this market is not to be concerned about deploying advanced technology solutions at the bottom of the pyramid simultaneously with, or even ahead of, deployment in advanced countries.

THE BUSINESS CASE

The business opportunities at the bottom of the pyramid have not gone unnoticed. The last five years have witnessed extremely vigorous experimentation by non-governmental organizations (NGOs), entrepreneurial start-ups, and a handful of multinationals. Collectively, this experience provides a clear proof of concept. Businesses can gain three important advantages by serving the poor—a new source of revenue growth, greater efficiency, and access to innovation. We examine examples of each.

Top-Line Growth. Growth is important for every company, but is an especially critical issue for very large companies. Such companies typically have great difficulty in generating real, organic growth, relying instead primarily on acquisitions. A plausible hypothesis is that very large companies have nearly saturated their existing markets around the world; customer growth in these markets is already slowing. BOP markets, on the other hand, represent an opportunity for fundamentally new sources of growth; and, since these markets are undeveloped, that growth has the potential to be very rapid. Consider, for example, the slowing growth in existing markets for IT infrastructure, Internet access, and telecom services. Providing connectivity to several billion new customers, currently unserved and mostly in BOP markets, would be a powerful stimulus. As we will illustrate, emerging technology and new business models make such market growth plausible, given supportive policy environments. The opportunity to grow the market at the bottom is by no means confined to the IT and telecom sectors, with well-documented examples in food, consumer goods, finance,



and other sectors. However, IT networks will increasingly play an important enabling role in accessing BOP markets.

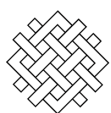
There is no question that latent demand is high. BOP consumers are ill-served by existing supply chains, and poor communities everywhere evince strong interest in access to connectivity, to affordable credit, to higher quality health and education services, to better sources of food, clean water, and other basic consumer goods.

Corporate executives may doubt that poor people can become a profitable business opportunity, and that such a customer base can support rapidly growing new product lines and revenue generation. There is growing evidence to the contrary. The opportunities can be found in very low-cost products, in providing affordable basic services such as finance and education, in aggregating demand (and buying power) up to commercially significant levels, and in the use of networks to increase distribution channels, extend product lines, and increase customer loyalty and activity.

Hindustan Lever Limited (HLL), the Indian subsidiary of Unilever, recently introduced a new product category—candy—aimed at the bottom of the pyramid. This high-quality candy with real sugar and fruit centers is sold in retail at about \$.01 per serving. At such a price, it may seem a marginal business opportunity. But the results suggest a different conclusion. In just six months after introduction, the product has become the fastest growing category in all of HLL's portfolio, is profitable, and is expected to be a \$200 million opportunity in five years. Even at \$50 million in revenues, the candy will touch customers 5 billion times annually—a brand manager's dream. The company has had similar successes in India with very low-priced detergent and ice cream products. Such low-cost, high-quality products are a critical entryway to BOP markets.

The key, as with conventional markets, is to provide a product that meets customer needs, not only in price but in packaging, distribution methods, and payment schemes, while being innovative in how to achieve what are often radically lower cost structures. For Hindustan Lever's ice cream product, sold at about \$.04 per serving, that meant devising an inexpensive and reusable heat shield that could keep the product cold for 24 hours and replaced the need for refrigeration in vending machines. Businesses centered on very low-cost products are typically low-margin but high-volume, and as such benefit from the standardization and supply-chain management skills that a multinational company possesses. Customers benefit from the low price and reliable quality of the product. Good quality ice cream, for example, was simply unavailable in India at prices affordable by BOP customers—it was regarded as a luxury available only to the middle class. The pent up demand was great, and in consequence, market acceptance was very rapid.

There is likewise strong unmet demand at the bottom of the pyramid for affordable services of all kinds. Companies in developing countries around the world have been surprised by the magnitude of demand—and willingness to pay cash—for education in particular. TARAhaat, a portal and telecenter network start-up focused on rural India, evolved its focus on education in response to overwhelming and initially unforeseen demand observed at its pilot sites. Its computer-enabled education products, called TARAGyan, run the gamut from basic IT training to English proficiency to vocational skills. They are now expected to be the largest single revenue generator for the company and its franchisees over the next several years.¹ TARAhaat's experience is far from unique. Of the more than 650 social enterprises serving poor communities in developing countries that are tracked by the Digital Dividend Clearinghouse, education accounts for nearly 20 percent, the largest single category.²



Credit and financial services are in high demand among the poor, who are often forced to borrow from usurious local moneylenders or do without. Microfinance organizations offer somewhat lower loan rates, but serve only an estimated 25 million customers worldwide, less than 5 percent of the potential customer base. However, new software tools combined with IT networks and new business models are demonstrating radical reductions in the cost of providing banking services to BOP markets—potentially enabling much wider access to credit, stimulating expansion of micro business activity, and opening a huge market for financial services. PRODEM, a microfinance organization in Bolivia, has used multilingual smart card ATMs to significantly reduce its marginal cost per customer. Smart cards store all of the customer's personal details, account numbers, transaction records, and a fingerprint, allowing cash dispensers to operate without permanent network connections—a significant advantage in remote rural areas. The machines offer voice commands in Spanish and several local dialects and are equipped with touch screens, allowing PRODEM to expand its customer base to include illiterate and semi-literate people. Standard Bank is also using a similar automated system to serve poor depositors in South Africa: customers can open an account with as little as \$8 and take advantage of a wide range of electronic banking services through ATMs, which keep paperwork and transaction costs down. The division, with 98 AutoBank E centers around the country, is already profitable. Citibank has also conducted an ATM-based banking experiment in India, called Suvidha, offering 24-hour a day, 7 day a week banking services with a minimum \$25 deposit. It was a major success, enlisting 150,000 customers in the city of Bangalore alone. Other Indian banks, like ICICI, have now entered this BOP finance market as well.

Small business services are also a popular offering in BOP markets. WIRES centers in Uganda provide women entrepreneurs in micro- and small-scale businesses with information on markets, prices, credit services, and trade support services—all repackaged in simple, ready-to-use formats in local languages. The centers are planning to provide other small business services like printing, faxing, copying, and access to accounting, spreadsheet, and other software on a fee basis. The recently-opened BusyInternet center in Ghana offers similar services, as well as business development consulting geared toward the expansion of traditional small businesses into e-commerce and other Internet-related activities. A network of information centers in Bolivia offers access to communications tools, information on production and commercialization methods, and a virtual marketplace for eco-agricultural producers in Bolivia—a partnership with the Bolivian Association of Ecological Producers Organizations ensures a customer base of more than 25,000 small producers across the country.

Some services simply cannot be provided profitably at low enough cost, at least not with traditional business models. Most mobile telecommunications providers, for example, cannot yet establish and operate their networks in the developing world at prices that are both profitable for companies and affordable for BOP consumers—even though, as the McKinsey consulting firm has observed, their numbers are so great that they “could potentially be served at a substantial profit on even the slimmest of margins.”³ One answer, as we will see below, is to develop lower-cost systems. Another is to aggregate demand—and purchasing power. Whereas an individual consumer might not be able to afford a particular product or service, a group, or even a whole village, often can. Shared access is rapidly becoming the standard model for providing IT access in BOP markets, making the community—not the individual—the customer.

Grameen Telecom, the village phone subsidiary of GrameenPhone, a commercial cellular provider in Bangladesh, is a well-documented example of the power of the shared use model. Its phones are owned by local entrepreneurs who operate them as franchises, each serving an entire village.



Customers pay cash for each use. The village phones generate revenues averaging \$90 per month, three times as much as the company's urban cell phones. In some larger villages, the phones generate revenues exceeding \$1,000 per month. Such remarkable revenues in rural villages in one of the world's poorest countries testify to the pent-up demand for basic connectivity and to the potential for aggregating the demand of poor communities to commercially significant levels via a shared use model.⁴

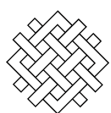
The term "telecenter" is often used to refer to shared access points like Grameen Telecom's village phones, and can refer to a facility providing simple telephone access, to one providing both telephone and Internet, to one providing not only telecommunications access but a whole host of ancillary services. India's Gyandoot, a start-up company, is a good example of a shared access model providing not only voice, but also Internet and related services. Located in the Dhar district in central India, where 60% of the population falls below the poverty line, Gyandoot currently encompasses 39 Internet-enabled kiosks owned and operated by local entrepreneurs. Kiosks provide not only Internet and telecommunications access but also a whole range of services, from e-government to e-education. Aggregating demand makes the system highly cost-effective: each kiosk serves 25-30 surrounding villages, while the network as a whole covers over 600 villages and more than half a million people.

Networks of shared access points can be useful channels for marketing and distribution of low-cost products and services of all kinds. Aptech Limited's Computer Education division, for example, is using a network of 1,000 telecenters in India to market and distribute Vidya, a computer training course specially-designed for BOP consumers and available in 7 Indian languages.

