"Going to Scale" and the Social Benefit Entrepreneur

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Introduction

Imagine a world with global, always-on connectivity for everyone. Imagine more responsive and transparent governments, universal access to health information and learning resources, and participation in the global opportunities of our networked world for rich and poor alike. Imagine the possibility of untold applications designed to meet the diverse needs of the world's population. Imagine elevating the well-being, health, and prosperity of the world's poor through technological innovations and their entrepreneurial deployment. Imagine newfound levels of freedom, knowledge, and empowerment for all humanity.

This article describes the pilot launch of Santa Clara University's Global Social Benefit Incubator (GSBI), a program designed to facilitate the "scaling" of work by social benefit entrepreneurs who seek to apply technology to address humanity's urgent needs. It also highlights insights into the unique characteristics of social benefit entrepreneurs from the vetting of hundreds of nominees for the The Tech Museum Awards: Technology Benefiting Humanity and the Global Junior Challenge. These individuals are the keepers of big visions like those above. At the same time, they encounter practical challenges to the sustainability and scalability of their ideas. But first let's throw a splash of "cold water" reality on the "imagination" with which we began.

Vision vs. Reality

"Between the idea and the reality, between the motion and the act falls the shadow."　　**T.S. Eliot**

Let's get real! There is little evidence to indicate that information and communications technologies are poised for a "frontal attack" to improve the lot of the world's poor. The graphic in Figure 1 indicates that both Internet usage and mobile access to information technology are remarkably low in countries representing 4.5 billion of the world's 6.2 billion population. In fact, this graphic omits less developed countries in Asia, Africa, and Latin America.

If we compare mobile usage, computers per 100 population, and Internet hosts per 1000 in the U.S. with the situation in developing countries the contrasts are even more stark than those suggested by Figure 1 (see Table 1). This is especially the case with respect to computer access and the availability of locally relevant content, with Internet hosts per 1,000 population serving as a proxy for the latter.

Only when it comes to mobile phone access is the gap between the information "haves" and "have-nots" a chasm that shows any promise of narrowing in the near future. This is more likely to be

Figure 1
Global Technology Penetration
Significant Opportunities Ahead
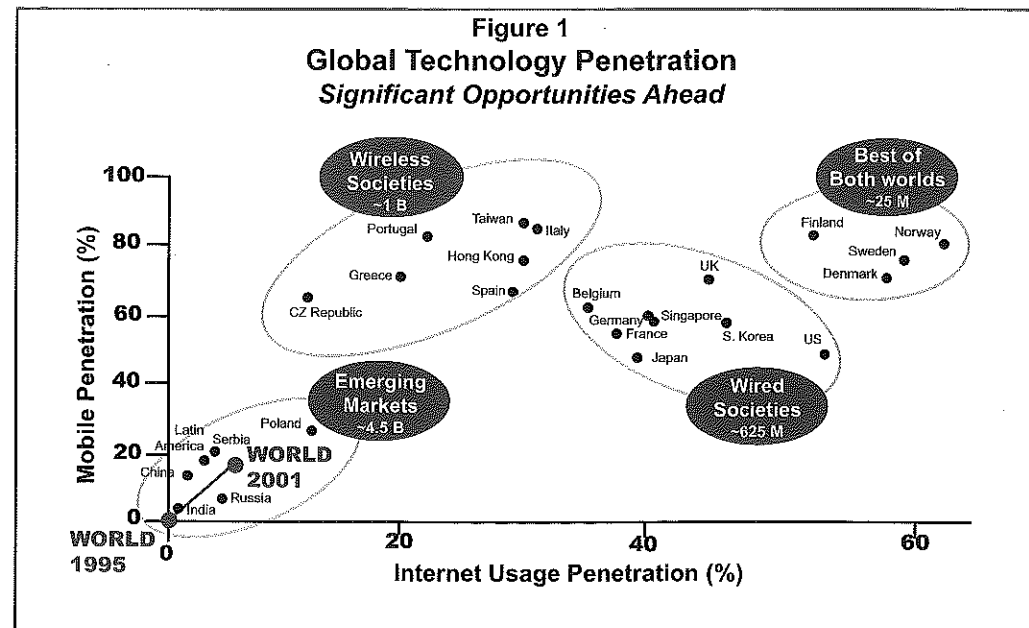
Source: EMC Wireless IDC

