Millennium Media:

Ad-Hoc, Peer-to-Peer, Video Exchange Networks for Humanitarian Relief

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Introduction

On January 12, 2010 Haiti was devastated by a catastrophic earthquake. For a variety of reasons, including the severity, location, coverage, and timing of the crisis, a groundswell of grassroots relief efforts mobilized to coordinate volunteer technological support to the relief efforts. A steady growth of shared experiences and successes around self-organized collaborative projects enabled interested communities to forge ad-hoc alliances between technologists, non-profits, activists, students, relief workers, and local Haitian immigrants. The Crisis Commons organization, a fledging community and infrastructure founded for precisely this purpose, became a major hub of these distributed efforts.[1]

The weekend after the earthquake struck I attended a free-form, participatory, Crisis Commons workshop/camp in NYC where volunteers from around the world gathered physically and virtually to brainstorm, organize, coordinate, and work to help relieve the suffering. When people talk about crowdsourcing relief to this disaster, Crisis Camps around the country helped assemble the the faces in these mysterious crowds.

I learned an immense about humanitarian crisis responses in the course of my participation in these Crisis Camps. I became closely involved in the Open Solace Haiti effort, a project which aimed to reestablish independent lines of communication between Haitians and their relatives abroad. On a psychological and spiritual level, the project was designed as an intra-cultural relief effort, dealing in the cycle of grief, compassion and the flow of dialog. The collaboration spawned a rush of ideas around the role of media, communications, and networks in disaster relief and developing nations.

During the course of this engagement, I began to recognize the role that a new breed of non-profit consultancies can play in situations like these. Developing effective communications strategies across cultures, the developing world, or during a disaster relief effort requires extensive cultural,

1 For more information about Crissis Commons see http://crisiscommons.org/about-us/, and for media coverage of the Haitian relief efforts coordinated under the Crisis Commons umbrella see http://wiki.crisiscommons.org/wiki/Media.

historical, and technological perspectives and sensitivities. With close to zero financial overhead, latent networks of professionals, amateurs, and local communities can be established and maintained, only to be activated around specific projects or circumstances. These networked participants can assemble to respond to crisis or to work on a specific project or grant, and then disband when the task is complete.

This paper is a hybrid. I begin with a narrative that provides the background analysis motivating the specific social entrepreneurship project I propose in the second part of the paper. This second part of the paper is closer to a project proposal than a business plan, though it shares a similar structure and purpose. The project proposal presumes an existing organization to implement the project, but as the background suggests, the partners in this project could be assembled from existing organizations, or woven together from a network of interested participants.

Self-Organized Collaborative Production and Action

At the Crisis Camp I witnessed an amazing convergence of strangers, congregating around the familiar communication modalities of wikis, blogs, mailing lists, IRC, and now Twitter, Facebook, and Google Wave. While these torrential rivers of information are overwhelming many of us, some subcultures are developing strategies for managing and synthesizing these flows. Crissis Commons proved to be an essential organizing hub, coordinating disparate social media around these efforts, and providing a unifying face and voice for the bringing together projects and people, and representing the disparate efforts to the media, the public, and other organizations.

The ongoing NYC events drew dozens people, technologists, community organizers, students, Hatians, UN reps, librarians, union workers, journalists, and beyond. I had been closely following collaborative mapping, filtering, and aggregation tools such as Ushahidi and Swift River,[2] and their

2 http://www.ushahidi.com/, their Haitian instance http://haiti.ushahidi.com/, and their next generation collaborative filtering software http://swift.ushahidi.com/

efforts in Haiti were invaluable to countless organizations and saved many lives. Open Street Maps[3] proved to be an essential piece of infrastructure around mapping data, and the New York Public Library accelerated the launch of their new map rectification tool[4] to help make sense of Haitian geography - shockingly, there were very few up to date maps of Haiti, and the NYPL's collection significantly improved upon satellite imagery. These maps assisted relief workers who need to know the names of neighborhoods, which buildings used to be where, and other essential landmarks and geographical cues.