IT networks can also be useful for increasing customer loyalty and activity. EID Parry, an agricultural company, has established its own network of Internet kiosks called Parry's Corners in 275 villages in the Indian state of Tamil Nadu. Villagers use touch screens to obtain agricultural information in both Tamil and English. The company expects to improve its relationship with the farming community as well as enhance agricultural production. Pioneer Hi-Bred, a DuPont company, runs a similar operation in Latin America, using Internet kiosks not only to provide agricultural information but also to interact with its customers. Farmers can report different crop diseases or weather conditions, receive advice over the wire, and order the fertilizers, pesticides, or treatments they need to protect their harvests. They can also order seeds and other inputs for future plantings. Pioneer Hi-Bred's network strategy thus increases the company's top line growth not only by increasing customer loyalty, but also by increasing customer activity—using networks to make it easy for farmers to purchase their products.

Cost-Saving Efficiencies. No less important than top-line growth are cost-saving opportunities, especially those that can be applied across large portions of existing markets. We argue that competing in BOP markets, where radically lower cost structures are essential, is a powerful source of learning that can translate to efficiencies even in established markets. Participating in BOP markets is often the best way to fully capture potential supply chain efficiencies in both manufacturing and services. Furthermore, it is capital, not labor, that is the scarce resource at the bottom of the pyramid, and focusing on that difference can lead to greater productivity and higher returns.

One striking lesson from the bottom of the pyramid is that system efficiencies are possible if we disaggregate access from ownership. In India or Peru, access to a personal computer is most commonly on a pay-per-use basis. Call it sharing of resources. A familiar example is pay-per-use



automobiles—taxis or rental cars. Why not pay-per-use cell phones or refrigeration centers as well? In India, one can get access to the Internet on a pay-per-use basis for as low as \$ 0.10 per hour. And with shared use, one Internet line or connection can serve as many as 50 people and is likely to generate revenue many more hours of the day. The key transition is to move our thinking from ownership to access, from investment to pay per use, and from the individual to the community as the customer. With much higher system efficiencies in infrastructure investments, it is possible to create mass markets at the bottom of the pyramid despite the large numbers involved.

In order to successfully operate in BOP markets, managers must rethink the business metrics. While economic value creation is becoming broadly accepted in business as the overarching metric, managers continue to be focused on gross margins. Thus the implicit management metrics in many multinationals are high gross margins, high-cost, and capital intensiveness. Firms have become sensitive about capital intensity and overall costs, but high-cost strategies are still en vogue. Consider zero percent financing of cars, or 3,000 minutes of free airtime for switching to a new phone service.

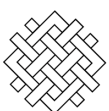
BOP markets are built on a very different model. In the first place, the model is not based on high margins. The margin per unit will be low. The economic returns are based on capital efficiency—both fixed and working capital. Hindustan Lever Ltd. operates a \$2.6 billion business portfolio with zero working capital, and focuses on capital needs as a primary consideration in evaluating new opportunities: no fixed capital investment in a new business is the norm. As a result, its return on investment is very high. Capital efficiency and ROI, not return on sales or gross margins, are the appropriate metrics for the bottom of the pyramid.

Low margins, very low capital needs, focused distribution and technology investments and very large volumes lead to very high ROI businesses, creating great economic value for shareholders. Might some of these lessons also apply in existing markets?

Outsourcing to BOP labor markets is a widely-used approach for cost-containment. It has led to the increasing prominence of China in manufacturing and the growth of a substantial software industry in India. Remote services—made possible by the rapid expansion of fast digital networks—may be an even larger cost-saving opportunity. Call centers, order entry services, back office processing and many other labor-intensive services may also migrate to developing regions. Venture capitalist Vinod Khosla describes the opportunity this way: “I suspect that by 2010 we will be talking about [remote services] as the fastest growing part of the world economy, with many trillions of dollars of new markets created. There is no reason why services like bill processing should not be done independently of a company.”⁵

Remote services can apply not just to the needs of large corporations but also on a much smaller scale. For example, it is possible to access very small printing presses in India and have stationery, wedding cards, or other materials printed and delivered in the United States. The quality levels are the same, and the value proposition is one tenth of the cost and in one fifth of the time. These small firms use the Web, DHL, and FedEx, and a global bank to complete their transactions. Our traditional views of resource requirements to enter an international market do not constrain these “micro-MNCs.”

Remote services are also not just a source of cost reduction. They can also be a key way to access scarce skills. Rather than bring the designer or the engineer or the translator to the job, the



job can be sent to him or her, potentially improving the quality of the talent that can be applied to a business problem as well as reducing relocation costs and visa problems.

Cemex, a Mexico-based MNC, developed a market for do-it-yourself home improvement at the bottom of the pyramid by linking all its plants and delivery trucks into a network. Trucks are tracked through a GPS system. The sales staff take customer orders for small batches online or over the telephone and can dispatch trucks to deliver within 90 minutes—a combination of taxi dispatch and Domino's pizza delivery. This experiment is proving to be very successful and will be exported to over 30 developing countries where Cemex does business.

ITC Limited, an agriculture company, has deployed a total of 740 kiosks serving 424,000 of its soy, coffee, shrimp, and wheat farmers in 3,600 villages spread across India. These kiosks help increase farm productivity by disseminating the latest information on weather and best practices in farming, facilitating the supply of quality inputs, and supporting other services, like soil and water testing. They also enable a type of e-procurement system, helping to improve price realization and minimize transaction costs involved in marketing farm produce. S. Sivakumar, head of ITC's agribusiness division, reports that the company's procurement costs have fallen since eChoupal was implemented, despite paying higher prices to its farmers, as it has enabled the company to eliminate non-value-adding activities in the chain. It should be noted that ITC engages other companies on the platform to sell inputs and services it does not offer—eChoupal thus facilitates top-line growth for related companies in addition to producing cost savings for ITC.

Innovation. Serving poor communities can be a powerful source of innovation and learning for multinational firms, with the potential to create new markets and transform existing ones. Unilever's experience in learning from a local competitor how to profitably produce and market detergent for BOP markets within India is well documented.⁶ The company has since translated this business approach to Brazil and to China and has made the bottom of pyramid a strategic priority, an approach that is yielding rapid innovation and new consumer products for BOP markets, such as the candy product described above. We believe that no MNC can afford to ignore the long-term competitive advantage from innovation, learning, and market intelligence that comes from participation in BOP markets.

Not only is innovation critical to continued growth, but failure to pay attention to innovations in BOP markets can lead to being blind-sided by unexpected competitors entering existing markets. The constraints and needs of BOP markets force attention to radically lower cost structures and counterintuitive new business models, and the BOP can serve as a testing ground for new technologies with global potential.

A number of experiments are already underway. The Swedish wireless company Ericsson has developed a small cellular system called a MiniGSM that comes packaged in a container for easy shipment and deployment and provides stand-alone or networked voice and data communications for up to 5,000 users within a 35 kilometer radius. Capital costs can be as low as \$4 per user, assuming a village phone (shared use) model. The company has made commercial sales for rural applications to India and Russia. It finds that individual phones operated by local entrepreneurs on a franchise model generate revenues averaging \$100 per month. An Indian engineering professor at the Indian Institute of Technology, Chennai, has developed a version of wireless local loop technology adapted for Indian conditions and licensed to a number of manufacturers. This CorDECT technology is already being deployed in India, Brazil, and other countries to offer voice and Internet

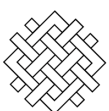


services; already low-cost (about the same as the Ericsson MiniGSM system), it is expected to eventually cost much less than conventional telecom solutions for rural areas. The MIT Media Lab's collaboration with the Indian government is developing potentially very low cost devices that allow users to communicate over Internet voice systems (VOIP) without keyboards and in multiple languages. The new access devices would be far less complex than traditional computers, but would perform many of the same basic functions.⁷ These and other developments reflect the potential as R&D efforts are focused on the needs of the bottom of the pyramid. But radically lower cost technologies, if successful, are also likely to impact existing markets, giving those firms with access to BOP innovations a powerful competitive advantage.

Learning from BOP markets can extend beyond products to entirely new business models. Cellular phone companies throughout Latin America have expanded their customer base rapidly, especially in urban slums and other poor communities, by offering phones with as little as \$10 or \$20 in pre-paid airtime. Additional pre-paid minutes can be purchased later. The service model has been popular because it responds to the needs of BOP customers with modest or intermittent purchasing power, and is very profitable for providers, since it is offered with high per-minute rates and eliminates billing and collection costs. Now very similar pre-paid cellular services are expanding rapidly in Europe, where they appeal to younger customers.