Table 1 - Access to the Networked World

COUNTRY	MOBILE PHONES/100	COMPUTERS/100	INTERNET HOSTS/1000
United States	44.4	62.3	344.1
Kenya	1.6	0.6	0.1
Pakistan	0.6	0.4	0.1
India	0.6	0.6	0.1
Turkey	30.2	4.1	2.1
China	11.2	1.9	0.1
Mexico	20.1	6.7	9.3

Source: The Economist Pocket World in Figures, 2003 Edition, Profile Books Ltd., London

the case in countries where pro-competition regulatory regimes lower the cost of access. Even in these circumstances, the availability of useful content, technology features, and services for enhancing the well being of the poor are extremely limited.

In a Spring 2003 speech at Santa Clara University's Globalization Institute, Grameen Bank founder Muhammad Yunus challenged information technology visionaries to develop an "Aladdin's Lamp" for the poor. Such a device would enable poor villagers in India or Kenya, or the inner city poor of the world to say, "Genie, connect me with the information I need to better manage my health, to upgrade my education, or to gain access to the government services and financial resources I need to better my lot in life." We are a long ways off from this vision, but one day social benefit entrepreneurs might shape such a vision into a successful business. Before turning to what we are learning about these innovators, let's place the importance of access to advances in information technology in the broader context of earlier scientific discoveries and technological innovations when it comes to improving standards of living.

The Lever of Riches

The wealth of nations is inextricably tied to advances in science and the wide scale deployment of associated leading-edge technologies.[1] As Figure 2 below indicates, the inflection point at which dramatic increases in per capita GDP occurred in Western Europe can be traced directly to the advances in productivity made possible by the scientific and industrial revolutions. Such beneficial economic outcomes typically lag advances in science and technology. This "cultural lag" effect is attributable to the fact that individuals, organizations, and social institutions must adjust their routines, often dramatically, to realize the potential benefits of galloping advances in technology.[2,3]

For much of the developing world infrastructure constraints, limited access to investment capital, low levels of basic as well as technology literacy, weak policy regimes for fostering enterprise development, and other factors conspire to stunt the diffusion of technological innovations.[4] This inability to absorb productivity enhancing technologies widens the gap between rich and poor nations. Between 1960 and 2000 income inequality—as represented by the average income of

the wealthiest 20 nations relative to the poorest 20 nations—doubled to a multiple of 37 times.[5] In today's networked world economy, differences in computing and Internet access appear to be further widening economic disparities.[6]

Compounding this weakness in technology absorption is the anemic pace of indigenous technological innovation within developing economies. In fact, virtually all of the advances in modern science and technology that are occurring today are coming from a handful of nations. Schwab, Porter, and Sachs note that countries representing less than 15 percent of the world's population accounted for 99 percent of inventions registered in the U.S. Patent Office in the year 2000.[7] They argue that among the three factors accounting for economic growth—division of labor, capital accumulation, and technological advance—the continuously renewing nature of technological advance makes it the most fundamentally important factor to improving standards of living over the past two centuries.

Shrinking the Gap: Technology Benefiting Humanity Innovators

The gaps discussed above are very real. It would be Pollyannaish to assume that they can be readily filled. But there is a group of technological innovators that is working with a fundamentally different purpose than the usual goal of optimizing personal economic rewards. With benefits to society foremost in their thinking, their pathfinding-work is bridging the deployability gap. Many of these individuals and their organizations are now being recognized by global awards programs like The Tech Awards in Silicon Valley and the Global Junior Challenge in Rome, Italy.

