



Media,  
Information Systems  
and Communities:

# Lessons from HAITI



**Media,  
Information Systems  
and Communities:**

# **Lessons from HAITI**

By Anne Nelson and Ivan Sigal, with Dean Zambrano

This report was partly based on information gathered at a roundtable discussion on the media and communication response to the Haiti earthquake. Hosted in Miami on May 24, 2010, the event was organized by Communicating with Disaster Affected Communities (CDAC) with support from the John S. and James L. Knight Foundation. Participants included representatives from the following organizations:

**Association des Journalistes Haïtiens**  
**Association des Médias Indépendants d'Haïti**  
**BBC World Service Trust**  
**International Media Support**  
**InSTEED**  
**Internews**  
**Irish Red Cross Society**  
**John S. and James L. Knight Foundation**  
**Katye pa Katye (also known as Quartier par Quartier)**  
**Microsoft**  
**United Nations Stabilization Mission in Haiti (MINUSTAH)**  
**Reporters sans Frontières**  
**Thomson Reuters Foundation**  
**United Nations Office for the Coordination of Humanitarian Affairs**  
**Ushahidi**



<b>Executive Summary</b>	<b>4</b>	
<b>1</b>	<b>Introduction</b>	<b>5</b>
<b>2</b>	<b>Context: Leading up to the Haiti Response</b>	<b>8</b>
<b>3</b>	<b>Media Initiatives and Partnerships</b>	<b>10</b>
<b>4</b>	<b>Innovations</b>	<b>15</b>
	From Crowdsourced Data to Actionable Information	15
	The Use of SMS Message Broadcasting in Crisis	17
	Short Code Potential and Concerns	18
	Crowdsourcing Open Maps for Humanitarian Application	18
	Humanitarian Media Response and Local Coordination	19
	Coordinating to Build a People-Finder Platform	20
	Coordinating Among Sectors	21
<b>5</b>	<b>Implications and Next Steps</b>	<b>22</b>
	Findings	23
<b>6</b>	<b>Recommendations</b>	<b>24</b>
	For All	24
	For Technology and Media Development Sectors	24
	For the Humanitarian Sector	25
	For National Governments and Donors	25
	<b>Timeline</b>	<b>26</b>

# Executive Summary



On January 12, 2010, a violent earthquake shook the impoverished island of Haiti. As with most other natural disasters, the international community pledged to support rescue and relief efforts.

But the Haiti earthquake also marked the beginning of a new culture in disaster relief. Occurring several years into a revolution in communications technology, the event attracted legions of media specialists bearing new digital tools to help.

The relief efforts quickly became a living laboratory for new applications such as SMS (short message service) texting, interactive online maps and radio-cell phone hybrids. These tools were applied to urgent tasks such as guiding search-and-rescue teams, locating missing persons and delivering food and water to the populations that needed them the most.

Haiti constituted a learning opportunity, not a perfect model. Working partnerships had to be forged quickly between traditional actors, including governments and international institutions, and more spontaneous technological coalitions. Haiti's shaky communications infrastructure, crippled by the earthquake, often faltered under the new demands. Yet the operations also yielded a wealth of data and experience that will be of vital importance for future relief efforts.

## This report captures three important observations:

1. Traditional humanitarian organizations were often open to the new technologies, but remain nervous about the implications of information and power-sharing through crowdsourcing and other new media platforms.
2. Joint humanitarian communities demonstrated that there were many beneficial ways to use digital media in the crisis setting, particularly texting functions.
3. Although much of the attention has been paid to new media technologies, radio was the most effective tool for serving the needs of the public. The first media priority in Haiti was to restore radio service (as it was in the tsunami and other recent crises).

The Haiti experience offers rich material for research and planning for media development organizations, governments and international organizations. This report is offered in the hope of advancing preparedness to utilize media effectively in future disaster relief efforts.

# Introduction

At 4:53 local time on January 12, 2010, a devastating 7.0 earthquake struck the Caribbean island of Haiti. More than 230,000 people were killed and countless numbers wounded. Two million of the country's nine million people were left homeless and Haiti's already inadequate infrastructure was shattered, crippling rescue efforts and creating additional hazards. Gas and water mains were broken, roads were impassable and major hospitals collapsed into rubble. Communications systems, one of the few tools that could bring order to the chaos, were also imperiled by the quake. The emergency response required an unprecedented level of coordination among vast numbers of relief workers from all over the world.