A second example is what appears to be an effective business strategy for providing connectivity to rural villages. It combines the shared access approach and franchise business model pioneered by Grameen Telecom's village phones with the no-frills CorDECT wireless local loop technology described above. As deployed by n-Logue, an Indian company, the approach connects hundreds of franchised village kiosks containing both a computer and a phone with a central node, which is in turn connected to the national phone network and the Internet. Each node, also a franchise, can serve 30,000-50,000 customers, providing phone, e-mail, Internet services, and relevant local information at prices affordable in the villages of rural India. Capital costs for the n-Logue system are now about \$400 per wireless "line" and are projected to decline to \$100—a factor of 10 or more below conventional telecom costs—and on a per customer basis may amount to as little as \$1 per user.⁸ At least 2 similar ventures are exploring opportunities in Brazil and in East Africa. Research in India and in Bangladesh demonstrates that people in poor rural communities will eagerly make use of—and pay for—communications access, devoting 5-7% of their incomes.⁹ With costs dramatically lower than conventional telecom or ISP costs, strong customer demand, and high equipment utilization because of shared access, wireless franchise models begin to look like a powerful model for ending rural isolation and linking untapped rural markets to the global economy. The advent of new shared-spectrum wireless technologies such as 802.11b and ultra wideband are likely to spur further business model innovations and still lower costs.

Western-style e-commerce models have not had notable success in developing economies. But BOP markets, often inefficient and dependent on many layers of intermediaries, should benefit disproportionately from Internet-based systems. Now e-commerce systems designed specifically to serve small enterprises are starting to appear. Voxiva, a U.S. start-up operating in Peru, is offering automated business applications over the phone in partnership with Telefónica, the dominant local carrier. The inexpensive services include voicemail, data entry, order placement or other transactions, checking account balances, monitoring delivery status, and accessing pre-recorded information directories. According to the Boston Consulting Group, the Peruvian Ministry of Health uses Voxiva to disseminate information, take pharmaceutical orders, and link health care workers spread among 6,000 offices and clinics.¹⁰ Microfinance institutions use it to process loan applications and



communicate with borrowers. Voxiva offers Web-based services too, but far more of its potential customers in Latin America have access to a phone. Sebrae, a Brazilian business assistance agency, has also developed an easy-to-use set of small business tools, from accounting to ordering over the Internet. The system lets SMEs use their own or a shared-access computer to conduct their business more efficiently, to link up and pool their purchases to gain economies of scale, and to bid for services to large businesses that would otherwise be hard to approach.¹¹

Commercial cybercafés based on western models and non-profit community telecenters offering Internet access have proliferated in developing countries in recent years. The failure rate has been high, especially for telecenters subsidized by governments or international organizations but also for cybercafés, because of a lack of viable business models. A more robust model for BOP markets is being pioneered by Infocentros, a telecenter chain in El Salvador that is organized as a non-profit and capitalized by a 10-year, no-interest government loan, but run as a business. The Infocentros strategy is to use its telecenters as local business development centers, focusing on courseware and other local content-based businesses that use the telecenter services. For example, one telecenter offered a course in how to rebuild earthquake-shattered homes with local materials which proved so popular that its computers were booked 24 hours a day for a time. Access charges are kept low, but telecenter revenues are more broadly based, including a share in the cash flow generated by businesses it helps start, fees for training students in IT skills, and teleconferencing fees for doctors and other local professionals. Infocentros also uses a sophisticated franchising model to expand its telecenter network and expects to provide access to 2 million people, a third of El Salvador's population, within a few years.¹²

Another key model in developing countries is to partner with existing institutions—maximizing existing infrastructure, both physical and social. Establishing telecenters within other businesses or well-rooted institutions has proven particularly effective for achieving acceptance within the community and making effective use of limited physical infrastructure in poor communities. The Postal Services Corporation of Pakistan has signed an agreement with commercial ISP Paknet to establish cybercafés in post offices throughout the country. Using a slightly different model, Colnodo's Neighborhood Information Units in Colombia are housed in and managed jointly with organizations with more than 15 years combined experience in the community.

The limitations of BOP markets can be turned to a strategic advantage. A lack of dependable electric power stimulated the FreePlay Group to introduce hand-cranked radios in South Africa that subsequently became a popular item for hikers and survivalists in the United States. Interest in solar cell-powered devices, from cell phone chargers to water pumps, is growing rapidly in emerging markets for similar reasons. Voice recognition software has been introduced by cellular carriers like Sprint and by Internet companies like Tellme as a convenience for western customers. For BOP markets, voice recognition is not a convenient but a potentially transforming technology, offering illiterate or semi-literate people the opportunity to find information, conduct transactions, and use Internet services. Where is the market opportunity likely to be greater: sophisticated offerings to demanding western customers that have many other options, or basic systems in languages such as Spanish, Mandarin, or Hindi that can provide an irreplaceable service for hundreds of millions of potential customers?

Ultra wideband is an emerging wireless technology that has the potential to provide inexpensive and very high capacity communications for rural and urban areas alike. It is presently licensed in the United States only for limited, very low-power applications, in part because it spreads a signal



across already crowded portions of the spectrum. In many developing countries, however, spectrum is more available. In fact, the Dandin Group, a U.S. company, is already building an ultra wideband communications system for the Kingdom of Tonga, whose 110,000 population is spread over 70 Pacific islands, making the country a testbed for a next generation technology that could transform the economics of Internet access.

Engagement by multinational companies in the bottom of the pyramid is likely to generate very significant collateral social benefits, including job creation, expanded economic opportunity, and a more widespread capacity to participate in economic and political activity. These are clearly important. But we believe that the purely business benefits of top-line growth, increased efficiency, and access to innovation make the most compelling case for corporate engagement in these new markets.

STRATEGIES FOR SERVING BOP MARKETS

Given the economic potential and unique characteristics of the bottom of the pyramid, how can companies overcome internal and external barriers and best approach the process of engagement? We believe there are several effective strategies to accomplish these objectives, enable low-cost learning and experimentation, and minimize or share risks.

Overcoming External Barriers. A critical strategy for overcoming infrastructure and other external barriers is to use information and communications technologies (ICTs) to link the informal economy to established markets. Michael Best of Media Lab Asia and Colin Maclay of Harvard's CID unit underscore that "ICTs present staggering new opportunities for social and economic integration" and can thus serve as a catalyst for synergies between development goals and business objectives.¹³ As described above, ICT networks can provide access to otherwise isolated communities, provide marketing and distribution channels, drive down transaction costs, and help aggregate demand and buying power. Smart cards and other emerging technologies provide inexpensive means of giving poor customers a secure identity, a transaction or credit history, and even a "virtual" address—the prerequisites for them to interact with the formal economy, and vice versa. Consequently, it is not just ICT companies that should be interested in closing the global digital divide; encouraging the spread of low-cost digital networks at the bottom of the pyramid becomes a market-development priority for virtually all global companies. A recent analysis supports the idea that improved connectivity is an important catalyst for more effective markets, which in turn are critical to boosting income at the bottom of the pyramid and accelerating economic growth.¹⁴

Moreover, global companies engaged in BOP markets stand to gain from the effects of network expansion on those markets. As described in Metcalfe's Law, the value of a network increases as the square of the number of users. By the same logic, the value and vigor of the economic activity that will be generated when hundreds of thousands of previously isolated rural communities can buy and sell from each other and from urban markets will increase disproportionately—to the benefit of all those who participate in it.

Changing Management Perspectives. The most critical internal barriers to seizing the business opportunities at the bottom of the pyramid are those of perception. Unless CEOs and other key business leaders confront their own preconceptions, companies are unlikely to master the real



challenges of these unconventional markets. While most discussion of BOP markets center around the financial investments needed, the real constraint, we believe, is the need for human capital development. We need to develop managers, development engineers, and sales forces that understand and are excited by the opportunities BOP markets offer.

The traditional workforce in a multinational is so rigidly socialized to run a high-cost operation that without specific training and socialization, they are unlikely to see new opportunities. We need a MNC equivalent of the Peace Corps that allows young managers to spend a couple of formative years in BOP markets. Few companies have developed a cadre of people who are comfortable with these markets. Hindustan Lever may be one of the exceptions. The company expects all of its executive recruits to spend at least eight weeks living in the villages of India to get a “gut level” experience of the reality in Indian BOP markets. They must be involved in some project in the village—building a road, cleaning up the water catchment area, teaching in the school or improving the health clinic. The goal is to engage with the local population. Even with this approach, HLL feels that managers can easily get disconnected from their reality. They are initiating a massive program for managers at all levels—from the CEO down—to reconnect with their customers by visiting the villages, talking to the rural and urban poor, visiting the shops that these customers frequent, and asking them about their experience with HLL products and those of its competitors. Such efforts are still very rare.

Forging New Partnerships. A key source of learning about BOP markets, as well as an effective strategy for entering them, is to partner with those who know them well, and who are key movers within the communities that are ultimately the customer. But the choice of partners must go far beyond other businesses. Non-governmental organizations (NGOs) and community groups are a key source of knowledge and often where most experimentation with new services and new delivery models occurs. Of the social enterprises experimenting with creative uses of digital technology tracked by the Digital Dividend Clearinghouse, nearly 80% are NGOs.

