

2007 MIT \$100K Semi-Finalists

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DEVELOPMENT PUBLIC SUMMARIES

Aerovax

Aerovax is an innovative device that allows drugs and vaccine to reach the last mile, areas where local infrastructure does not generally allow for a safe delivery to patients. Aerovax is a safe, portable aerosol device that requires no electrical power and eliminates the need for needles, at an immunization cost that is 40% lower than current methods.

Bagazo

2.4 billion people in the world rely on dung or wood-based products as their primary source of cooking fuel. These energy sources account for more than 50% of the total energy production in most developing countries. The overuse of wood-based products increases deforestation, leading to social and environmental problems. Smoke emitted by raw wood and dung cooking fuel is a primary causal factor for respiratory infections in the developing world and kills more than 2 million people every year, particularly young children. Deforestation is changing the natural topography of developing countries, increasing the probability of natural catastrophes (such as flooding) and aggravating air and water pollution. Globally, 1.214 billion cubic meters of trees were cut down for fuel in 2005. As wood supplies decrease, the price increases, and the costs associated with cooking become unaffordable for the poor, increasing malnutrition and starvation.

In order to address these problems, Bagazo - in collaboration with MIT's Development Laboratory (D-Lab) - developed a unique process to create a concentrated cooking fuel from agricultural waste products (in particular from the byproducts of sugar cane processing and corn cobs).

Our objective is to disseminate the new product in several developing countries, as an affordable substitute for wood, dung, or petroleum-based products.

We will focus our pilot project in Haiti, where 98% of the forest has been destroyed. Bagazo will establish small size charcoal production facilities and sell the product to the poor in a culturally sensitive, environmentally responsible and economically sustainable way.

Poverty alleviation through philanthropy is always vulnerable to the loss of interest and funding. Both can be maintained if the investments, while enhancing the status of the poor, also generate returns for the investors. Making a profit by selling to the Bottom of the Pyramid is possible but it requires technological innovations, new business models, and careful attention to the relationship between price and performance. Bagazo's value proposition is setting up profitable businesses for poverty reduction.

ClickAid

Click-Aid is a social enterprise which is an online application where people give 'gifts of donation' through an emailed e-card. Recipients are able to learn more about available charities through the interactive, user-friendly internet application. Upon receipt via email, they are then able to allocate the already donated money in their name to the charity of their choosing.

First-Step Coral

The Nature Conservancy group estimates that the global annual value of coral reefs in fisheries, tourism and coastal protection at US\$375 billion. Close to 1 billion people worldwide (~16% of human population) are directly dependent upon the reefs for food. Furthermore, coral reefs offer countless benefits to humans by supplying new compounds for industrial applications and medicines that have the potential to cure disease and improve human life. To counter the threat of rampant reef degradation (65% of the world reefs are under threat from human activities), FSC will encourage reef rehabilitation by carrying out restoration projects in marine reserves, protected parks and coastal/diving resorts. Additionally, FSC will create a market for ecologically cultured reef and sponge products that will be used as a biological storehouse for the pharmaceutical industry in their quest for new drugs that fight cancer, HIV, and other diseases. These activities will be supported by a patented-process called BioRock that enhances the

growth of sponges, corals, and other marine organisms up to 4 times faster than normal and increases survivability by over 20 times. By restoring coral reefs, FSC will improve the economic potentials of coastal communities through enhanced eco-tourism, fishing potentials and mariculture livelihood.

The company will be based in the Philippines for the following reasons:

- Geographically, it possesses one of the largest reef networks, as well as, the highest marine biodiversity in the world.

- For tourism, it has a high density of coastline resorts that are potential commercial clients for FSC.

- For ecological threats, it has over 90% of the reefs threatened by human activity at the same time providing over 60% of animal protein to the 80+ million population

In addition, we have established strong partnerships with the Sagay Marine Reserve, located in the Province of Negros

Occidental that has served as our prototype and testing site since July 2006.

To power the Biorock process, FSC will harness a portfolio of land-based and renewable energy systems. The use of renewable systems will allow the deployment of FSC installations to remote location away from shore where coral and marine eco-system regeneration is required.

intrFin

intrFin is a web-based microfinance marketplace that connects individual investors with microfinance institutions (MFIs) and their portfolio of borrowers. Through intrFin's web-based application, individuals can invest directly in the success of entrepreneurs in developing countries and enable their gradual rise out of poverty. In doing so, intrFin reduces the dependence of its partner MFIs on aid and charitable giving, increases their access to a sustainable source of capital, and enables them to serve more people. intrFin optimizes investors' returns and MFIs' capital costs through a proprietary micro-loan auction system.