During its three years of leading the judging process for The Tech Awards, the Santa Clara University Center for Science, Technology, and Society has selected 75 Laureates from more than 1000 applications. The Center's leadership role in the judging process provides a unique vantage point on the imaginative work of these applicants and how they are overcoming barriers that others may have characterized as insurmountable. A number of characteristics appear to set these Laureates apart.[8] They are inspired by such higher purposes as: reducing poverty; improving human health, promoting literacy and educational access for all, advancing equality, and fostering environmentally sustainable development. They are often absorbed by what they see as their life's work, and for some the word "vocation" with its denotation of *a calling* clearly applies. In many instances, they've overcome *market failures* by successfully innovating in areas where basic services and public goods are wanting (e.g., rural electrification, safe drinking water, protecting life-sustaining fishery populations) or where urgent human needs are unmet

Figure 2
Influence of Scientific and Industrial Revolutions on Per Capita GDP
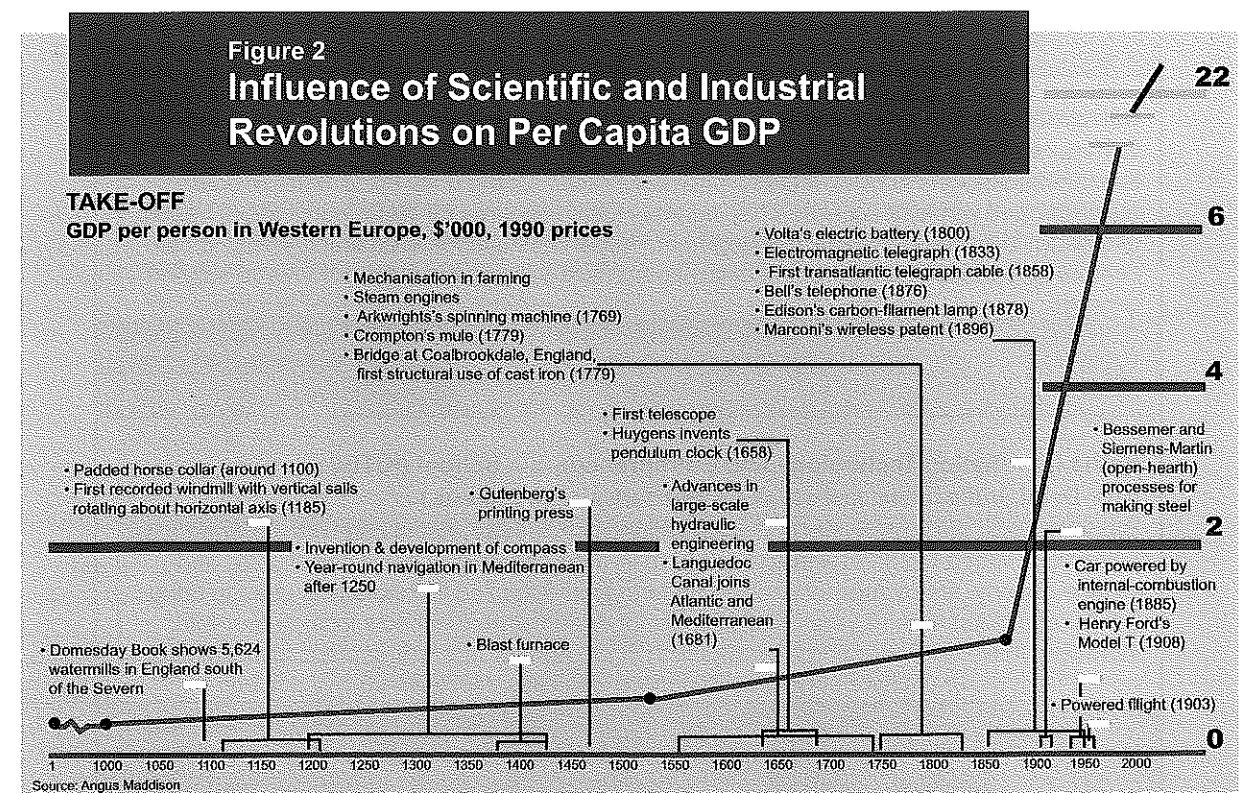
Source: *The Economist*, December 31, 1999

because those who would be served lack "economic votes,"(e.g., a malaria cure, low cost prosthetics, HIV/AIDS prevention in Africa). As social benefit entrepreneurs they are drawn to these areas of urgent unmet need. In pursuing their goals they improvise and work across business, government, nonprofit, and research sectors to create hybrid organizational networks for marshalling resources. Through these networks they build capacity and, in poor countries, overcome infrastructure, financial, and human capital constraints.

