

JIM FRUCHTERMAN AND BENETECH

Working in Silicon Valley, you figure out that market failure is a pretty broad topic. I mean, if an idea won't generate 50 or 100 million dollars a year in potential revenues and a 30 to 40 percent return on capital invested, it doesn't get done. End of story. So there's a huge gap between something that breaks even [but helps people] and something that's profitable enough to engage a high tech company.

—Jim Fruchterman, Benetech

Jim Fruchterman was the quintessential Silicon Valley entrepreneur in every way but one—instead of being focused on amassing a personal fortune he was devoted to making the world a better place (see **Exhibit 1** for a brief biography). Through Benetech, the nonprofit he founded, Fruchterman leveraged advanced technology to help the disabled or disadvantaged. He explained:

I feel strongly that I have a missionary role: to sell technologists on how much good technology can do in the world. We fail to give technologists a model between making scads of money on an idea or [doing] charity, and I think that technology can do so much for the people who can least afford it, as long as the cost is accessible.¹

An engineer by training, Fruchterman had experienced first-hand the profitability gap that prevented useful technology from entering the social sector. At first, “the term market failure didn’t come to mind,” he admitted, “But the underlying concept did—good technology that doesn’t justify the business case.” Yet, initially focusing on the blind population, he saw an opportunity for technology to help “level the playing field” and create greater equality among the disabled and the rest of society. Now, having launched a diverse collection of technology-based social projects under the umbrella of Benetech, Fruchterman was directly capitalizing on those opportunities. “I’m a scout for social applications,” he said, “finding exciting technology that’s waiting to be turned into non-commercial tools for disadvantaged groups” (see **Exhibit 5** for frequently asked questions about Benetech).

¹ Rhonda Hillbery, “From Smart Bombs to Reading Machines,” *Caltech News*, 2002, reprinted with permission at www.benetech.org (March 2, 2005).

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Challenges and Impact

While Fruchterman and Benetech had initiated a broad range of projects, as of 2004 their greatest successes included designing a reading machine for the blind, creating an electronic library for the blind, visually impaired, and learning disabled communities, and developing custom information management software program designed to address the needs of human rights organizations.

Reading Machines for the Blind

In 1982, Fruchterman co-founded Calera, a company that became the world leader in optical character recognition (OCR) technology. At Calera, he developed an OCR device that sold for approximately \$40,000 and was targeted at businesses with sizable document processing needs, such as law offices, tax preparers, and accounting firms. However, because the machines were capable of reading virtually any written text, Fruchterman was intrigued by the idea of applying this technology to assist the blind. At the time, few options existed for blind and visually impaired individuals who wanted or needed to read. Only a few thousand books were made available on tape each year, even fewer in Braille, and the one consumer reading machine that existed was priced above \$10,000 (well beyond reach for the majority of blind people in the U.S., let alone the rest of the world).

Confident that Calera could have a positive social impact in this area, Fruchterman had his engineering team build a prototype. He then proposed to the Calera board that the company should pursue this small but important market. However, with potential revenues of only \$1 million a year the board, though sympathetic, was unwilling to divert resources from the core business to serve the disabled community. Fruchterman, who had been considering a career change, decided that he would pursue the opportunity on his own. He negotiated a deal with Calera that enabled him to leave the company, start a nonprofit organization focused on reading devices for the blind, and acquire Calera's technology for the disabled market at a 75 percent discount—all in exchange for his signature on a non-compete agreement. With his determination to start a new kind of nonprofit (and his Calera severance package to help fund its inception), Fruchterman founded Arkenstone in 1989.