Promethean Power

For as long as the sun rises, the Earth will have a sustainable source of energy: solar energy. Harvesting this abundant energy source and putting it into the hands of people in under-developed areas is our ultimate goal. To that end, we've designed a solar power generator that provides heating, cooling and electricity for off-grid communities and small businesses in developing world countries.

Imagine if you could take components from a car engine (pumps, alternator, turbo-charger) and recombine them in a new way to create a simple turbine. Add to it a source of free fuel, the sun, and you get a clean, sustainable and inexpensive energy source which could generate hot water, electricity and refrigeration for community centers, clinics, schools and small businesses in poverty stricken areas where access to modern energy sources is limited, but there's plenty of access to the sun.

Our product is an innovative solar micro-generator that combines solar thermal concentration with a simple thermodynamic cycle to generate the entire range of commercial and residential energy needs unlike a solar photovoltaic (PV) panel that generates only electricity.

SaafWater

Consumption of unsafe water continues to be one of the major causes of the 2.2 million diarrheal disease deaths occurring annually, mostly in children. This problem permeates the developing world and different contexts require different solutions. SaafWater's mission is to supply the urban poor with affordable clean water. (The word "saaf" means "clean" in Urdu and Hindi.)

By 2008, more people worldwide will live in urban centers than rural communities. SaafWater will profitably serve this urban market with an Avon lady-style sales force providing free water-quality testing, education, and daily treatment with chlorine. SaafWater's entry market is Karachi, Pakistan, a city of 14.5 million people, of which 40% live in squatter settlements. In these areas, infant mortality is high and diarrhea caused by water-borne pathogens is responsible for 40% of all deaths of children under 5. Piped drinking water in the US and across the world is disinfected using chlorine. SaafWater's innovation is not in technology, but in the unique way we implement technology to tap an underserved market and enable poor urban households to chlorinate their water. For our initial target market, a family's clean water for a day will cost at most 4 Pakistani Rupees (Rs 4, or < USD 0.07), out of their average daily income of Rs 206 (USD 3.45). Over one year we estimate that this cost will be 25% of what is currently spent on diarrheal-related medical bills for an infant. In a month, it is the lost income from a

single trip to the doctor. SaafWater is focused on execution in three areas: the sales channel, production of chlorine sachets and distribution of services. Our sales force will be women from the same low-income background as our customers. We will provide our sales representatives, with an opportunity to work in a socially acceptable and flexible setting, gain training and empowerment, and earn a good income. This mimics a successful model in Pakistan to recruit lady health workers (LHWs). We will package our chlorine sachets in-house to control cost, dosing, availability, and ensure recycling. Finally, we will extensively develop and optimize our distribution network to support our sales force while maintaining lean inventories and minimizing waste creation through recycling. Our technology has already been proven to reduce diarrheal disease by up to 84%. But unlike other approaches, SaafWater's infrastructure is designed to service the customer directly and profitably with a high-touch experience that is sustainable, and that ultimately reduces the unnecessary burden of diarrheal disease.

Selsabila

Selsabila is a self-sustaining organization that raises the agricultural output of low-income farmers in Sudan through the sales and distribution of treadle pumps. These treadle pumps have been successfully introduced in other countries due to their low cost, easy maintenance, and high efficiency. Sudanese farmers, who currently lack the resources to import these pumps, will be greatly benefited by our services. Moreover, these pumps will allow them to sustain themselves through increasing productivity threefold. Low-income farmers have the initial capital to purchase the pump and will break even after just six months of using the pump!