LOW-COST LEARNING AND ACCESS TO MARKET INTELLIGENCE

What is the experience from creative new approaches with digital technologies at the bottom of the pyramid? What sectors or countries show the most activity or fastest growth? What new business models show promise? What kinds of partnerships—for funding, distribution, public relations—seem to be working?

The Digital Dividend Clearinghouse (<http://wriws1.digitaldividend.org>) is an online platform that tracks activity in providing connectivity and digital services to underserved populations in developing countries. The Clearinghouse is more than 650 projects strong, and growing. It also incorporates discussion and communications tools that allow member projects to interact with each other and with interested sources of investment, publicity, business development and technical help—fostering an online community to facilitate learning and experience-sharing. The platform permits tracking trends or conducting specialized analyses, and all projects are audited semi-annually to ensure accuracy and timeliness of data and contact points. Depth and range of information, combined with networking and solution-sharing tools, make the Clearinghouse a unique platform for market analysis, local partnering, and rapid, low-cost learning.

Entrepreneurs also will be critical partners. The growth of cable TV in India has been very rapid, reaching 50 million connections a decade after introduction, largely because of small entrepre-



neurs.¹⁵ The entrepreneurs have built the last mile of the network, typically by putting a satellite dish on their house and laying cable to connect their neighbors. But in BOP markets, entrepreneurs lack access to the mentoring, technical help, and business support services available in the industrial world. Access to seed funding is even harder. So MNCs may need to take on mentoring roles or partner with enterprise development organizations that help create investment and partnering opportunities.

The development of BOP markets requires an active role for women, as entrepreneurs and as customers. There is overwhelming evidence that poor women are able to play a significant role in economic development. They also are likely to be the most critical customers in terms of product acceptance, because of their central roles in childcare, household management, and the social capital of communities. Listening to and educating such customers is essential.

Structural Changes. Most multinationals are not organized to address BOP markets. Structural changes may be needed to create a vehicle for activity in this new area. The possibilities include:

Creating an R&D activity in a developing country and focused on BOP opportunities. When Hewlett-Packard launched its e-Inclusion division focusing on rural BOP markets, it set up two new branches of the famed HP Labs, in India and China, with the explicit mission of developing products and services for these markets. Hindustan Lever also maintains an active R&D effort in India.

Creating a venture group and an internal investment fund aimed at seeding entrepreneurial ventures in BOP markets. Such investments can function as a source of learning and market development. But they can also play a more indirect role—of growing the overall BOP market in sectors that will ultimately benefit the multinational. We are aware of at least one major U.S. corporation planning such a fund, and a similar fund focused on digital ventures—recently approved by the G8—is currently being organized by the Digital Opportunity Task Force.

Creating a new division or a BOP business development task force. By pulling people from across a company, it is possible to assemble a diverse group of talents and empower them to function as a “skunk works” that ignores conventional dogma and feels free to innovate. The potential collateral social benefits of BOP engagement can provide powerful motivation for such a task force: when HP announced its e-Inclusion division, it was overwhelmed by far more volunteers to join the effort than it could accommodate.

Sharing Risks. Regardless of the opportunities, many companies will regard the bottom of the pyramid as uncertain and therefore risky territory. Consortia provide one way to share the risks. We have already pointed out the value of ICT networks as marketing and distribution channels for consumer goods and services. Imagine sharing the costs of building a rural network among the communications company that would operate it, a consumer goods company seeking channels to expand its sales, and a bank that was financing the construction and wanted to make loans and collect deposits from rural customers.

Another risk-sharing approach is to invest where there are powerful synergies. The Global Digital Opportunity Initiative, a partnership of the Markle Foundation and the UN Development Program, will assist a small number of developing countries to focus and implement a strategy to harness ICT for development. The countries will be chosen in part based on their interest and their willingness to



make supportive reforms. The initiative plans to encourage international aid agencies and global firms to help with implementation, in an effort to concentrate resources and create reinforcing effects.

CONCLUSIONS

There are powerful business drivers for expanding the market at the bottom. Lack of organic growth in traditional markets is a compelling motivation to seek opportunities for top line growth in BOP markets. The relentless push for competitive advantage makes access to the efficiencies and fundamental innovation that BOP markets require equally appealing.

There is also a powerful and increasingly undeniable social need—the poverty in which nearly 4 billion people are mired. The jobs, access to affordable basic services, and other collateral social benefits that can spring from the engagement of global firms at the bottom of the pyramid are an inspired and effective response to that need. Might not investment and other efforts to create markets and workable business models be a more effective solution to poverty than increased foreign aid alone?

Since BOP markets require significant rethinking of managerial practices within the MNC, it is legitimate for managers to pose the question: is it worth the effort?

One answer is that big firms should solve big problems. They have the resources to take on the mega-opportunity that 4 billion unserved people represent. It is hard to argue that the wealth of technology and talent within leading multinationals are better allocated to trivial variations of existing products than to the real needs—and real opportunities—at the bottom of the pyramid. Moreover, because of market pressures, MNCs are likely to bring to BOP markets a level of accountability for performance and resource use that neither international development agencies nor developing country governments have demonstrated during the last 50 years. Participation by MNCs could set a new standard, as well as a new market-driven paradigm for addressing poverty.

But a second answer is that big firms need to focus on big market opportunities if they want to generate real growth. It is simply good business strategy to be engaged in a meaningful way in potentially large, untapped markets that offer new customers, cost-saving opportunities, and access to radical innovation. The business opportunities at the bottom of the pyramid are real and open to any MNC willing to engage and learn.



END NOTES

¹ Lawlor, Andrew, Caitlin Peterson, and Vivek Sandell. "Catalyzing Rural Development: TARAhaat.com." World Resources Institute, July 2001.

² <http://wriws1.digitaldividend.org>

³ Dhawan, Rajat, Chris Dorian, Rajat Gupta, and Sasi K. Sunkara. "Connecting the Unconnected." *The McKinsey Quarterly*, 2001 Number 4 (online at http://www.mckinseyquarterly.com/article_abstract.asp?tk=:1110:22&ar=1110&L2=22&L3=77).

⁴ Cohen, Nevin. "Rural Connectivity: Grameen Telecom's Village Phones." World Resources Institute, June 2001 (online at <http://www.digitaldividend.org>).

⁵ Vinod Khosla, comments at the Creating Digital Dividends Conference, October 16, 2000 in Seattle, WA, USA.

⁶ C.K.Prahalad and Stuart L. Hart, "The Fortune at the Bottom of the Pyramid," *Strategy + Business*, Issue 26, January 2002.

⁷ Best, Michael, and Colin M. Maclay. "Community Internet Access in Rural Areas: Solving the Economic Sustainability Puzzle." In Kirkman, Geoffrey, ed. *The Global Information Technology Report 2001-2002: Readiness for the Networked World*. Oxford University Press, March 2002: p. 80 (online at http://www.cid.harvard.edu/cr/gitrr_030202.html).

⁸ Howard, Joy, Erik Simanis, and Charis Simms. "Sustainable Deployment for Rural Connectivity: The n-Logue Model." World Resources Institute, July 2001 (online at <http://www.digitaldividend.org>).

⁹ Best and Maclay; Cohen.

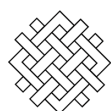
¹⁰ "Option on the Future: The Role of Business in Closing the Digital Divide." Boston Consulting Group, January 2002.

¹¹ Hekl, Jason and Carlos Waack. "ViaSebrae: An E-Commerce Solution for Small Businesses in Brazil." World Resources Institute, June 2001.

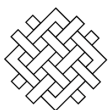
¹² Khelladi, Yacine. "Community-Based Content: The Infocentros Telecenter Model." World Resources Institute, July 2001.

¹³ Best and Maclay, 76.

¹⁴ Eggleston, Karen, Robert Jensen, and Richard Zeckhauser. "Information and Communication Technologies, Markets, and Economic Development." In Kirkman, Geoffrey, ed. *The Global Information Technology Report 2001-2002: Readiness for the Networked World*. Oxford University Press, March 2002: p. 71 (online at http://www.cid.harvard.edu/cr/gitrr_030202.html).



¹⁵ Dhawan, Rajat, Chris Dorian, Rajat Gupta, and Sasi K. Sunkara. "Connecting the Unconnected." *The McKinsey Quarterly*, 2001 Number 4 (online at http://www.mckinseyquarterly.com/article_abstract.asp?tk=:1110:22&ar=1110&L2=22&L3=77).



APPENDIX 1. THE *WHAT WORKS* SERIES OF BUSINESS CASE STUDIES

World Resources Institute has been conducting in-depth business case studies of promising digital or digitally-enabled enterprises operating in developing countries. It is pursuing this activity in collaboration with leading companies, and with the support of the Markle Foundation, in support of specific goals:

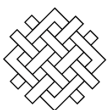
To build intellectual capital and learning about business models that can reach unserved populations at the bottom of the economic pyramid, and thus to facilitate business solutions that can close the digital divide and accelerate sustainable development;

To develop the business case for investments, partnerships, and technology development efforts aimed at tapping these potential new markets and achieving potential social benefits;

To broaden awareness of barriers to the broader use of digital technologies as a key component of national development strategies and build support for needed policy changes;

To assist companies in identifying the new skills and strategies needed to successfully enter markets at the bottom of the pyramid, in developing low-cost means of learning and experimentation, and in finding appropriate partners for such efforts.