Strategic Communication Flows

Some vocal critics questioned the priorities of the Crisis Commons volunteers, arguing that the victims needed water, food, and shelter more than information. However, the life saving importance of information should not be underestimated, as the Red Cross presented in their 2005 World Disaster Report.[5] Victims and responders on the ground desperately need information. They need to know where the next food/water/medicine drop will be, where relief is needed most, how and where to find with their loved ones, and which symbols indicate that a building has already been searched.

Strategically, I was struck by the asymmetry of information flows. Many of the efforts seemed to focused on collecting Hatian data, and representing it to American audiences and NGOs working on the ground in Haiti. There wasn't much focus on creating flows of information back into Haiti - information from the outside world directed to Haitians, or, on creating infrastructure for Hatians to communicate with each other. There were very few coordinated efforts to establish non-corporate-mediated, 2-or-more-way channels of information between Hatians and Hatians in the diaspora.

The importance of mass media in establishing and maintaining a sense of (imagined)

3 http://www.openstreetmap.org/
4 http://maps.nypl.org/warper/
5 International Federation of Red Cross and Red Crescent Societies, *World Disasters Report 2005: Focus on information in disasters*, 2005. http://www.ifrc.org/publicat/wdr2005/

community is well theorized in communications studies, in works like Benedict Anderson's *Imagined Communities*.[6] Haiti's physical infrastructure was shattered, but reconstructing their communications infrastructure is vital to reconstituting their sense of identity and community. Cultural theorists have also criticized the pacifying power of mass media,[7] but as the UN forecast a sharp increases in violence, rape, and riots, I wondered if there are ever appropriate occasions for distraction and pacification – or perhaps it is fair to characterize this as providing constructive channels for those who are suffering to express, unload, and vent their energies?

The tremendous outpouring of aid was very generous, but in addition to material support, the victims of the crisis needed the world to look them in the eyes and recognize their humanity through meaningful dialogue. In addition to news, victims of intense trauma need emotional support. And messages of consolation, solidarity, and even entertainment, song, and laughter. The only thing more important than food, water, or medicine is hope.

Hybrid Networks

I also began to recognize the important role that traditional, old fashioned, mass broadcast media might play in a crisis situation. Cell phones and the Internet have transformed communications in the developing world, but in the aftermath of the earthquake, like in many situations, access to electricity, Internet connectivity, and cellular networks was severely limited. There were trickles of bandwidth available, largely reserved for the military and relief workers, though some Hatians managed to communicate over social networks and cellphones. I noticed how difficult it was for relief workers and Crisis Commons volunteers immersed in a saturated media environment to imagine communications solutions that did not rely on the Internet.

6 Anderson, B. (2006). *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (New Edition.). Verso.

7 Most notably, the Frankfurt School theorists, but this idea is a common theme in media critiques.

What could a hybrid, analog/digital, human/machine, point-to-point/broadcast network look like? We began to imagine and describe protocols for hybrid networks, composed of people, low power FM radio, blackboards, printing presses, copying machines, portable video projectors, cell phones, SMS, and Internet. Really, whatever was available and familiar.

There is a wide precedence for hybrid communications channels like this in the developing world. Columbia University's Earth Institute and UNICEF have has deployed text message based services in Africa, and they are working in villages where a single cell phone operator brokers vital information via a blackboard in the town square, transforming a cell phone into a mass broadcast device. This practice is reminiscent of wall newspapers in ancient Rome and communist Russia.[8]

Low power FM Radio stations were also an appealing approach. Local radio is very popular in Haiti, and many Haitians already owned receivers. If the DJ were connected to an upstream network, they could retransmit messages to their listeners. Local radio need not only be a one-way medium either. Haitians would know that if they needed to get a message out to a loved one in Haiti, they could get to the radio station and it might be transmitted, back into local community. Messages would travel over human and technological networks, routed intelligently by humans where technology leaves off.