Within three years, Arkenstone had grown into a company with annual revenues in excess of \$5 million per year (the market was larger than originally anticipated because the devices appealed not just to blind people, but also to visually impaired seniors and individuals with dyslexia and other learning disabilities). By the year 2000, Arkenstone served 35,000 customers, in 60 countries, reading in 12 languages around the world. Through competitive forces in the marketplace and the declining cost of technology (commensurate with Moore's Law), the reading machines were made available for as little as \$2,000. When Fruchterman was approached by a for-profit company to sell the business, he was not initially interested. However, with contractual assurances from the purchasers that they would continue to serve the disabled market at affordable prices, he saw an opportunity to use the money from the sale of the company to have a similar impact in other markets where the same kinds of needs existed. "We wanted to be able to go off, create new ventures, and be able to do this all over again," recalled Fruchterman. With that determination, he sold Arkenstone and invested all proceeds from the sale in founding Benetech. In an article for *FastCompany*, Fruchterman described his plans for this new nonprofit organization: "Using the same model, I plan to develop a dozen more projects

over the next three to five years that will bring technology to those who need it most. I collaborate with social entrepreneurs who share my passion to improve the lives of others. We have dozens of ideas for filling the gap between *possibility* and *profitability* in social applications of technology.”²

Electronic Library for the Blind, Visually Impaired, and Learning Disabled

Benetech’s first formal project was the founding of Bookshare.org, an Internet-based library where blind, visually impaired, and learning-disabled people could legally store and share scanned publications (copyright restrictions were avoided through a statutory provision covering the disabled market). “Imagine being cut off from your culture—being unable to enjoy New York Times bestsellers or Oprah’s Book Club selections when your friends are all talking about them,” he said. “Unfortunately, fewer than 5 percent of books are now available in Braille or audiotape. While we can’t promise every book in print will be [made available] in Bookshare.org’s collection, the number of volumes available online for people with print disabilities will now be limited only by the number of volunteers willing to scan books.”³ The idea was simple: leverage technology like the Arkenstone reading machine to enable a network of members and volunteers to scan, publish, and share printed material through an online community. While the quality of the scanned documents would not be as high and they would lack the professional narration that accompanied publications managed by the National Library Service for the Blind and Physically Handicapped of the Library of Congress (NLS) and Recording for the Blind and Dyslexic (RFB&D), Bookshare.org would compensate for this lower quality through the sheer quantity of volumes it expected to be able to publish each year.

By 2004, Bookshare.org included more than 16,000 books and had become the world’s largest online library for the disabled. To access the publications, members paid a \$25 registration fee and a \$50 annual membership. Those who could not afford to pay were frequently offered membership in exchange for volunteer work, building the collection of accessible books.

Information Management Software for the Human Rights Industry

Next, Benetech turned its attention to the human rights field. Motivated by the story of a massacre in an El Salvador village that was covered up for years, Fruchterman began to explore a role for technology in helping protect people from this kind of tragedy. He explained:

The human rights field is this big information processing industry that has almost no information technology designed for its particular needs. And that’s a classic market failure. There are 50,000 organizations around the world working in social justice and human rights. You would think that any industry that had 50,000 organizations would be a great market, but these groups don’t tend to have enough money to make them attractive. Mortgage processing is an example where there’s probably 50,000 organizations doing the work. And there are all sorts of specialized products, whether it’s credit reporting or credit scoring, or

² “Bridge the Digital Divide,” The Fast 50 Disrupters, *FastCompany*, 2002, http://fastcompany.com/fast50_02/people/disrupters/21.html (March 1, 2005).

³ “Leading Nonprofit Technology Developer Offers the First Digital Book-Sharing Service For People With Print Disabilities,” www.bookshare.org, February 21, 2001, <http://www.bookshare.org/web/PressRelease022102.html> (March 2, 2005).

automated tools to help put out a standard mortgage application, because the industry can afford to pay.