> *"...social benefit entrepreneurs include educators, foundations, and other NGOs from around the world."*

The Rome Global Junior Challenge finalists are similar in many respects to The Tech Awards Laureates. Biannually the Global Junior Challenge receives up to five hundred entries related to the applications of information technology to serve the world's poor. These social benefit entrepreneurs include educators, foundations, and other Non-Governmental Organizations (NGOs) from around the world. In 2003 an international panel of jurors selected seven of these projects to participate in a two and one half week intensive entrepreneurship incubator at Santa Clara University (see Table 2 for a summary description of each of these projects). The incubator was designed to address one of the common concerns all social benefit entrepreneurs confront—how to scale or grow their efforts to serve a large number of potential beneficiaries.

TABLE 2
Global Social Benefit Incubator Participants and Their *Scaling Challenges*

The New Millennium Electronic Magazine. Omar Dengo Foundation, San Jose, Costa Rica. (Note: Omar Dengo is a 2003 Tech Awards Laureate.)
A program designed to promote the use of digital technology for the educational and cultural development of youth. Virtual editors ages 9-12 design an on-line magazine promoting collaborative work and youth digital competencies. Cross sector leadership includes Costa Rica National Program of Educational Informatics and the Ministry of Public Education, in addition to the Omar Dengo Foundation.
Scaling Challenges: Expand scope to new schools; strengthen teacher training; achieve improvements in quality of electronic productions including greater use of pictures, sound, and video; secure funding.

Narrowing the Digital Divide. VAANCHA ICT Association, Delhi, India.
Community centers focus on generating youth employment by overcoming barriers in telecommunications access, literacy, and basic skills. Community centers utilize solar electricity and wireless access. They address local concerns for water purification, health/telemedicine access, and skill development. Initiatives have fostered employment in call centers as well as development of micro-enterprises utilizing hosted e-commerce support services.
Scaling Challenges: Plans call for stepped-up support for income generation, small enterprise development, and workforce education. Solar powered broadband wireless ICT centers are seen as a key platform for scaling to serve a broader market.

Katha Information Technology and Entrepreneurship School (KITES). New Delhi, India. (Note: Katha is also a 2002 Tech Awards Laureate.)
Working within the community in Delhi's largest slum cluster, Katha combines information technology with a focus on entrepreneurship to enhance literacy, build community, and reduce poverty. Innovative storytelling pedagogy and applied technology is used to bring quality education to 5-18 year olds. Significant demonstrated impacts include four-fold increases in women's earnings; increases in youth literacy and self-esteem; and, shifting norms from those of caste structures to a more classless, merit-based civil society.
Scaling Challenges: Katha serves 1,200 students today and is seeking ways to sustain its program in Delhi and replicate success in other parts of India through a franchise business model.

CLEAN - India, New Delhi, India.
The Development Alternative Group is creating a nationwide program on environmental assessment, awareness, and action, with a vision of developing cleaner environments and involving children as catalysts for change. The "burning platform" that motivates this work is the need to avoid the perils of environmental catastrophe before it is too late for future generations. CLEAN—India's model of change is focused on youth and the belief that quality environmental education will lead to acquisition of knowledge, the development of analytic skills, the beginning of environmentally conscious attitudes and, ultimately, to responsible behavior. The Development Alternative Group has introduced diverse products and technologies to rural India—including cost-effective building materials, livelihood enterprises, handmade recycled paper, hand-loomed textiles, energy systems, drinking water, and sanitation facilities.
Scaling Challenge: Capacity buliding is key to scaling this successful Web-based environmental program throughout all of India.