What would the programming on this radio station look like? They could have hourly news and announcements, read out community messages submitted by listeners, convey messages of condolences and support from the outside world, play music, pray, talk radio, "call in" shows, anything really. Most importantly, this radio would be locally produced, with *the local community* deciding what to play.

Turning *Messages in Bottles* into *Skywriting*

At the Crisis Camp I met someone who is working with local Haitian communities in NYC. We were both very concerned with the distortions of the mainstream news coverage, the emerging

8 http://www.britannica.com/EBchecked/topic/634717/wall-newspaper

dominant narratives, and the feeling that the western media were circling like vultures waiting for violence to erupt.

We were also very interested in creating alternate channels of communication for Hatians to speak for themselves, and engage in dialogue with their relatives in the diaspora. The local Haitian community in Brooklyn was yearning for a real-time video connection to Haiti. They were prepared to gather in a local community center and stand vigil over this video stream. Unfortunately, the bandwidth requirements to establish a real-time video feed weren't feasible at this stage of the crisis, but having worked through the hybrid network analysis described above, we began describe and plan an ad-hoc, peer-to-peer, video exchange network capable of carrying video messages between Haitians and their relatives abroad.

We developed a protocol where Haitians could send video messages in a bottle. The community here could gather to watch and reply to those videos. We imagined these video “postcards” and their replies being limited to a few minutes each. The original message and the reply could be bundled and sent back to Haiti - not unlike sending a letter before the postage service - you would give it to someone heading to the recipient's town.

Initially, inexpensive digital video recorders on the ground in Haiti, with the video transmitted home over the Internet, or even back to the states by sending portable removable storage (SD Memory Cards and/or USB thumbnail drives) back and forth with a human a courier. Eventually, when bandwidth improved, we hoped to establish a live, synchronous, stream. But, until then, we planned to exchange ansynchronous video messages being sent back and forth, between Haiti an Haitian communities in the diaspora. This communication protocol was culturally familiar to Haitians, as our local contacts described Haitians communicating with their relatives abroad by sending audio messages on cassette tapes back and forth between each other.

On the Hatian end, the replies could be projected and played back to groups gathered around increasingly inexpensive portable projectors at night. Outside of Haiti, distribution is trivial, but the message could be routed to its intended recipient through social networks. A Haitian could send a video message in a bottle to Brooklyn, and it would not take long for their relatives to know they were safe. Replies could include message of hope, compassion, and support. The messages being transmitted to Haiti might not make it to their intended recipient, but the idea was that the messages of support from abroad would comfort any Haitian who watched it.

Crucially, independent lines of communications would be established. As a secondary benefit, if the messages were disseminated publicly (e.g. on YouTube), secondary waves of help could create journalistic highlights, extract crucial data to feed the informatics systems (sourced to the originating testimony), and we could start hearing each others voices.

Video Postcards, Letters, Textbooks, Billboards, and Beyond

We soon realized that the establishment of this kind of video exchange network suggested exciting potentials for crisis situations and beyond. Once this kind of networked is established many different kinds of media could flow over it. Personal and direct asynchronous video, broadcast messages, educational materials, and entertainment, could all be distributed and routed over a network like this. Some of these scenarios might also support microfinance driven economic development, as video recording and projection services might create viable businesses opportunities in the developing world.

This proposal on the following pages describes a pilot project implementing the ideas suggested above. Haiti is a great contender for this pilot, but this proposal is drafted without mentioning any particular location or event, since it can be adapted to a variety of pilot situations.

Executive Summary

Today's media and communications environments present incredible opportunities for improving the efficiency and effectiveness of disaster responses and the living conditions in the developing world. By leveraging differentials between saturation and scarcity across the digital divide, innovative communications models can suggest and support equally innovative business models.

This is a proposal to develop an implementation plan to pilot a video communications protocol that will enable the widespread exchange of video content between information saturated and information scarce populations using existing technologies. The price points, portability, and versatility of existing consumer electronic devices for the capture and projection of video content has reached a low enough threshold that the prospect of distributing and exchanging video in resource starved areas has become viable. This approach can seed micro-enterprises built around the communications, educational, and entertainment potential of video, and once these video exchange networks are established their utility and impact will help bridge socio-economic and digital divides.