VitalMed

VitalMed is a nascent social venture that also improves health outcomes in developing countries. We are developing technically proven, low-cost, low-power, handheld, non-invasive medical devices that have been identified as the "gold standard" in care by the WHO Essential Health Technologies group but are currently unavailable in the field due to their prohibitive cost. The lack of adequate monitoring equipment in over 80% of the operating rooms across Africa results in approximately a 50% mortality rate for basic surgery, trauma and obstetric surgery. Our solution has a direct impact on health outcomes and is sold at 5% of the current price today. Furthermore we include several key components that make it a viable social enterprise: training existing medical personnel, empowering locals to manufacture, design and maintain very low-cost devices that are well-aligned with millennium development goals

VENTURE PUBLIC SUMMARIES

Hidden Markets

Hidden Markets is a mobile transaction analytics firm which uses mobile phones to capture information about mobile commerce (m-commerce) sales with a special emphasis on informal markets in developing countries. Our initial deployments will be in the Philippines where there is substantial innovation in mobile commerce, the low-cost SMS texting market is more mature, and 90% of the population is low-income and many transactions are hidden in the large informal economy. Having deployed our prototype in the Philippines, we will fully launch in India, a large emerging market with similar characteristics and tremendous profit potential, and then expand to Brazil.

GetVendors.com

GetVendors.com is a community recommendation based professional match making service to get competitive quotes from services that best match user's household service requirements

RemesaTel

RemesaTel enables unbanked immigrants to make international remittances over mobile phones. Drawing on the core insight that increasingly more immigrants have mobile phones than bank accounts, RemesaTel offers huge

convenience over traditional money transfer options and increases access to financial services for large unbanked populations. Worldwide remittances are a massive \$230 billion market even excluding substantial informal flows – we first target nearly \$14 billion in transfers made by unbanked Mexican immigrants in the US.

Scuba-Track

There are approximately 7 million active scuba divers worldwide, with more than 80% of them diving via dive boats. According to the non-profit industry group Diver's Alert Network (DAN), there are 5 fatalities for every 100,000 divers and thousands of diving accidents each year. The impact of an affordable system for tracking divers underwater would be a disruptive leap in safety as well as invaluable to commercial dive boat operators given the insurance savings.

Securewebwatch

Securewebwatch will operate as a Service Company offering its customers the ability to monitor and secure their businesses digitally for fixed monthly fees. The customers will be able to watch their businesses in a live or recorded mode 24/7 at www.securewebwatch.com. The company will sell this service to customers through three distinct distribution channels.

Bodega Algae

Bodega Algae, Inc., (â€œBodegaâ€•) develops microalgae photobioreactors for use in algae biomass to biofuel systems. One of the most quickly growing areas in biofuels is waste-to-algae systems that are collocated with large sources of CO2 power plants, refineries, and other CO2 emitters. Algae feeds on CO2 and other waste gases through a series of pools, tubes, or other wet harvesting systems, and has achieved faster documented growth rates than any other biomass input. One of the challenges in algae biomass systems, however, is controlling the photosynthesis process so that algae growth is optimized. Thus far, leading companies in this space such as Greenfuel have moved toward an algae â€œfarmingâ€™ method, proposing to use hundreds of acres of land which is often unavailable in target sites. Bodega Algae has focused narrowly on algae photosynthesis process efficiency rather than the entire algae-to-biofuel process, developing a technology that is geared toward CO2 sources with limited physical space for their waste-to-algae systems. Bodega has provisionally patented an optical, closed indoor system that optimizes algae growth using lighting technology proven in the consumer goods industry. This technology makes indoor, smaller scale algae harvesting more cost efficient than current laboratory methods, which often use powerful, expensive electric lighting.

C3 BioEnergy

Through proprietary technology, C3 BioEnergy will manufacture propane from renewable feedstocks through a process which will also produce a hydrogen by-product. These products will supply economical, environmentally-friendly biofuels to the transport, farming, residential, and industrial markets. As a clean burning, easily transported fuel, propane is a common heating fuel and is already the third largest transportation fuel in the United States, with domestic demand totaling over 21 billion gallons per year.

LightFace

LightFace is a technology firm that will manufacture customizable flexible luminescent panels for high-end architectural lighting applications. These organic light emitting devices (OLED) can be cheaply printed onto flexible substrates of different sizes and then cut to shape. LightFace's products will meet the need amongst architecture and interior design firms to create more aesthetically pleasing environments for clients.

Plug & Play Solar

We have now reached a new frontier where solar generated electricity is now cost comparable to grid-connect

electricity in some regions of the United States. However, data shows that a vast number of homeowners in these regions have not made the solar investment. Reasons for this lack of uptake include: steep upfront equipment costs, unclear subsidy arrangements, and a complex purchasing process. PlugNPlay Solar will finally change this paradigm by offering homeowners a turn-key solar solution at a monthly cost equal to or lower than their current utility costs. With its innovative residential PPA product, PlugNPlay solar will be the first integrated solar energy services company to put solar energy within reach of the everyday residential consumer. We believe that with all matters in solar, for the customer every decision should be this easy.