Every modern disaster has required modes of communication, but in Haiti, the importance of the media rose to a new level. Haiti became the first real-world crisis laboratory for several media platforms that had only recently emerged. These were applied to support rescue efforts, assist displaced populations and coordinate massive relief operations. The Haitian earthquake marked the first large-scale application of new approaches to create dialogue between citizens and relief workers, such as crowdsourcing and projects that combined the reach of cell phones and radio technology.

**The Haitian earthquake brought together three existing trends in the use of information technology for the humanitarian response:**

- 1.** Increased usage of digital media technologies by responders to manage humanitarian information.
- 2.** Enhanced reporting and distribution of information through local mass media to help aid recipients.
- 3.** Customized innovative digital media tools and platforms applied to coordinate new forms of collective action and problem-solving.

The new tools encouraged new forms of collaboration among local media, technological innovators and large international organizations. Due to Haiti's proximity to the United States and its large diaspora community there, communications technology served as a catalyst to overcome culture and language barriers. Technology even offered new avenues for fund raising via SMS donations. Many Americans first heard of digital philanthropy through the Red Cross 90999 campaign for Haiti, which raised \$5 million within 44 hours of the earthquake and \$20 million within five days.

International relief efforts brought together dramatically diverse populations. Major actors included the United States armed forces, the United Nations and its humanitarian partners through the cluster system,<sup>1</sup> international branches of the Red Cross and countless international and local NGOs. Each of these groups had urgent communications needs, but these needs were often different and sometimes competing.

<sup>1</sup> The cluster system designates individual agencies as sector leads responsible for coordinating humanitarian operations in specific areas such water/sanitation, health, protection and communications. The system operates at both the global level and the local or country level during humanitarian response.



At the same time that workers and technicians were laboring to restore damaged radio stations and landlines, another less traditional force appeared on the scene. A largely volunteer band of new media and information technology experts converged to apply their innovations in support of the rescue effort. They worked energetically across a range of platforms, from FM radio to Internet mapping, to test everything from SMS messaging systems to new digital people-finder programs. These services, in partnership with local media, helped people find emergency food and shelter, locate missing friends and family, direct calls for help and recruit support to rebuild the country.

These advances are all the more striking when compared to crises that occurred only a few years earlier. In 2004, more than 220,000 people perished in the Indian Ocean tsunami, and many of these deaths may have been avoided if media had better tools for providing early warnings to large coastal populations. In Hurricane Katrina in 2005, some of the 1,800 fatalities resulted from poor communications and coordination among rescue operations.

This convergence first appeared in Haiti but was the result of years of less visible collaboration among communities and organizations committed to advancing media and information technology usage in crisis settings. Although these groups' contributions could not be utilized by all of the international organizations that responded to the earthquake, their work has been recognized as one of the most promising new approaches to age-old problems. The Haitian experience strongly suggests that digital media and information technology can significantly improve humanitarian response with the right applications, coordination and program management. In this way, Haiti represents both a culmination of a vision and the beginning of the hard work of implementation.

The response to the Haitian emergency leveraged many areas of innovation, including networked media, citizen participation and new information technology tools and applications. These innovations have already made an impact in many other fields, including journalism, economic development, health care, the environment and transparency and accountability in governance.

The Haitian initiatives should not be oversimplified as a new media "success story." Of the many approaches that were tried for the first time, some worked, some failed and others stalled in a state of unfulfilled promise.

## At the heart of this report are three questions:

- 1.** How can information technologies and mass media support humanitarian assistance to citizens in a disaster?
- 2.** How can the experiences and lessons of the Haiti response serve both Haiti's ongoing reconstruction and relief efforts in future crises?
- 3.** How can obstacles and limitations to information sharing be overcome, while still being respectful of the needs of participants?