Impact of HIV/AIDS on Katatura. SchoolNet, Namibia, Africa.
SchoolNet is a nonprofit provider of Internet services, hardware, and training to Namibia schools. It develops and applies marketable skills to a socially important end. Specifically, it develops content authoring skills with a particular focus on "social marketing" related to HIV/AIDS. This disease infects four out of seven of those seen by health professionals in Katatura.
Scaling Challenge: Growth plans call for a national roll out. A critical element of the content management system is the capacity to handle discussion groups and other public access forums—key features for overcoming the myths and stigmas surrounding HIV/AIDS. Sustainability may hinge on developing partnerships with similarly missioned organizations (e.g., Red Cross, National Social Marketing Program, etc.) and deepening competencies in such areas as Web server administration, database programming (e.g., parsing log files of Web traffic to understand audience profiling), and marketing. The national network infrastructure will rely on a solar and wireless-based system, with 900 schools projected to be connected to the Internet by 2006.

OrphanIT. Sydney, Australia, and Manila, Philippines.
This remote services program is a profitable example of the effective use of Information and Communication Technologies (ICTs) to create stable jobs and business development. Students in Philippines, India, and Outback Australia receive free accelerated training and are then employed to provide Web site promotion and related ICT services for ongoing businesses (affiliate recruitment, linking popular sites, Web design, search engine optimization, marketing research, etc.). OrphanIT team members receive a minimum of three to five times the local minimum wage.
Scaling Challenge: By 2008 OrphanIT hopes to scale to over 10,000 students, provide permanent part time job placements for up to 2,000 graduates, and boost 15,000 people permanently out of poverty. Referencing OrphanIT as part of a rapidly growing remote services opportunity, Vinod Khosla recently commented, "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." Can OrphanIT scale to realize its share of this opportunity and achieve the double bottom line of profitably benefiting the poor?

Cyber Host. Rwanda Youth Rehabilitation Initiative, Nairobi, Kenya.
This program seeks to create ICT employment opportunities among genocide survivors. It provides self employment through the formation of Information Centers in cyber cafes. Beneficiaries are the Rwanda government (reduced youth unemployment), users (enhanced local access), and empowered entrepreneurial youth.
Scaling Challenges: A Web design center is envisioned as providing content development skills training for companies and organizations in Rwanda. Cyber Host also plans to develop an e-commerce center to help micro-enterprises reach global markets.

Going to Scale: Practical Challenges

The above Global Junior Challenge award winners, like The Tech Awards Laureates, are all stepping forward to fill the void that exists between what is technologically feasible to do and what is being done in practice to deploy technology in addressing urgent global challenges. To paraphrase T.S. Eliot, they are working to fill the gap "between the idea and reality." Each has demonstrated technological proof of concept and measurable social benefits. In contrast to some of the more high-octane science and technology based innovators in The Tech Awards, scientific and technological invention has not been key to the success of Global Junior Challenge winners. They are "socio-technical" innovators, and their success is more likely to hinge on the creative integration and use of technologies as opposed to their invention. Still they face the practical challenges of sustaining their work and of scaling current efforts so that they can reach a greater number of potential beneficiaries.

Those directly served by social benefit entrepreneurs are seldom in a position to pay for the infrastructure, tools, and products or services that they receive. For this reason, these entrepreneurs must be constantly in search of philanthropic grants—from inception or seed stage through expansion and the scaling of initiatives. Internally generated revenue sources are either inadequate or, in some instances, completely missing.

The seven GSBI participants described in Table 2 each have a strong sense of personal ownership and pride in the products or services that they offer, earnestly believing that they will elevate the lives of those they serve. Their deep empathy for beneficiaries is a major asset in their work. It enables them to serve as "cultural translators" and to bridge between the local realities and needs of marginalized markets and the latent potential of more advanced technological tools to serve unmet needs in these markets. As "cultural translators" they have spawned test beds of innovation that the developers of technology and dominant commercial players never envisioned. These test beds can provide insight into market needs, product definition, and channels of distribution in developing countries.