In a nutshell, we are trying to recreate the mix-tape culture of the 1980's for video content in locales where communications hardware and bandwidth are scarce. This can also be described as an ad-hoc, peer-to-peer, video exchange network, or a human bittorrent that runs over a "sneakernet".[9] In the resource-rich developed world it is easy to overlook the scarcity of video capture and projection hardware, and bandwidth. In many developing countries telecommunications are brokered through shared phones, village operators, phone banks and Internet Cafés. These models can be extended for the production and consumption of video content.

While the longtime promises of the potential of video phones and synchronous video

9 "Sneakernet is a tongue-in-cheek term used to describe the transfer of electronic information, especially computer files, by physically couriering removable media such as magnetic tape, floppy disks, compact discs, USB flash drives, or external hard drives from one computer to another." http://en.wikipedia.org/wiki/Sneakernet.

communications have yet to bear fruit (or explosive profits), the market and appeal for *asynchronous* video messaging, or exchanging 'video postcards' is largely an untried service. Some of the resistance to synchronous video messaging will dissolve with asynchronous video messaging. The message sender will be in control of how they present themselves, and not have to worry about being caught unawares, in their bathrobe on a bad hair day. Asynchronous video messaging will also enable sending the same message to multiple recipients – a great way for people to communicate around special occasions and holidays, especially when spread across many time zones.

From Thurn and Taxis to AT&T, telecommunications has long been the king of profitable enterprises. In the developing world a cellphone is one of the most important investments that people are making to stabilize and advance their socio-economic status. The fundamental desire of people all around the globe to produce and consume video content makes this approach a viable, and suggests new businesses for developing economies.

With the right planning, partnerships, marketing, and training, the introduction of this style of video content exchange could help spread the power of the moving image to populations which could benefit tremendously from it. It can help families and friends stay connected, it can be used to disseminate important educational materials and interventions, as well as used for entertainment. And once demonstrated, this approach can be used in disaster response situations, whenever the communications infrastructure is decimated. Under emergency circumstances crucial information, citizen journalism, and emotional support can flow through these video exchange networks.

The establishment of many-way video communications within the developing world does not need to wait for the electrical and broadband networks to fully penetrate the countryside, nor does it need to wait for every citizen to own a computer or a smartphone. The video revolution that the first world is benefiting from today can be extended to the entire globe with thoughtful planning and

utilization of existing technologies. And if seeded and well executed, it can flourish as a self-sustaining model.

Environment

The developing world is undergoing explosive growth around ITC as they leapfrog over 20th century infrastructure and jump directly into the 21st wireless technologies. The cell phone and carrier industries in the developing world are booming as access to a cell phone is a reliable way to increase income and social status. Cell phone minutes are even becoming a de-facto form of payment and currency in locales where banking is unreliable or difficult to access.[10] Projects such as the One Laptop Per Child (OLPC), the Open Mobile Consortium, InSTEDD, and Inveno, have popularized the idea that computing technologies has become affordable and ubiquitous enough to extend to the billions of people living in poverty and extreme poverty. While the OLPC project itself has had a difficult time fulfilling their own predictions, they have helped inspire the category of low-cost, low-power computers and brought a great deal of industry and popular attention to the issues surrounding educational technology and socio-economic development.

Until this point, the potential of digital video in the developing world has been largely neglected. Projects such as Witness, Ground Report, and Barefoot Workshops recognize the power of video and citizen journalism in fighting oppression and human rights violations, but video is still considered a luxury by many development efforts. Especially in cultures with low literacy rates, video is a powerful way to communicate, educate, and entertain. As media literacy in the global north becomes an increasingly important educational goal, its importance across the entire planet's population needs to be prioritized as well. As our societies becomes more visual, we need to hear each other's voices, see each other's faces, and consume each other's media to better appreciate the complex

10 Corbett, S. (2008, April 13). Can the Cellphone Help End Global Poverty? *The New York Times*. Retrieved from http://www.nytimes.com/2008/04/13/magazine/13anthropology-t.html?pagewanted=1&_r=1

problems facing local populations around the globe. Direct, many-way dialog that is not mediated by governments, corporations, or even journalists (though, of course still technologically mediated) is necessary for comprehending each other's humanity.