To find out what human rights workers needed most to support their efforts, Benetech sent representatives to meet with non-governmental organizations in Cambodia, Guatemala, and Sri Lanka. Based on the feedback and technical capabilities of its potential users, the Benetech team quickly simplified its vision, abandoning ideas of using satellite imagery and drones in favor of providing these workers with a reliable, secure way to capture and share information about human rights abuses to help prevent situations and/or capture and prosecute the perpetrators of these crimes. “Our theory,” said Fruchterman, “was that for an incredibly modest investment, because this is a fallow field that’s been almost completely unaddressed, we could invest \$1 million and maybe make the whole human rights sector 5 or 10 percent more efficient over the next five years.”

The project, called *Martus* for the Greek word witness, resulted in a software program that looked and operated much like an email program (to appeal to technically unsophisticated users) but encrypted the descriptions of human rights violations collected from witnesses and victims and saved the information on multiple, secure servers in different locations to protect the data and facilitate its sharing. As of 2004, *Martus* had been downloaded in 50 countries and deployed, adopted, and regularly used by human rights organizations in more than 10 countries, including Afghanistan, Guatemala, Peru, the Philippines, Sierra Leone, Sri Lanka, Uzbekistan, and the U.S.⁴ “I’m not so optimistic to believe that *Martus* will reduce the number of human rights violations,” said the Asia Foundation’s Steve Rood, one of the program’s users. “But with increased sharing of information, we believe we can improve communication and maybe bring people to justice.”⁵

Critical Aspects of the Solution

Regardless of the area being addressed, “Our goal is to make the maximum social impact on our target audience” said Fruchterman. To do so, there were common aspects of Benetech’s solutions from which all could benefit, including the central role of technology, a venture approach to financing, self-sustainability, and a focus on inducing change.

Central Role of Technology

Fruchterman was passionate about the difference technology could make in the social sector and the role it could play in correcting market failures. Noting that traditional social enterprises tended to focus on low-margin, labor-intensive initiatives such as job creation through service organizations or light manufacturing industries, he explained how technology-based initiatives were different:

The development of technology grants advantages of leverage that are exploited by high technology business and should be further exploited by the social sector. The first is high margins. Creating the original unit incurs the majority of the cost

⁴ Benetech, <http://www.benetech.org/> (March 2, 2005).

⁵ Jane Black, “Technology with Social Skill,” *BusinessWeek Online*, August 19, 2003, http://www.businessweek.com/technology/content/aug2003/tc20030819_4587_tc126.htm (March 2, 2005).

of a technology-based product: every additional unit has relatively low manufacturing costs. The second advantage is ease of replication. Technology products are relatively easy to replicate worldwide. If the unit of service for a social enterprise is a piece of information or a technology product, as opposed to an hour of human time, the possibility of going to scale is greatly enhanced.⁶

He used the Bookshare.org project to elaborate on the promise of technology:

Not only is technology replicable worldwide, but also it often has far more cost-effective delivery mechanisms than the alternatives. For example, talking books for the blind are traditionally delivered on a stack of four-track audiotapes through the mail; our Bookshare.org online library delivers accessible talking books over the Internet. The actual cost of the e-book is negligible, and the cost to deliver it is a tiny fraction of the traditional alternative.⁷

Fruchterman admitted that there were significant challenges that counterbalanced these advantages to some extent, including the initial expense associated with pursuing technology projects relative to more traditional nonprofit initiatives. Yet, because these challenges could be overcome through innovative thinking and experimentation, technology was at the center of every Benetech project.

Venture Approach to Funding

To fund Benetech's initiatives, Fruchterman used what he called a modified venture capital model. First, all projects went through the same kind of rigorous evaluation that VCs used to vet their investments. After narrowing the pool of possible projects, Benetech employees were asked to write detailed business plans (with budgets and quantitative benchmarks) for those still under consideration. These plans, evaluated by Benetech's executives and advisors, assessed a number of factors, including whether or not another organization was already working on the problem, the cost of the project, the extent to which Benetech had the technical expertise required to execute the project, and (perhaps most importantly) the expected impact of the initiative.⁸