More than 650 additional digital dividend projects—innovative uses of digital technology for a broad array of social purposes—can be found in the Digital Dividend Clearinghouse at <http://wriws1.digitaldividend.org>.



WHAT WORKS: THE INFOCENTROS TELECENTER MODEL

Telephones are scarce in El Salvador. Individual computer ownership is even more scarce—fewer than 2 PCs per 100 inhabitants—and dial-up Internet costs prohibitive. As a result, less than 1% of the population now uses the Internet. Changing this situation is the mission of the Infocentros Association (IA), a newly-created non-profit organized and run like a business.¹ Its goal is to connect 2 million middle and lower income Salvadorians—one third of the population—to the Internet within 2 years through a chain of 100 telecenters. But connectivity is just the infrastructure: the Infocentros strategy is to build an “infostructure” of local content as well, in order to transform El Salvador’s culture into an information society.

Business Model

Although formally a non-profit, Infocentros is headed by a CEO and will build, operate, and franchise telecenters throughout El Salvador. The IA business strategy is built around franchising: of the 100 telecenters planned by the end of 2002, only 10 will be operated by IA itself as regional “mother” centers.² Franchises will cost about \$80,000 and are expected to be profitable within 27 months. However, IA will launch each center and get it operating well before handing it over to the franchise partner; franchise revenues will be re-invested in additional centers and new services. Telecenters will typically have 30 computers and include open access areas and training or on-line conferencing areas.

Infocentros will also provide or catalyze the creation of local content, computer training services, and e-commerce infrastructure, in order to make Internet access an effective development tool. It is this content, such as courseware or other businesses built around computers and Internet access, that is central to the IA business model. Relevant local content generates usage and additional revenue sources for telecenters, as well as significant social benefits for the country. Courseware generated in one telecenter, such as a currently popular course on how to rebuild earthquake-damaged houses, can be offered in all others as well, its value increasing as the Infocentros network expands. In addition, Infocentros is developing strategic alliances with groups that can benefit from information technology, such as hospitals and local governments.

Human Capacity

Because of the focus on local content and training, human capacity development is a major outcome of the Infocentros approach. At the telecenter level, Infocentros trains its own rapidly-growing staff and offers one-to-one assistance to customers unfamiliar with computers or the Internet. Through alliances with government and business, IA also seeks to teach a large segment of the population how to use information technology to increase skills, create jobs and raise incomes, and overcome social problems. For example, Infocentros is negotiating an 8-hour Internet training course for all Salvadorian high school students, in partnership with the Education Ministry. IA is also developing financial applications for small and micro businesses and still other applications for farmers, doctors, and government officials. IA plans to offer free Web page hosting for the 470,000 small businesses that, in El Salvador, constitute 99% of private enterprises.



Infrastructure

A significant obstacle to Internet use in El Salvador is the high cost of bandwidth.³ Although Infocentros has been able to negotiate discounted rates, connections remain expensive. If Infocentros can use its market power to lower the cost of Internet access, it could gain a strong competitive advantage over private cybercafes.

Policy

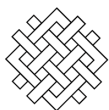
Infocentros has benefited from the government's 10-year, interest-free loan and from alliances with specific government ministries. In addition, IA has benefited from a number of policy initiatives aimed at liberalizing the country's economy. El Salvador's deregulation of the telecommunications sector and resulting competition, for example, have helped to reduce Internet access costs somewhat. Banking deregulation and privatization have also strengthened the investment capacity of entrepreneurs, which is likely to help the financing of IA franchises. Still further legislative and regulatory action will be required if the Infocentros plan to make its telecenters function as e-commerce ordering and payment sites is to succeed.

Uncertainty about the legality of Internet telephony has kept Infocentros from offering this potentially valuable service. IA's telecenters do not prohibit the use of applications like Net2Phone, and during the January earthquake offered Salvadorians free Internet calls to notify relatives in the US, with the blessing of the telecom companies. But Infocentros has chosen not to publicize the technology or to challenge the telecom companies who provide its Internet connections by seeking legal authority to offer the service. In doing so, it is foregoing up a potentially lucrative market, since many Salvadorians live overseas.

Enterprise

The Infocentros business model, with its rapid deployment of franchises to reach scale, enables the enterprise to negotiate favorable contracts for equipment and services from a wide range of vendors. IA also has been very entrepreneurial, negotiating deals with private companies to offer discounted Internet access to groups of employees or clients and agreements with several government agencies to create e-government portals. To increase telecenter usage during evenings and weekends, partnerships are being developed with schools and small businesses that wish to offer computer and Internet training to their students, faculty, and staff. To extend Internet access throughout El Salvador and reduce the need for physical plant, IA is planning to create virtual telecenters located within existing institutions, such as medical centers and central courthouses. And to help perpetuate its entrepreneurial spirit, IA maintains a 3-person new business development group charged with assessing new opportunities quickly. Nonetheless, long term profitability is not assured. As many Internet startups have found, building market share and creating content can be costly. Currently, for example, 90% of IA telecenter users are paying discounted student rates.

Infocentros assists its franchisees by supplying initial management support, training, technical assistance, network marketing, and other services to help ensure that telecenters remain profitable. But it also uses an enterprise-wide Intranet to share new business ideas across the telecenter network and to compare the monthly performance of each telecenter, providing strong incentives for telecenter managers; managers who do not perform are replaced.



Content

Community-based content is what sets Infocentros apart. One of its founders believes this approach gives IA a competitive advantage over U.S.-style Internet access providers in Latin America. In any event, the enterprise takes content creation seriously. It is building a new digital production center to create audiovisual content for education and professional training courseware that can be broadcast over the Internet. It is also developing a B2B e-commerce portal for small and micro-entrepreneurs, and a suite of business applications designed to help these business owners manage their finances, investments, and billing—services available only at telecenters.

Key Lessons

Infocentros is an example of a development-centered ICT strategy based in a unique partnership between government and civil society. It draws on 10 years of accumulated experience in telecenter operation and franchising gained by Red Científica Peruana, a Peruvian NGO that now controls half the Internet access market in that country, and substantial financial and other support from El Salvador's government.

Infocentros is a start-up enterprise—even though a non-profit association—but it appears to be meeting or exceeding its targets. Its business model gains efficiencies by aggregating users in telecenters, providing shared access to computers and bandwidth, generating additional revenues from local content, and aggressive franchising. As a result, it seems capable of reaching scale and providing widespread Internet access and the related social benefits that its creators intend. Critical to its business and social success will be the generation of valuable content and training of customers who understand how to use information technology for their own education, to obtain government services, to grow their businesses, or to communicate more effectively.



WHAT WORKS: GRAMEEN TELECOM'S VILLAGE PHONES

In Bangladesh, 97% of homes and virtually all rural villages lack a telephone, making the country one of the least wired in the world. This lack of connectivity has contributed to the underdevelopment of the country and the impoverishment of individual Bangladeshis. To address this problem Grameen Bank, a micro-finance institution, formed two entities: 1) Grameen Telecom, a wholly-owned non-profit organization to provide phone service in rural areas as an income-generating activity for members of Grameen Bank, and 2) GrameenPhone Ltd. (in partnership with U.S., Norwegian, and Japanese companies), a for-profit entity that bid on and in 1996 won a national GSM cellular license. GrameenPhone (GP) has since become the country's dominant mobile carrier,⁴ providing service in urban areas and along the major railway routes via a network of cellular towers linked by fiber optic cable.

Business Model

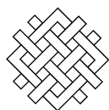
Grameen Telecom (GT) has the explicit goal of helping Grameen Bank's members shift from relatively low-yield traditional ventures like animal husbandry into the technology sector, by creating micro-enterprises that can both generate individual income and provide whole villages with connectivity. GT uses GrameenPhone's advanced GSM technology in stationary village phones owned and operated by local entrepreneurs. These entrepreneurs purchase the phones with money borrowed from Grameen Bank,⁵ and sell phone service to customers by the call. Rates are generally twice the wholesale rate charged by GP plus taxes and airtime fees. An average of 70 customers a month uses each phone; this shared-access business model concentrates demand and creates relatively high cash flow, even in poor villages, enabling operators to make regular loan payments and still turn a profit. Repayment rates to Grameen Bank are 90-95%.

Rural telephones are also very profitable for GrameenPhone, bringing in revenues per phone of \$93 a month in March 2001, twice as much as GP's urban mobile phones. However, rural phones represent less than 2% of the phones used on GP's network and bring in only 8 % of the company's total revenue, so that the company's profitability depends primarily on its urban business.