Altagenix

Altagenix is a biotechnology company specializing in the development of gene-based immunotherapy for prostate cancer with a target market of \$7B. Prostate cancer is a leading cause of illness and death among men in Western countries. Using our proprietary targeted gene delivery technology, we can reliably train the immune system to attack tumor cells. A single dose injection can result in the regression of tumors well above existing technologies. Altagenix's corporate strategy includes exclusive licensing to, or partnering with, major bio-pharmaceutical companies to reduce the development and regulatory risk and decrease time to market. Our company will bring safe new drugs that can teach the body to fight against diseases such as prostate cancer on its own.

Hemetrics Development

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Hemetrics is creating a hand-held, instant monitor that is used to maintain proper hydration by adjusting the medication of elders suffering from Congestive Heart Failure (CHF). Proper medication levels reduce dehydration related hospital readmissions and cost. The point-of-care device will be used in patients' homes or in assisted-living facilities by Visiting Nurses or by CHF patients. Instant hydration monitoring is also critically important in assisting dehydrated battlefield soldiers and amateur athletes; these constitute future market opportunities. Hemetrics is seeking to raise \$5 million for completion of its first market entry (CHF) to achieve \$50 million in revenue in five years.

ImmuneXcite

Microbes are winning the war against humans, by becoming resistant to current antimicrobial agents, such as antibiotics, and antifungals. ImmuneXcite is enabling a new mechanism to fight bacteria and fungi that are resistant to current treatments. This patent pending immunostimulant approach has the potential to become a new class of antimicrobial drugs.

Phi Optics

Optical microscopes only provide users with a 2D view of their sample. To get a 3D view, users are forced to use expensive and invasive electron or atomic force microscopes, which require extensive pre-preparation of their sample and are not amenable to dynamic samples such as live cells. We provide a composite hardware and software imaging extension that turns off-the-shelf optical microscopes into 3D dynamic imaging systems. Our Phi Optics product reveals nanoscale pictures of the "happenings of individual living cells" [Technology Review, 2006] without the need for sample preparation or contrast agents. The product has immediate applicability in the biomedical research in a \$3.5b market.

Robopsy

Robopsy is a remote, telerobotic needle insertion system that assists radiologists in targeting potentially cancerous

lesions during Computed Tomography (CT) Image Guided tumor biopsy and ablation procedures. Currently, lung biopsies and ablations are performed in a tedious manner involving multiple static CT images and iterative manual needle/probe manipulations. By enabling remote needle insertion, Robopsy allows doctors to perform procedures while simultaneously imaging the patient “live,” thus reducing the number of needle insertions and scans required, thereby reducing procedure time and patient radiation dose, and increasing procedural accuracy, facilitating earlier detection and treatment by enabling the targeting of smaller lesions than would be possible by hand without live imaging. Early detection and treatment is especially important for lung cancer because it spreads more rapidly than other cancers and is fatal unless treated early. Doctors and patients will adopt Robopsy because it improves patient care and reduces potential morbidity (complications) caused by repeated needle insertion into the chest cavity. Hospital administrators and insurance companies will appreciate Robopsy because it reduces procedure time, thus increasing throughput on expensive imaging equipment and decreasing the cost of each procedure.

Scission Pharmaceuticals

Scission Pharmaceuticals will develop first-in-class, broad-spectrum antibiotics to combat the alarming spread of drug-resistant bacteria. The rise of drug-resistant bacterial infections in hospitals presents a major challenge to public health. CDC estimates suggest that 2 million people will acquire an in-hospital bacterial infection this year, resulting in almost 100,000 deaths. Recently, extraordinarily virulent strains of Methicillin-resistant Staphylococcus Aureus (MRSA) have emerged that are resistant even to antibiotics of last resort. Despite this urgent medical need, most antibiotics newly released on the market offer incremental benefits and target the same mechanism of action in bacteria. In addition, many major pharmaceutical companies have abandoned the search for novel antibiotics, offering a tremendous opportunity for innovative new approaches. Scission Pharmaceuticals and scientific partners at Harvard Medical School have identified a series of highly conserved proteins essential for bacterial cell division. Lead compounds developed against one of these proteins show tremendous promise in killing a wide range of bacteria. Scission scientists will develop these molecules into more potent and selective drugs. Ultimately, Scission’s aim is to develop a suite of first-in-class compounds that will be agents of choice against refractory bacterial infections.