Some of the most helpful lessons will be learned through the failures. As new media activists have pointed out, “Technology is easy, community is hard.” Many of the obstacles to the relief efforts concerned difficulties in dialogue between communities: between international organizations and local Haitian groups, between volunteers and professional humanitarian organizations and between civilians and military. The crisis united many of these parties for the first time and created harsh conditions for learning a common language. However, these gaps and missteps contributed to the learning process and will generate new ideas for approaching the next disaster.

This report, issued on the one-year anniversary of the earthquake, reflects on the role of communications in the event and maps lessons for the future. It draws on the experiences and the discussions of CDAC (Communicating with Disaster Affected Communities), a working group of humanitarian organizations and media development groups, as well as a roundtable convened by Knight Foundation on May 24, 2010, in Miami. That meeting brought together Haitian journalists, international media development representatives, development agencies, technologists, response teams and humanitarian groups, all of whom served Haiti’s acute information needs in the crisis.

Calamities will continue to occur. But their damage can be mitigated by relief efforts that are well planned and executed in concert with the local population. Digital media offers a unique opportunity to advance these goals – if, and only if, the future response is built on the lessons of the past.



## Communicating with Disaster Affected Communities (CDAC)

Communicating with Disaster Affected Communities (CDAC) is a cross-sector collaboration that brings together experts in outreach, media and humanitarian operations in a collective effort to improve a two-way communication flow between the humanitarian community and affected populations. CDAC is a source of expertise and advice, a community of practice and an advocacy platform that aims to ensure that the humanitarian sector and local media play a vital role in maximizing aid effectiveness, accountability and transparency to affected communities.

The working group was founded by international relief and development organizations, including Save the Children, British Red Cross, Irish Red Cross and UNOCHA; and media development agencies, including the Thomson Reuters Foundation (TRF), BBC World Service Trust (BBCWST), International Media Support (IMS) and Internews.

The CDAC network in Haiti includes experts in humanitarian operations, radio, mass media, SMS, web-based and nonmass-media communications, public information officers and both local and international journalists.

## Context: Leading up to the Haiti Response

New York City, September 11, 2001: When the World Trade Center was attacked, killing over 2,700 people, New York City's communications faltered. Local television stations aired mistaken reports that 10 additional planes were en route to attack. New York City police and firefighters operated on different radio frequencies and had no means of direct communication with each other. United States military, first responders and relief workers tripped over each other at the site, duplicating some actions and overlooking others. Families seeking missing loved ones resorted to taping flyers to store windows.

But at least one new communications platform played a striking role: for critical minutes after the attack, people trapped inside the buildings and planes spoke to their families on cell phones; these calls conveyed important information to news media and emergency services.

This event, only a decade ago, offers a glimpse of the dynamics of disaster relief in the era of Web 1.0.

Americans had access to the Internet, television and cell phone service, but these were still largely "top-down" technologies that had not yet built out their interactive capacities.

Three years later, crisis communications approached another milestone when the Indian Ocean tsunami struck. In Sri Lanka, much of the coast was ravaged, and more than 35,000 people killed. Landlines were destroyed or disabled, and cell phone signals were too weak to hold a signal.

In desperation, relief workers turned to SMS and found it surprisingly effective.

A young local television producer began sending SMS messages to friends in India who posted his reports on their blogs, amplifying the reach of these messages and bringing news to worried families internationally.



A few weeks after the disaster, the Sri Lankan government established the Disaster Management Centre, a 24-hour monitoring service for natural disasters. The project proposed to send SMS messages to village chiefs, government workers, police and media at the first sign of crisis. The new system was put to the test on September 19, 2007, when Sri Lankans received this 20-word alert following an off-shore earthquake: "Tsunami warning for Sri Lanka north, east and south coast. People asked to move away from coast. – Disaster Management Center." The coast was quickly evacuated.