In the absence of infrastructure or human-made assets, each of the seven pilot GSBI participants has leveraged their tacit knowledge or local know-how through social networks. In effect, they are substituting social capital for physical and financial capital. With respect to the latter they are masters of change in stretching limited financial resources. Beyond economic necessity, much more could be said about the market contexts, often informal in nature, and cultural norms that support this resourcefulness. It is ironic that Ph.D. trained cultural anthropologists are working in multinational companies to help them un-derstand market potential in developing nations, when a reservoir of untapped knowledge exists in these and other globally scattered test beds of innovation.[9, 10]

> "These test beds can provide insight into market needs, product definition, and channels of distribution in developing countries."
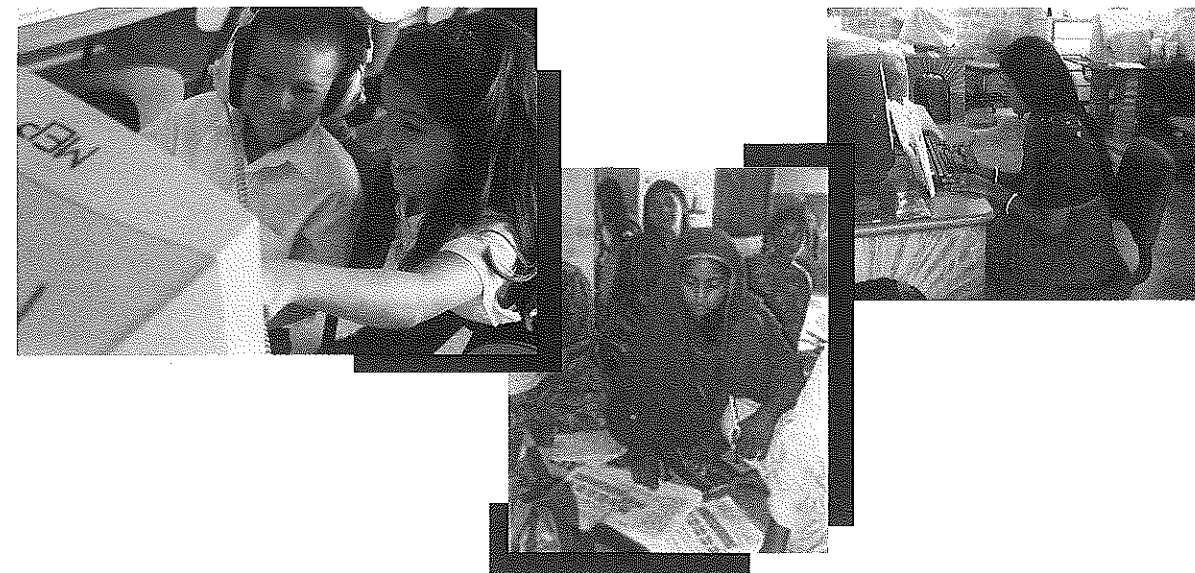
Despite their intelligence, GSBI participants lacked the foundational knowledge and practical skills needed to sustain or grow their organizations. In this regard, four critical developmental needs stood out— comprehending markets, business models, marketing, and enterprise development. Fully grasping the practical significance of these topics in a poor country is the intellectual equivalent of "swimming upstream" since the universal "mental map" in serving the poor operates from the premise that the poor can only be served by governments or social welfare organizations like charities and religious organizations.[11] The currency here is commonly defined in such terms as the political will and means of governments, the enlightenment of foundations, the grace of God working though the compassion of diffuse groups of caring servant leaders, and the goodwill of the founders of social benefit organizations. It was the latter that the GSBI sought to augment with practical knowledge in comprehending markets, marketing, business model development, and organizational design.

The Global Social Benefit Incubator

Sound business plans are key to success in any well-formulated strategy for entering and developing a new market. They encourage innovators to make explicit their level of market comprehension, to specify a business model, to define their approach to marketing, and to articulate an organizational plan for enterprise development. The GSBI addresses each of these considerations.

Comprehending Markets

Their deep empathy with beneficiaries provided GSBI participants with a leg up in understanding the markets that they sought to serve. Despite this, several tended to have the same mental framework as others who assume that the poor cannot pay. This is not the case. For example, among the two billion people who lack electricity in their homes many make significant expenditures on kerosene lighting, which contributes to significant health and mortality risks in developing countries.[12] Alternative low cost, highly efficient, white light emitting diodes are a practical alternative for which a large market could be developed (see http://www.stanford.edu/class/cee45q/project/briefing_book/summary.html).