Although the proliferation of screens and bandwidth is trending towards personal video recorders/transmitters/viewers for everyone, there are still powerful social effects around shared viewing experiences. The appropriateness and demand for point-to-point as well as broadcast video communications requires research, experimentation, and refinement. Design research and pilot implementations of digital video projects in the developing world will help inform and refine the deployment models that maximize the socio-economic impact. The identification of educational partners and the development of appropriate, quality, content will improve the value of this network.

Strategy

The opportunities around digital video in the developing world are vast. Our overall strategy is to develop an inexpensive, peer-to-peer video exchange network that relies on a hybrid of humans and machines. By carefully selecting portable consumer devices that can capture and project video, we can eliminate the need for intermediary computer processing, reduce dependence on electricity through battery power, and achieve a level of interoperability through standards-based removal storage. Since this kit will be assembled from consumer components, it can scale up or down depending on local needs and availability. If electricity, computers, larger projectors, or other capture devices are available, they can inter-operate with this video exchange network. The key elements of this strategy relies on standardizing devices around removable storage, such as SD memory cards and USB thumbnail drives. Many consumer video recording and playback devices support these formats, although some don't, which would make them more difficult to integrate into this flexible, modular, network.

Our project team and partners will work to develop a recommended capture and projection kit,

along with the associated training materials so that the local video messengers understand how to work with the tools and media. Local video messengers with Internet access might connect with recipients abroad through freely available social networking tools and video sharing sites. Similarly, they can select and download video content for local dissemination. Viable services which they might successfully monetize include recording video messages, delivering them (over the Internet, by post, or by courier), receiving video messages, and downloading and screening video content, for individuals or larger audiences.

Once we demonstrate the feasibility of these video exchange networks we will reach out to foundations, and humanitarian agencies, and the press to popularize and spread these practices. It is our expectation that once we successfully seed demonstrations of the viability of these communications techniques, microenterprises will evolve around video content, and these communications patterns will spread virally through immigrant communities and back into the developing world. The suggested hardware kit should be priced within reach of microfinancing loans,[11] and fundraising efforts will also be organized to donate money and equipment to support these ventures.

The biggest risks this venture faces is the availability of quality content to disseminate over this network. We will learn quickly if populations will utilize this network to exchange personal video messages with each other and their relatives abroad, but the identification and development of quality educational content, tailored specifically to specific contexts and situations will require time and resources to locate. Materials supporting the UN Millennium Development Goals – nutrition, gender equality, public health, environmental sustainability – can be more easily disseminated, working towards the goal of universal education. Supporting programs and curriculum would need to be

11 According to Forbes in 2008, average microloan sizes varied from $100 in India to $1,530 in Bolivia (http://www.forbes.com/forbes/2008/0107/050.html). Kiva.org, a popular microlending service, reports a worldwide average of around $400 per microloan in 2009 (http://www.kiva.org/about/facts)

developed around the delivery of this educational media, but the availability and access to this knowledge would enable a wide variety of learning opportunities.

Will entrepreneurs in the developing world be able to monetize video services? While their business models will undoubtedly require adjustments and tuning, the success of television and video-based education and entertainment wherever it is available, strongly suggests a voracious appetite for video content worldwide. During this pilot project we will work with partners and video messengers on the ground to help develop successful small businesses around video exchange. With careful attention to standards and modularity, we will also be able to evolve these business models as future hardware developments and network expansion continues to move forward in the developing world.