One drawback to using a public SMS reporting system was illustrated when an SMS tsunami warning was circulated in Indonesia, only to be revealed as an anonymous hoax. Nonetheless, the idea of using SMS to broadcast disaster warnings progressed. Soon technology volunteers developed a new platform called the Integrated Tsunami Watcher Service to provide free, live information on natural disasters for cell phone users throughout the region.<sup>2</sup>

As cell phone and Internet penetration expanded throughout the world, a number of other new platforms emerged, many based on Web 2.0, or interactive media, in which users both create and access content. By marshalling the "wisdom of the crowd," information from dispersed individuals can be compiled into critical bodies of knowledge. When Hurricane Katrina devastated the Gulf Coast in August 2005, the storm illustrated the fatal impact of faulty communications and coordination among emergency services. But Katrina also signaled the growing power of wikis, collective online knowledge creation, to locate missing persons, organize volunteers and locate emergency housing.<sup>3</sup>

<sup>2</sup> See: <http://www.columbia.edu/itc/sipa/nelson/newmediadev/Emergencies.html>; See also [www.jasminenews.com](http://www.jasminenews.com) and "New Technologies in Emergencies and Conflicts: the Role of Information and Social Networks," *Ibid*.

<sup>3</sup> See: <http://www.ojr.org/ojr/wiki/katrina/>.



Web 2.0 principles are strikingly applicable to disaster relief since a stricken population can offer the most immediate information about its own conditions. These principles advance the ability of individuals to dialogue and partner with relief agencies, rather than being consigned to the role of passive victims. However, new possibilities also raise expectations, and communities have expressed anger and disappointment when their needs are reported yet go unmet. The “feedback loop” of communication is only complete when the appropriate action has been taken, often the most difficult part of the equation.

The initiatives in Haiti were driven by several recent developments in the integration of communications and humanitarian information into disaster response. First, the media development sector had developed projects to work with local media to create humanitarian reporting programs and platforms to offer feedback for humanitarian providers. Second, digital media practitioners and information technologists formed a growing community to focus on new Internet and mobile platforms to promote mapping, geotagging, crowdsourcing, microtasking, application development and citizen journalism. They made a special effort to apply their tools and skills to crises and humanitarian emergencies.

Finally, the humanitarian sector became increasingly aware of the value of beneficiary communications,<sup>4</sup> progressively expanding the exchange from an ad hoc response to individual crises to larger, more systematic applications. Beneficiary communications were recognized in Haiti as an element in overall strategic frameworks within the cluster system for response, as well as funding solicited through the U.N.’s Consolidated Appeals Process (CAP). The Emergency Respond Funds (ERF), managed by UNOCHA, supported both humanitarian radio and programming and CDAC operations.

The humanitarian sector had also increased its use of digital media tools and applications; the sector initially used them to support interagency coordination and outreach, as well as to communicate with beneficiaries on an ad hoc basis.

But while the democratic approach to information management fuels crowdsourcing, this characteristic can also serve as a limitation in crisis settings. Information may be gathered and assembled in an open, democratic fashion. But often the practical response effort is driven by large organizations that deal with information in a radically different way. Military and international humanitarian organizations manage information within more closed systems.

Government assistance during crises often includes national, regional and local efforts and involve multiple departments including the military and National Guard as well as police and firefighters. These units have historically provided support in the form of material resources, medical aid, and search-and-rescue teams; recently, they have been increasing their support for innovative information technology. Their official status allows them to implement widely, and they can assign a mandate for leadership to organizations in the field. They possess the resources to build preparedness and early warning systems, integrate communications redundancy into infrastructure, and provide a backbone for other responders, especially institutional funders supporting the relief efforts. Ideally, they recognize that humanitarian response is at its core a government responsibility.

However, government bodies must also function within complex bureaucracies, accountable to legal frameworks governing issues of secrecy, privacy and accountability. This usually makes them less flexible than NGOs. Their organizational cultures often do not intersect with the NGO community and they can struggle to learn a common language in an emergency setting. Some operate under specific restrictions. For example, uniformed services function within the constraints of intelligence concerns. Meanwhile, the International Committee of the Red Cross, whose practice is based in treaty, has a long tradition of protecting confidentiality. The intersection of these institutions with the open-source community can lead to friction and misunderstandings. Creating constructive channels of information between fundamentally dissimilar systems remains one of the challenges of this emerging enterprise.

<sup>4</sup> Beneficiary communications are based on the dialogue between the humanitarian response community and the population affected by crisis.