BorisVille

BorisVille provides a platform designed to explore new ways of publishing and merchandising web-based content. The platform allows authors to sell to individuals and cooperative buyers their content in one transaction in order to release such into the public domain. The selling scheme eliminates the need of publishers and copyright protection. It completely and naturally eliminates the problem of piracy.

Emerginvest.com

Emerginvest.com will be a critical resource for individual investors seeking to diversify their portfolios with investments in international markets. We will provide personalized tools to help investors understand the risks they face in their international investments and to find new growth opportunities in emerging markets. Emerginvest.com will become a hub connecting investors with the information and advice they need from international investment analysts on-the-ground throughout the world.

Kard.io

Within the United States, 84 Million business professionals exchange 12.5 Billion business cards per year. The exchange of business cards is a uniquely analog process wrapped in powerful traditions and social norms. The psychological benefits of this physical exchange overshadow the value of digital alternatives but result in a bottleneck involving tedious data entry.

Contact entry and management are among key difficulties faced in the every day lives of an average business professional. Kard.io is founded on the principle that business cards can benefit from digitization without compromising their physical meaning and identity. To accomplish this, kard.io uses an unique process of information exchange that connects the digital and physical worlds to maximize the value created by human

connections in the digital world.

For more information or to apply for our beta network, please email us at: info@kard.io

MAD Nanolayers

Multi-Agent Delivery (MAD) Nanolayers provides a unique and patented coating technology for delivering multiple agents sequentially and with precise control over dosage and timing. This is a platform technology with many therapeutic and non-therapeutic applications and whose disruptive feature is not available in any other coating technology today. MAD Nanolayers' primary offering will be a therapeutic coating for orthopedic implants that delivers painkillers, antibiotics, and growth factors to minimize post-surgical complications and eliminates subsequent re-intervention procedures, resulting in significant cost-savings to the hospitals and improved quality of life for patients.

SuperInsulation

Have you ever wondered how much air-conditioning costs? Have you ever wondered why, in the winter, we have to burn so many fossil fuels to keep the house toasty? We, DeltaX, can tell you why! It is because the insulation that is currently being used is, without exaggeration, terrible. Our team holds the key to a technology that when used to insulate a house in winter, for example, would make that house comfortable to live in, while only using a candle to heat the entire structure. The technology or material is called Endothermic Superinsulation (ESI).

SwiftSoftware

Despite the significant resources available to established organizations, the success rate of software projects at large companies remains surprisingly small at 24%[1]. The cause of this failure has been the difficulty in managing software project requirement changes and complexities. While modeling and diagramming can help manage this complexity, the effectiveness of existing modeling tools in the \$2B analysis and design (OOA&D) market[2] (such as IBM's Rational Rose and Borland's Together) depends upon their constant usage for every design or requirement change. As companies move toward agile development practices, implemented software diverges from the software as it was designed and traditional OOA&D tools are rendered ineffective. SwiftSoftware's ActiveModeller suite overcomes this limitation by modeling the system based on its implementation, allowing developers to interactively view real-time models of a software system as it grows and evolves. The suite brings modeling capabilities to project managers that have moved toward software processes that embrace change-over-time such as agile and iterative software development practices.

[1] The Standish Group International, Inc., "CHAOS: A Recipe for Success", 2004

[2] Gartner Research, "Magic Quadrant for OOA&D Tools", 2006

Vassar20

While video and audio content grows at exponential rates on the Web, it is becoming more difficult for consumers to find specific pieces of media. Current search methods rely on titles, tags, or surrounding context and have no tie to actual speech within the media. According to Jupiter Research, only 13% of online users are finding video via search, with a greater number relying on friends for recommended material. Vassar20 utilizes MIT-developed speech recognition methods to transcribe media and automatically synchronize it to the original file, making the content fully searchable with a full, real-time running transcript. The main product, called SLP, allows Vassar20 to enter media search and advertising markets that exceed \$4 billion in value.