Management structure and human resources

The organization directly supporting this project is a technical non-profit with a structure that is similar to many open-source projects. Our organization consists of a network of professionals and amateurs that assemble around specific projects and events that involve developing communications strategies to support social justice, disaster relief, and sustainable development. Coordinating and maintaining the latent network requires minimal overhead, and is primarily sustained through web-based communication and collaboration tools, punctuated by occasional in person meetings. Since our networks overlap with other similar networks and areas interests, many people involved in our projects encounter each other regularly in other contexts.

Our organization structure strives to be non-hierarchical, with decisions driven by consensus, and conflicts are resolved collectively. Since our participants are loosely bound and organized primarily around shared interests, governance and management structure are determined on a per-project basis.

The pilot project described in this proposal is a two year project requiring the equivalent of four full time employees. The roles and skills that we need to fund include project management, community organizing, communications/marketing/public relations/outreach, fundraising, grantwriting, web development, videographer, business development, legal counsel, curricular development, trainer, accounting, and financial planning. We plan to locate individuals with overlapping skill sets, and to bring in some of these skills on a part-time, as-needed basis. The project manager/community organizer, business development/fundraiser/grantwriter, and the communications/marketing roles will be full time, responsible for recruiting and hiring the other skill sets on a short-term freelance basis. The project manager/community organizer will be responsible for project planning, setting milestones, and coordinating efforts across volunteers and partnerships with other organizations whose work will benefit from and complement our efforts. The business development/fundraiser/grantwriter will help develop sustainable models for expanding the pilot project as well as for businesses in developing settings. The communications/marketing/public relations/outreach will advocate for the project and work to raise awareness and publicity about its variability and potential.

According to the phase of the project, the demand for the different skills will ebb and flow. On a quarterly basis we will assess conduct a needs analysis and adjust our plans for the skills required. The full time project staff will be full partners in this venture, with equal decision making responsibilities, and the ability to veto contentious proposals. All of the members of the project team will travel and spend time on-site in the pilot location to help them better understand the contours and challenges of the mission.

Legal, regulatory, and intellectual property issues

Our legal issues will include obtaining non-profit status, operating internationally, standard contractual reviews, insurance, and working with funders and freelancers. These issues should be

relatively straightforward and should be addressable without complications or expense. We may run into more complex issues around the donation of equipment, especially if it is branded or if there are competitors or conflicts of interest.

Additionally, we will need to work though some of the public relations and legal issues around the perception that our efforts will encourage piracy and the violation of copyright laws. Our training materials must fairly represent the limits of fair use, and we will not condone the violation of international intellectual property laws. The activities that we will develop and promote are legal and legitimate, including the creation and distribution of original video, and the screening of open or licensed video.

Technology issues

The project requires a web presence to publicize and promote our efforts. We will require backend communications and collaboration platforms to coordinate activities and tasks between the distributed project contributors, constituent relationship management tools, as well as a public facing environment to interact with our partners and constituents. These tools require minimal technical customization, and will primarily need graphic design, content, and curation. We will be able to leverage some of the infrastructure of our umbrella organization, as well as utilize cloud-services and proven open-source solutions to solve our technical infrastructure needs. The most significant development effort will be our fund-raising tools. We plan to set up a wedding registry-style donation system where people can sponsor specific hardware devices at different price points.

As a part of this pilot project we will continue to iterate and refine the recommended hardware kit and protocols for exchanging video. In all hardware categories we are still looking for the best balance between price, size/weight, durability, and quality. We will require a laboratory for testing out all of the hardware we evaluate and recommend before sending it out into the field. The kit will be

published on the web, and users will be encouraged to provide suggestions and feedback on its effectiveness.

The core video exchange kit will be composed of a portable video capture device (e.g. Kodak Zi8), a portable video projector (e.g. 3M Mpro PocketProjector line), cables, portable speakers, extra batteries, and extra portable removable memory. Optionally, we will also recommend external microphones, solar chargers, tripods, and other equipment to enhance the capture and playback experiences. Our objective is to assemble a core video hardware kit for under $500. This kit will be capable of screening video to audiences of 30-50 people, and can also scale to larger and smaller price points and audiences depending on the requirements.