In the GSBI pilot, VAANCHA ICT Association provided a good example of the importance of market comprehension. This organization utilizes solar electricity and wireless access to provide community-based Internet services. From this platform it may be possible to develop numerous profitable markets for serving the poor. Villagers can pay for services through micro-payment systems if they can be offered at a lower cost than current means of accessing comparable services. An excellent example of this is the Bhoomi Project, a successful initiative for providing owners and agricultural lenders in the State of Karnataka with access to computerized land records (see http://www.revdept-01.kar.nic.in/Bhoomi/Home.htm).

Business Models

Each participant in the GSBI enters knowing that he or she will make a presentation on the final day of class that will be critiqued by faculty, successful entrepreneurs, and venture capitalists. This plan is to be sufficiently detailed to serve as the basis for the next year's tactical goals. Plans are expected to take into account "best practices" in product or service design and in the creation of new markets. For example, the OrphanIT plan was expected to reflect "best practices" in remote services. In addition, each participant is charged to move beyond philanthropic or tenuous government funding sources. In doing so, they are asked to develop alternative revenue streams that take into account both direct beneficiaries as well as indirect beneficiaries that represent potential sources of revenue for future growth. GSBI participants identified a wide range of potential revenue sources (see Table 3).

Table 3
Potential Revenue Sources for Sustainability and Growth
• Alliance partners receiving indirect benefits by serving newly developed beneficiary markets.
• Indirect market customers who benefit from new market creation or gain new customers in the process.
• Fee-based Internet software services of value to the direct market.
• An eBay based market for goods and services needed by the direct market.
• Organizing the direct market to provide Web based services to other target markets.
• Marketing indigenous goods to the rest of the world.
• Development and marketing of software products that leverage success in the current direct market to segments of developed country markets.
• Franchising services to others and in some cases national or regional governments.
• Participation through local market distribution in programs like Grameen Phone or Hewlett-Packard's "e-inclusion" (e.g., creating digital photo entrepreneurs).

Marketing

Marketing social benefit ventures involves attention to both funding sources and beneficiaries. For the former, the GSBI stresses the importance of "return on social benefit capital." Here the objective is to demonstrate impact in ways that are meaningful to funders. For beneficiaries, by contrast, GSBI participants may need to develop a good working knowledge of "value proposition" concepts and consider viral marketing as a useful tool in unstructured and less formally developed markets. The GSBI provides basic marketing knowledge, including market segmentation, channel strategies, differential pricing, and other marketing concepts.

Enterprise Development

Innovators are systems builders. They attend to a whole complex set of functions for delivering end-user value in a consistent manner. Through Harvard Business School cases, GSBI participants examined how other early ventures had built successful organizations. They also had the opportunity to hear directly from local Silicon Valley companies and to be inspired by the first hand stories of icons like HP. In addition, they received an assessment and feedback on their entrepreneurial skills.

In the GSBI launch, participants spent Day 4 of the Incubator with Stuart Gannes and the Reuters Fellows as well as Gordon Bloom's Social Entrepreneurship program at Stanford. The opportunity that this provided to interact with the leaders of for-profit social benefit initiatives was a turning point. It allowed participants to turn their skepticism and resistance to an intimidating curriculum into a more active consideration of opportunities. One of the critical lessons learned from this GSBI pilot was that the relevance of case studies to developing world contexts is an invaluable aid to learning and the ability of participants to draw parallels with their local challenges. Because of this, recently published cases like *ApproTEC Kenya: Technologies to Fight Poverty and Create Wealth*,[13] as well as cases developed at Santa Clara University, will likely be added to the future GSBI curriculum. Future GSBI programs may also include a greater emphasis on understanding the nuances of local distribution and how to create profitable value chains. Stanford's work with Light Up the World Foundation, for example, explores caravan, lights for goods, remittance, and small stores as alternatives for distributing low-cost lighting systems in India, China, and Mexico (www.stanford.edu/class/cee45q/project/briefing_book/models.html).