Infrastructure

Grameen Telecom's original goal was to have a phone in every one of Bangladesh's 65,000 villages by 2000, but only 4,543 village phones were in service as of March, 2001. The primary constraint has been a distorted telecommunications market controlled by a monopolistic government provider, BTTB. Because BTTB has been unwilling to increase its interconnect capacity, despite GP's offer to pay for the upgrading, GP and other mobile companies have been unable to connect additional phones to the national switched network and instead have had to offer primarily mobile-to-mobile phone services.⁶ This infrastructure barrier has also limited expansion of the rural phone network.

A second constraint is GP's use of cellular technology for fixed phone centers, a choice that is neither efficient nor probably competitive over the long run. GSM—used throughout much of Europe and Asia—is far more expensive than fixed wireless local loop (WLL) systems used by Grameen Telecom's competitors, Sheba and BRTA. While GSM towers can provide service within 5 kilome-



ters, WLL towers provide coverage within 50 kilometers. Moreover, WLL provides better bandwidth for data transmission and at a lower cost.

Human Capacity

Key to the success of the village phone has been the development of a cadre of entrepreneurs nurtured by Grameen Bank. After the Bank approves financing of a phone, GT buys a cellular phone subscription on behalf of the entrepreneur and provides the connection, necessary hardware, and training to operate it. GT also tracks trends in phone use and identifies operators who are having difficulty marketing or collecting payments for the service.

The village phone network also yields important secondary benefits to the women who live in the villages that they serve. Because 95% of operators are female, and the phones are in their homes, women who might otherwise have had very limited access to a phone feel comfortable using one. There is also some evidence that, because the phones are so important for whole villages, having female operators has helped to enhance the status of women in the communities where they work.

Policy

Bangladesh's telecom regulatory regime is both antiquated and anti-competitive. One consequence has been BTTB's ability to maintain control over the switched network without expanding its capacity, even in the face of high demand. Scarcity forces Bangladeshis to pay large sums (allegedly both legal and illegal) to BTTB officials in order to obtain phone service. BTTB's control of the network is likely to become an even more significant market disadvantage to GP and other mobile operators when BTTB launches its own GSM mobile network this year.

Enterprise

Grameen Telecom's village phone venture as structured in Bangladesh would not be feasible without access to the credit and bill collection services provided by Grameen Bank and the infrastructure and urban network provided by GrameenPhone. Village phones would be far less successful if GP were not able to discount by 50% the rate charged to GT for a phone call, an underlying subsidy made possible by a transfer of profits from the more profitable urban part of the business to the rural sector—and a significant advantage unavailable to rural-only competitors BRTA and Sheba.

Content

Demand for telephone service in rural Bangladesh remains high despite relatively limited marketing and no overt content development by GT or GP. In large measure this is because the village phones offer tremendous economic value to the users who would otherwise have to spend hours or days traveling to other towns to make a phone call. According to one study, the average consumer savings for a phone call from a village to Dhaka ranges from 2.6% to 9.8% of the user's mean monthly household income.

Bangladesh is also a labor-exporting country with many rural people working overseas. As a result, one of the most important functions of the village phone is to facilitate remittances from relatives.⁷ Local business people and farmers use the phone to reduce costs, get better prices for their products, and plan shipments to reduce spoilage of perishable products.



Key Lessons

Were it not for policy and infrastructure barriers, Grameen Telecom's village phones might already serve all of Bangladesh's 65,000 rural villages. The high revenues generated by the shared-access business model suggest how powerful market drivers for such approaches can be. And as a development-centered IT strategy, the village phone program promises broad development benefits, including enhanced productivity and social welfare and new sources of rural income.

Nonetheless, the Grameen Telecom business model relies on subsidies from urban cellular users, on financing and other support from Grameen Bank, and on GSM cellular technology that is unsuited (or at least very high cost) for sparsely-populated rural areas, for fixed phone centers, and for data transmission. The wireless local loop technologies used by GT's rural competitors or wireless multi-point distribution technologies—already being deployed by the TeNeT group and their partners in rural India—promise lower costs and higher data bandwidths. Under favorable policy environments, such rural networks combined with shared access strategies that concentrate demand and generate efficient usage may well enable profitable, market-driven approaches to providing connectivity and infrastructure in rural areas.



WHAT WORKS: EDUC.AR'S STRATEGY FOR A NATION CONNECTED & LEARNING

The Argentine government and some dedicated entrepreneurs have set out to transform the national education system through the Educ.ar project. The goal is to provide a nationally and internationally competitive education to all Argentine students by connecting every Argentine school to the Internet, training every teacher in its use, and providing an entire national curriculum online. Educ.ar, structured as a novel public-private collaboration, is already being replicated in Chile and other Latin American countries.

Business Model

Educ.ar is based on a three pillar strategy:

Connectivity: The connectivity plan provides computer equipment and online access for 40,000 Argentine schools by 2004.

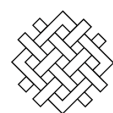
Capacity: The capacity-building program will train 550,000 school teachers in the use and creation of digital content and media-tools for the classroom.

Content: The Educ.ar portal (www.educ.ar) provides quality educational content for teachers and students and filtered access to the Internet via a digital network.

The connectivity plan and the capacity-building program are direct activities of the Ministry of Education, financed through the government and multilateral loans to the government. The Educ.ar portal is an entrepreneurial enterprise based in Buenos Aires which plans to generate revenues through advertising, e-commerce, and corporate sponsorships; for the time being, Educ.ar is wholly-owned by the government, but operates as a private enterprise. The benefits of the structure are clear, with the government assuming the costs of connectivity and training, paving the way for Educ.ar to provide high quality services to the education market. The challenges are clear as well: connecting and training an entire national school system is an audacious pursuit. On Educ.ar's part, generating revenue for self-sufficiency is no easy task, especially given the collapse of many online advertising revenue models.

Infrastructure

Argentina's telecommunications infrastructure is concentrated in and around Buenos Aires. Even so, Internet access is limited and expensive even in urban Argentina, in large part because of high telecommunications charges. Internet access is not available at all in much of the country's rural areas and would be prohibitive over the existing phone network because of long distance charges. Overcoming these difficulties to provide affordable access to 40,000 schools is just the beginning of Educ.ar's infrastructure challenge. Some 1,700 schools do not even have electricity, and many lack adequate resources of all kinds. More broadly, Argentina's 37 million population is scattered across a landscape one-third the size of the United States. Installation and maintenance of equipment for rural schools will be costly and difficult. With two-thirds of the country's population now unable to



access the Internet, online training programs and online content distribution will have to wait on infrastructure improvements.

Human Capacity

Key to the success of Educ.ar is a talented management team, including expatriate Argentines attracted back from Europe to participate. Educ.ar is also building strategic alliances with technology companies and benefiting from pro-bono help from corporations and educational institutes. Much of the technical work will be outsourced to minimize in-house staff and access the most capable talent.

At the same time, building human capital in the schools is a critical challenge for Educ.ar. Most school teachers in Argentina are neither familiar with the Internet nor trained in the use of multimedia technologies for the classroom. Teacher training on the scale that Educ.ar contemplates—upgrading an entire nation of teachers within a few years—is a daunting task. The online training models that Educ.ar counts on cannot begin to function until infrastructure problems are solved.

Policy

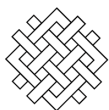
There is inherent risk in the long-term health of any government project or state-owned enterprise. Changing economic circumstances can prompt budget cuts, and a shift in control of the government might also result in different policy priorities. To minimize this risk, the enterprise partner to the project, Educ.ar, has negotiated external funding packages that extend beyond the time period of government budgets and require matching Ministry funds. Its Board of Directors spans the political spectrum, with representation from all of the most-probable candidates for president. There is precedent in Argentina for successful and long-enduring state-owned companies. And Educ.ar is building support within provinces and constituencies to guarantee its long-term health.

Enterprise

Educ.ar, the private sector partner in the Educ.ar project, was launched in 2000 by Martín Varsavsky, an expatriate Argentine and successful e-commerce entrepreneur in Europe, with a personal donation of US\$11,282,855 (one dollar for each K-12 student in Argentina).

Educ.ar will not only provide educational content to Educ.ar but will provide Internet services to Educ.ar, in effect operating the online school network. It plans to tap the e-commerce and advertising revenue potential of a captive market of some 11 million students and teachers, as well as to expand these and its ISP services beyond the student and teacher population. Although wholly owned by the government, Educ.ar may also raise capital through a public offering of its shares at some future time.

Educ.ar also hopes to benefit from partnering in content creation, hosting, and connectivity solutions with a growing network of “Educ.ars” being created throughout Latin America by the Martín Varsavsky Foundation. The Chilean version, the state-owned and run Enlaces program, is already up and running. The network provides clear opportunities for economies of scale, from buyers group and coalition negotiations to joint content acquisition and sharing.