Once a project was selected, Benetech used seed money or "risk capital" to perform market and technical feasibility studies and provide a development infrastructure for the effort. Most often this money came from internal sources. As Fruchterman described, "It's part of a bootstrap strategy of using one business to build another."⁹ For example, Benetech invested approximately \$1.3 million from the sale of Arkenstone in establishing and helping Bookshare.org become self-sustaining. Similarly, Benetech funded the majority of development on Martus before investors such as the Asia Foundation came on board to fund implementation of the software. The *Chronicle of Philanthropy* cited this as a good example of how Fruchterman's thinking differed

⁶ Jim Fruchterman, "The Power of Technology in Social Enterprise," *N-TEN*, http://nten.typepad.com/forecast/2004/02/the_power_of_te.html (March 2, 2005).

⁷ Ibid.

⁸ Nicole Wallace, "High-Tech Tooling Around," *The Chronicle of Philanthropy*, March 7, 2002, reprinted with permission at www.benetech.org (March 1, 2005).

⁹ Hillbery, op. cit.

from many in the nonprofit world. Rather than letting foundations and other donors decide which projects they're most interested in investing in, he waited until he had a prototype and was better positioned to convince them of the merits of his ideas.¹⁰ Fruchterman explained the approach:

We have a few funders who are willing to put money into our venture fund, but the average foundation is not that comfortable betting that we'll come up with something cool if they give us a really large amount of money. So, we rely on our earned income to source those projects because that's money that we control. Once we have a product, it's easier to raise traditional donations because then foundations are really paying for the value that we've created by helping us expand or purchasing the product.

Self-Sustainability

While Benetech was a social enterprise dedicated to helping disabled and disadvantaged communities, Fruchterman made it clear that his operating principles were rooted in a free-market philosophy:

By adding technology, business sense, and business methods to a social purpose, we can actually accomplish more than traditional charities that bestow a benefit on disadvantaged people just because they're deserving, and don't require anything from them in return. It's a much different approach. We'd rather provide people with the tools to help them help themselves than to give them technology for free, just because they've been unfortunate.

The goal of most Benetech initiatives was to achieve self-sustainability, operating at break-even level or earning a small profit margin, by tailoring its cost and pricing models to the paying capacity of the target audience. "We had this view that if people were invested at a level that was appropriate for them, then the technology would be more successful than if it were given away," Fruchterman said. This approach would also enable the organization to more readily fund additional projects. As of 2004, the lone exception to Benetech's principle of being self-sustaining was the Martus project, which the organization had decided to offer as open source software(hence free of charge) in an effort to stimulate adoption within the resource-constrained human rights industry.

Focus on Inducing Change

While all of Benetech's initiatives had clearly defined primary objectives, Fruchterman was also committed to projects that would generate secondary (or indirect) effects that positively impacted the target audience. He used Arkenstone as a key example of this, saying, "We induced change in a lot of ways beyond just the primary impact of helping people to read so they can get a better education themselves, better employment results, better living results, and all the direct benefits of placing the device in their hands." For example, by creating a sales force and dealer channel made up primarily of blind people, Fruchterman helped change the fundamental way products were sold to the disabled community. The project also had an impact on the competitive landscape. He explained:

¹⁰ Wallace, op. cit.

We're selling a reading machine for \$5,000. They're selling it for \$12,000, and that's a very big difference in price point. So we'll project that a lot more people will be able to afford them and will start to enter the market. We'll also force the competition's behavior to change, and so we'll have secondary effects where they have to emulate us. By putting a lot more pressure on them, we actually force them to innovate—to come back and do something that's better than what we're doing. Then, either we have to get out of the market or we have to counter-innovate. That keeps us honest, and keeps the whole industry honest.

While welcoming competition could seem counterintuitive to a regular entrepreneur, Fruchterman described it as a process that “hurt so good” since the true social impact of an organization was measured not only by its own results, but also by the results it helped stimulate in the broader market. “If I can challenge the status quo, then things will happen,” he said. “What I really want to do is be a catalyst for change.”