Financing and projections

Our primary expenditures include salaries, office space, operational equipment, outreach and communications, travel, and video exchange hardware kits. For this pilot we are seeking $750,000, funding for 2 years with 4 full time employee equivalents. Our team will be geographically distributed and requires minimal office support. We estimate that we can fully support our staff, including benefits, coworking facilities, and travel for $90k/employee/year.

Our initial pilot will run for 2 years with the equivalent of four full time employees. As our organization will collaborate virtually and we may be geographically dispersed, our office needs are minimal. An inexpensive co-working situation might be ideal, providing our staff with deskspace, as well as connectivity and networking opportunities. We also feel it is important for all of our staff to travel to the pilot location, to learn firsthand about the conditions on the ground.

We are targeting $500/video exchange kit, and after assembling model kits we will begin fundraising for bulk hardware donations. Our initial estimates predict that a small neighborhood or

village of approximately a thousand people will be able to support a few video messengers – one kit per 200-300 people. We plan to demonstrate the viability of the video messenger business with donated hardware, but we will also actively develop business models that should allow the recovery of the cost of the kit within 6-8 months.

We will pursue multiple avenues to obtain the necessary hardware. We will seek funding directly, research and apply for content specific grants that might include hardware and dissemination as an element, solicit bulk sponsorships and donations from corporations (both the hardware manufacturers and companies that might co-brand and sponsor the hardware), as well as direct crowdfunding and hardware donations. Depending on the size and scale of the pilot project, we will need to adjust the target number of kits. We do not yet know how many people can be serviced by a video kit, and it will also depend on geography and usage habits. These are all questions that this pilot project seeks to answer, and accordingly, our requirements in this area are variable and will need to be adjusted over the course of the pilot.

Production and operations

Our primary deliverable at the end of this pilot will be an assessment of the outcomes and efficacy of this model, and recommendations for future projects.. We will develop campaign materials about the project and training materials used during the pilot to teach video messengers the necessary skills to operate a small video exchange operation. The specifics of our operational plan will largely be contingent on our progress and partners. Positive responses to our initial outreach efforts will accelerate our ability to deploy our solutions to the field. If our early trials gain traction, we will be able to build quickly on these successes to forge partnerships with other humanitarian relief efforts, local communities in sito and living abroad, and larger foundations.

Day to day operations will revolve around continuing to iterate and refine our mission,

developing outreach materials to promote the project, developing partnerships with organizations whose missions complement ours, reaching out to the local communities, building a membership base, and documenting case studies of successful video exchanges.

Marketing

Our marketing and outreach efforts will be divided between marketing our organization and mission to foundations and organizations supporting humanitarian relief efforts, and developing marketing materials to assist indigenous entrepreneurs market their video exchange ventures to their neighbors and customers. Based on close listening and responsiveness to locally expressed needs, we will strive to assist the local entrepreneurs in ways that are culturally sensitive and appropriate.

Our outreach and fundraising will be grassroots driven, relying heavily on new media and targeted face to face promotion. We will need to develop branding, logos, visual design, and other elements to effectively communicate our message. Our core operations staff will have the skills and experience to sustain these campaigns, though we will need to bring in short term help for the initial design.

If we are successful in locating a partner who wants to co-brand and sponsor our hardware, we will negotiate piggybacking on their marketing efforts, so that our project gains visibility alongside their charitable support. If we are successful in securing any additional funding, we also hope to gain some additional visibility and promotion through our funders and their networks of grantees.

Summary and conclusions

The promise and possibility of seeding a video exchange network in the developing world is exciting and urgent. Our pilot project aims to demonstrate that we can construct a video exchange network without waiting decades for the completion of the power and communication networks that

will eventually blanket the globe. Our proposal details a deliberate method for introducing this idea into the humanitarian and disaster relief ecosystem. By focusing on purposeful objectives and development materials, we will avoid the pitfalls that lead many technological interventions like these to fail. Our efforts are designed to nurture and study self-sustaining development model, so that we can learn from the pilot and scale this concept to larger deployments.