Key Lessons

It is too early to know whether Educ.ar can accomplish its ambitious goals. What is clear is that without the radical shift to online distribution channels for training and educational content delivery that Educ.ar is building, Argentina's schools are likely to continue to decline. Educ.ar's founders go further and assert that Educ.ar is about more than education—it is an attempt to address basic problems of inequity that weaken Argentine society by enabling equal access and equal opportunity. At the very least, Educ.ar is an unusual attempt to build a public-private partnership, financed in part with an e-commerce business model, to catalyze multi-sectoral, non-partisan support of ongoing educational reform.



WHAT WORKS: N-LOGUE'S RURAL CONNECTIVITY MODEL

Although among the top 10 largest networks in the world and the third largest among developing countries, India currently has only a teledensity of 2.5 per 100 persons.⁸ With development resources directed primarily towards the urban areas, rural populations conceal a strong latent demand for connectivity and communication access. Yet rough terrain, absent or decaying infrastructure, dispersed populations, and low per-capita incomes continue to ward off both public and private sector investment.

Business Model

Where others see obstacles, Indian start-up n-Logue Communications sees opportunity. N-Logue has created a for-profit business model to tap into this latent rural demand for connectivity. N-Logue was incubated by the Telecommunications and Computer Network (TeNet) Group of the Indian Institute of Technology in Madras as part of the institute's strategy for developing and disseminating innovative, affordable communication technologies to the rural poor of developing countries.

N-Logue has fashioned a franchise-based business model that consists of three levels of interdependent networks. At the foundation-level, n-Logue forges and facilitates relationships among a wide-range of organizations — hardware and equipment providers, non-governmental organizations, content providers, and government — that enable and support the businesses of franchise owners.

At the next level, n-Logue maintains a regional network of franchised Local Service Partners (LSP). The LSP works in tandem with n-Logue to set up an Access Center or node to which individual kiosk operators will be connected.

At the highest level of the business model, local entrepreneurs are recruited by the LSP to establish village-level kiosk franchises that provide Internet and telephone access to the local population. Through the LSP, n-Logue offers low-priced "kiosk packages" consisting of a subscriber wall set (that connects the kiosk to the Access Center), a computer, printer and backup battery. The kiosks essentially function as combination rural Internet cafes and pay phone booths. While n-Logue provides kiosk owners with training, support, and technical assistance, local franchise owners themselves are responsible for developing additional product and service offerings (e.g., computer courses) and marketing strategies.

Infrastructure

N-Logue employs a unique, TeNet-designed Wireless Local Loop technology as the basis for its village-level communications package. This CorDECT technology consists of a fixed wireless local loop (WLL). CorDECT operates on the same principles as regular wireless technology with voice and data communication moving through radio frequency rather than wires. With WLL a fixed unit emits the originating signal. The corDECT system provides voice, voice band FAX/DATA transfer and Internet connectivity at 35-70 kbps to 1 gbps when digitized. The subscriber wall set (WS-IP) can transmit both voice and data signals simultaneously to an access center, which must be located within a 25km line of sight distance.



CorDECT technology effectively and inexpensively addresses the problems of distance and lack of infrastructure in rural areas. Installing a fixed wireless local loop does not require expensive digging, and the system consists of only 4 major components. Because the central base station/ direct interface unit (CBS/DIU) handles traffic from 200-1000 subscribers, it works ideally in small, dispersed markets and does not require the large subscriber base that traditional landline or cellular systems require for profitability. This low infrastructure investment, combined with low usage costs, makes the proposition affordable both for suppliers and customers in capital-constrained economies.

Policy

N-Logue leverages its relationship with IIT to negotiate the complex regulatory and licensing arena of the heavily protected Indian telecommunications sector. To provide telephone and Internet connectivity, n-Logue must secure a frequency license with the Wireless Cellular Planning Commission, an ISP license through the Department of Telecommunications, and permission from a Basic Service Operator to connect to the National Public Switched Telephone Network. N-Logue has just received its nationwide ISP license, and it has made substantial progress towards establishing the relationships necessary to provide telephone service. The company believes it will be able to provide telephony by April 2002 when the current prohibition of voice-over IP is lifted.

Enterprise

The following factors enhance the sustainability of n-Logue's business model:

- income generation at the local level
- cost effective technology
- decentralized organizational structure
- local adaptability
- local accountability

To implement its model, n-Logue has forged partnerships with an impressive network of organizations and entrepreneurs.

To gain access to the long-haul telephone network and Internet backbone, n-Logue has negotiated relationships with BSNL, the former Department of Transportation monopoly, and Satyam Infoway, India's primary bandwidth provider. To facilitate entrepreneurs' access to capital, it has partnered with financial institutions such as the National Bank of Agriculture and Rural Development (NABARD) and Indian Bank. It has overcome the barrier of expensive hardware through its relationships with IIT incubated R&D and manufacturing companies and by obtaining volume discounts with suppliers.

N-Logue's partnerships with entrepreneurs form the crux of its business. Local service providers (LSPs), who are usually established businesspeople or district governments, maintain access centers and recruit kiosk operators. LSPs provide training, business advisory services, and collect the revenues from the kiosk operators, which are then passed on to n-Logue. Kiosk operators



develop and market their own business offerings. To date, most kiosk operators have generated the largest portions of their revenue from net-based services, computer education and job work.

Human Capacity

N-Logue offers training and business advisory services to its franchisees at the kiosk and LSP level. To find qualified kiosk operators, it has drawn from the large pool of graduates from India's many technical/computer institutes. It has been less successful in recruiting entrepreneurs at the LSP level, but recently has restructured and accelerated that process. N-Logue's own management consists of mature executives with extensive experience in the telecommunications sector and in sales, marketing, and business development for multinationals and blue chip Indian companies.

Content

While the heavy use of payphones illustrates Indians' appreciation of and desire for telephone connectivity, less than 3 million Indians currently subscribe to the Internet. Although illiteracy does impede Internet usage, especially in rural areas (literacy rates are approximately 52%), the high price of internet use, severely limited access, and lack of relevant content and software are viewed as the primary reasons for this low usage rate.

Little pre-existing Internet content can be read in any of the 15 national languages in India. To bring content and software to the rural market, n-Logue has developed strategic alliances for the following: local language software and content, market commodity price information, contest-based advertising, school education augmentation, agri-services, animal husbandry, money transfer, sales of financial products, and e-governance applications.

In pilot projects, LSPs have taken an extremely active role in generating content. In some pilot projects where kiosks had not yet obtained internet connectivity, the strong returns generated by kiosks connected only to the LSP intranet illustrate the attraction such local content holds for villagers.

Key Lessons

N-Logue's success in its pilot phase and the headway it has made towards resolving national and regional licensing and regulatory issues can be attributed to the strong relationships it established with influence makers, governments, other businesses and entrepreneurs. It has leveraged these relationships to overcome a host of obstacles ranging from capital constraints to expensive hardware to lack of relevant content.

The company will need strong infusions of cash to meet its growth projections. Fortunately it has many of the other necessary inputs for growth in place. The enthusiastic response to the business opportunity of kiosk ownership and the innovation kiosk operators have demonstrated in developing their businesses have exceeded the most optimistic expectations of n-Logue managers. By developing a business that is locally adaptable and locally accountable, n-Logue has positioned itself to successfully tap into an enormous latent demand for connectivity in rural India.



WHAT WORKS: TARAHAAT'S PORTAL FOR RURAL INDIA

TARAhaat is a business enterprise of Development Alternatives (DA), an NGO focused on sustainable rural development in India, and its marketing arm, Technology and Action for Rural Advancement (TARA). TARAhaat uses a franchise-based business model to bring computer and Internet technology to rural regions and plans to use these technologies to create revenue streams leading to financial viability for itself and its franchisees.

Business Model

The business combines a mother portal, TARAhaat.com, with a network of franchised village Internet centers, or TARAkendas. TARAhaat will deliver education, information, services, and online market opportunities to rural consumers via the Internet and its kendra outposts. It also hopes to provide a cost-effective gateway by which larger corporations can reach rural customers. It will offer information, e-mail and Web services, and eventually e-commerce and fulfillment services, earning revenues through membership fees and commissions.

These business objectives are balanced with the social objective of uplifting rural India through easy access to relevant local and global information and propelling it into the twenty-first century. TARAhaat also hopes to find the right balance of rural and peri-urban franchises to be able to subsidize rural locations with lower earning potential. It encourages innovation by its franchisees and seeks to assist entrepreneurs in developing businesses using its services.

Infrastructure

Where possible, TARAhaat will use existing telephone lines to connect its franchise Internet centers. But it also plan to install VSAT links where necessary to provide connectivity, utilizing satellites operated by others. Thus TARAhaat is largely dependent on India's existing commercial infrastructure, which is less than ideal. Dependence on the satellites has already caused interruptions in service for some franchises, and is a relatively high-cost solution. Connectivity, and bandwidth capable of supporting a graphics-rich Internet experience, are likely to remain in short supply for the near future, posing a continuing challenge to the venture. In addition, electric power outages are frequent, so much so that the company provides a diesel-powered generator as part of the franchise infrastructure, adding considerably to costs and maintenance needs.