A Hopeful Vision for the Future

Over the course of the intensive two and one-half week GSBI program, the concept of social benefit entrepreneurship came to life for participants, mindsets changed, business planning skills improved, new friendships were formed, peer and expert mentoring relationships were established, and some lasting memories were created. By our survey measures GSBI was a major success. Still there is much that can be improved and other program elements not described here may offer real promise for the future. In particular, the Carnegie Mellon University distance-learning platform that was used could become an important vehicle for building an active community of practice among future participants and providing ongoing mentoring to former participants. By supporting the learning needs of social benefit entrepreneurs the possibilities of realizing the beneficial potential of technology for the emerging markets as well as the wired societies are boundless. To the extent these entrepreneurs succeed the world at large becomes wiser and healthier.

> "Where is the Life we have lost in living? Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?" **T.S. Eliot**

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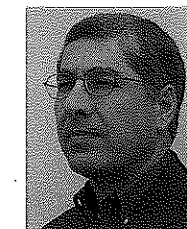
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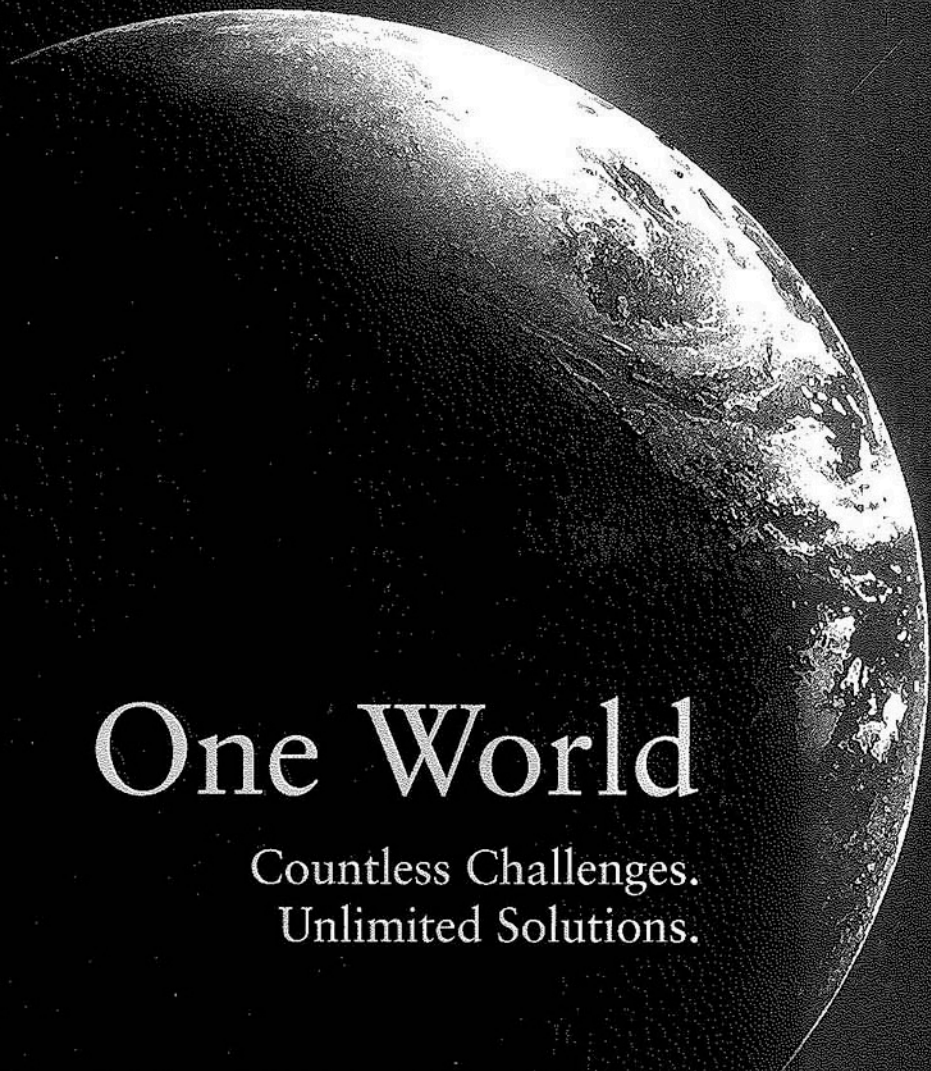
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