Content

One factor that bodes well for success is the company's flexibility in developing its products. TARAhaat has shown high sensitivity to customer needs, allowing products to evolve to meet these needs. For example, TARAgyan products, TARAhaat's education offerings, came into being only recently to address the strong demand for computer and computer-based education in the initial customer base. In addition, each franchise has latitude in developing products and services that meet local market needs. TARAhaat hopes to create a brand image in which the local TARAkendra is seen as the place for a family to find products aimed at the entertainment, information, and com-



mercial needs of each member. The company provides content in two local languages as well as English, and expects to provide content in other local languages (India has 18 official languages) as well.

Policy

India's telecom regulatory policies are improving, but fall short of fully open competition. As a result, prices are relatively high and service is generally quite poor, especially in rural areas. Since TARAhaat is largely dependent on commercially available infrastructure, this poses a substantial long-term challenge to the venture. The company has off-line revenue sources from education to develop the market pending infrastructure improvements. The company faces no major regulatory hurdles.

Human Capital

TARAhaat provides extensive support for its franchisees, including assistance with financing, Internet connections, business and IT training, and marketing. It plans to create a TARA university for franchisee training. Many franchises offer computer or other IT classes. Nonetheless, illiteracy among many of its intended customers poses continuing challenges to its business strategy.

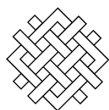
Enterprise

TARAhaat's association with Development Alternatives brings a wealth of rural expertise and a resilient attitude towards overcoming all hurdles. Some of the initial challenges described in this report have been handled with creative solutions, both at the franchise level and at the enterprise level. However, the venture has substantial financing needs and faces long-term challenges relating to product development and franchise operations that still await resolution. Unlike many startups, however, its management team is seasoned and strong.

Key Lessons

Interviews with users of TARAhaat's services demonstrate the venture's social benefits, including empowering the education of girls, inspiring confidence and higher aspirations among rural children, and enabling farmers to gain market information and substantially higher prices for their crops.

The staying power of TARAhaat's business model is not yet proven, but the positive customer response is an early indication of viability. The venture's franchise model seems likely to harness local entrepreneurial energies to the benefit of both. Its emphasis on locally-relevant content, in local languages, and strong orientation to product development based on customer feedback is also an important characteristic, one that takes advantage of India's large rural middle class. Finally, the company combines both commercial and NGO characteristics, potentially giving it an advantage in pioneering the relatively risky Internet market in rural India, and is unlikely to face major competition in the near future.



WHAT WORKS: VIASEBRAE'S E-COMMERCE SOLUTION FOR SMALL BUSINESSES

There are approximately 4.5 million recognized small and micro enterprises (SMEs) operating in Brazil. Another 13.5 small million businesses operate informally. It is no surprise that a large majority of these businesses does not have access to digital technologies, specifically Internet tools.

ViaSebrae is an e-commerce platform developed through a joint venture between a for-profit software company—Paradigma—and a non-profit organization—Sebrae/SC, the Santa Catarina unit of the Brazilian Association of Small and Micro Businesses (Sebrae).

ViaSebrae is at a delicate crossroads: without expansion to achieve economies of scale, the initiative will not survive. The solution to expand nationally has proven to be a slow and difficult process.

Business Model

ViaSebrae's e-commerce model subsidizes the business-to-consumer (B2C) segment with revenues from the more profitable business-to-business (B2B) segment. The model serves social objectives by enabling companies operating in the B2C segment to participate in e-commerce initiatives they could not otherwise afford. The pricing model is determined by Sebrae/SC and is undeniably affordable, even for small businesses.

Infrastructure

Deregulation and privatization of the telecommunications sector over the last 10 years have prompted vast improvements to the infrastructure supporting e-commerce activities. In 1990, for example, there were 10.3 million fixed lines in Brazil, an average of 7.1 lines for every 100 inhabitants. By 2000, the number of fixed lines had increased to 38.3 million, or 23.1 lines per 100 inhabitants. Penetration is expected to improve even more with further market liberalization in 2002.

Low personal computer (PC) penetration in the home is another obstacle to e-commerce. Despite improvements in recent years, the total number of individual PCs is still low. In 1999, there were just 26.69 PCs per 1,000 people, compared to 53.64 in Argentina, 80.89 in Chile, and more than 400 in the U.S (see Appendix 1).⁹

Human Capacity

The ViaSebrae solution addresses one of the biggest barriers to e-commerce in a developing nation: human capacity constraints. The system is feature-rich and easy to use, even for participants unfamiliar with digital technologies. From an operational standpoint, the joint venture between Paradigma and Sebrae/SC ensured a qualified stream of people with the proper skill sets to manage the project. Paradigma is now fully responsible for ViaSebrae operations, a task it has managed well, even if the company has failed to raise the capital to fund the expansion needed to achieve sustainability.



Brazil has not yet developed a culture of technology, even among its entrepreneurial community. In a country in which entrepreneurship is seen as a way to escape unemployment, small business connectivity is far from adequate. Research has shown that only 27% of small businesses in São Paulo—the richest state of the nation—had access to the Internet in 1998.¹⁰

The situation is expected to improve. Numerous government initiatives have been launched, funded by a national directive stipulating that 1% of telecommunications revenues be reinvested in digital education programs.

Policy

The telecommunications sector has been deregulated and privatized and is unlikely to present significant policy constraints in the future.

The nature of the Sebrae organization represents the biggest policy issue for ViaSebrae. Although considered a private organization, Sebrae was public until 1990 and its organizational structure retains characteristics of the public sector in Brazil: it is big (around 4,500 employees) and bureaucratic. Sebrae still operates under the Lei das Licitações or Bid Law, for example, which requires all of its units to solicit bids from multiple vendors before acquiring any product or service. The nature of the agreement between Paradigma and Sebrae National—if the relationship proceeds—will determine the degree of bureaucracy involved in the future. If Sebrae elects to retain full ownership of the portal and contract a solution provider, Paradigma will have to compete against other vendors in a formal bidding process. If a partner model is followed, Paradigma will bear all investment costs, and the bidding process will be avoided.

Enterprise

ViaSebrae proves that the private sector can play a decisive role in social initiatives. Sebrae/SC brings brand recognition, small business expertise, and a national distribution network to the ViaSebrae project. Paradigma brings technological expertise. The objectives for each organization are different (social orientation versus profit orientation), but the partnership works.

Although Sebrae state units (including Santa Catarina) operate autonomously, they follow a single e-commerce directive from the national office because they need interconnectivity that can only be achieved through national coordination and standardization. The national directive, and a lack of funds, has prevented Sebrae/SC from expanding ViaSebrae outside of Santa Catarina.

Content

As an e-commerce platform for small businesses, the ViaSebrae portal offers not content per se, but rather transactional tools (and some banners). However, ViaSebrae does link to Sebrae state unit Web pages featuring content related to small businesses.

Key Lessons

Although ViaSebrae is an effective tool and the business model is sound, the sustainability of the portal is questionable. ViaSebrae requires scale to be self-sustaining. Such scale is not possible when restricted to the state level.



Mr. Schmitt from Paradigma estimates that ViaSebrae would break even with 2,000 companies operating on the portal. But break-even points can vary by country, depending on factors like cost structure (hosting, labor, telecom fees) and transaction volume.

ViaSebrae has shown that joint ventures between SME organizations and the private sector (solution providers) are not only viable but ought to be a preferred method for bridging the digital divide in developing countries.



APPENDIX 2. ADDITIONAL RESOURCES

A growing body of official and semi-official reports and more academic publications has begun to analyze and distill the still-limited experience with ICT for development. Among the most useful are:

“Creating a Development Dynamic.” Final report of the Global Digital Opportunity Initiative of Accenture, the Markle Foundation, and UNDP, June 2001 (<http://www.opt-init.org/framework/pages/contents.html>).

“Digital Opportunities for All: Meeting the Challenge.” Final report of the Digital Opportunity Task Force (DOT Force), May 2001 (http://www.dotforce.org/reports/DOT_Force_Report_V5.0h.doc).

“Enterprise Development and ICTs: Research on Innovation and Best Practice.” United Kingdom Department for International Development (DFID), April 2001.

“Essentials: Information Communications Technology for Development.” UNDP Evaluation Office, September 2001 (<http://www.gipiproject.org/practices/essentials5-web.pdf>).

“Options on the Future: The Role of Business in Closing the Digital Divide.” Boston Consulting Group, January 2002.

“Spanning the Digital Divide: Understanding and Tackling the Issues.” bridges.org, June 2001 (<http://www.bridges.org/spanning/index.html>).

“The Global Information Technology Report 2001-2002: Readiness for the Networked World.” Geoffrey Kirkman, Managing Editor. Oxford University Press, March 2002 (http://www.cid.harvard.edu/cr/gitrr_030202.html).