## Media Initiatives and Partnerships



The Haitian government and local news media were committed to supporting their communities in the aftermath of the crisis, but their ability to do so was significantly curtailed by the damage from the earthquake. An estimated 18,000 civil servants were killed and blocks of public buildings were leveled, particularly in the capital of Port-au-Prince. This further limited the ability of an already impoverished government to deliver food, water and health care. Haiti's news media was temporarily paralyzed. All of its newspapers and most of its broadcasters ceased to function, and it is believed that 33 journalists died in the quake.

Foreign governments were quick to respond to Haiti's requests for assistance, illustrating the critical role governments can play in a crisis. The neighboring Dominican Republic was the first to respond on the ground. Countries around the globe quickly followed with major commitments of aid, with the largest amounts offered by the United States, the U.K., the countries in the European Commission and Scandinavia.<sup>5</sup> The United States, leveraging its proximity to Haiti, dispatched early logistical support. The U.S. State Department and armed forces assisted with information technology

and coordination, facilitating contacts and carrying out emergency repairs on telecommunications and Internet infrastructure. The United States Agency for International Development's (USAID) Office of Foreign Disaster Assistance provided early funding and sent urban search-and-rescue teams from Virginia and California, each composed of about 72 personnel, six search-and-rescue dogs and up to 48 tons of rescue equipment. The U.K.'s Department for International Development also sent search-and-rescue teams in the immediate aftermath, and helped coordinate ongoing relief efforts. These initial efforts were followed by hundreds of tons of aid and thousands of relief workers from the United States, the U.K. and other countries across the globe.<sup>6</sup>

One immediate priority was to help the Haitians discover what was happening around them and where they could go for help. Some of the early information came from international sources. The radio station for the United Nations Stabilization Mission in Haiti (MINUSTAH) was initially knocked off the air, but was made available for humanitarian information programming when it resumed service the following week. Several international broadcasters, including the BBC, the Voice of America (VOA) and Radio France International, boosted their own Haitian services. Collectively, these groups put together a remarkable range of information and communications responses.

In the best of times, Haiti's newspapers have been hampered by the country's low literacy rate of 52 percent. After the quake, printing was no longer an option. The earthquake destroyed the country's capacity to produce and distribute newspapers for weeks. Le Courier International released a special Haiti edition with contributions from local papers and journalists on Feb. 4, while Le Nouvelliste took a month to publish its special edition on the quake.<sup>7</sup>

<sup>5</sup> See: <http://www.guardian.co.uk/news/datablog/2010/jan/14/haiti-quake-aid-pledges-country-donations>.

<sup>6</sup> Haiti was an atypical case in several respects. First, it was next door to the United States and received greater support than a more distant locale. Second, the capital city was virtually wiped out, and third, the Haitian government was and remains weak.

<sup>7</sup> See: <http://www.courrierinternational.com/une/2010/02/12/une-edition-speciale-un-mois-apres-le-seisme>.

Radio is Haiti's dominant medium. Access to radio can be shared easily and relatively cheaply among many people, and serves both literate and illiterate populations. According to the CIA World Factbook, Haiti has over 250 commercial and community radio stations; a 2009 Voice of America survey describes radio receiver ownership as virtually universal.<sup>8</sup> These factors made radio the undisputed lifeline for the Haitian public after the earthquake.

Most Haitian radio stations were knocked off the air by the quake. Only one, Signal FM, managed to continue broadcasting to an audience of nearly three million throughout the crisis.

Station owner Mario Viau was later honored by the National Association of Broadcasters Educational Foundation, which lauded Signal FM as a vital source of information for the millions of Haitians who had no access to fuel, electricity or telephone service immediately following the earthquake. "Its round-the-clock coverage helped locate missing people, spread news to families searching for lost loved ones and delivered messages to Haitians across Port-au-Prince regarding available water resources and hospital information. It also helped save the lives of numerous Haitians by providing reports to rescue teams describing where immediate aid was needed."<sup>9</sup>

As Radio One, Radio Métropole, Radio Mélodie and others gradually recovered service, they joined Signal FM in opening their microphones to Haitian citizens. Haitian radio stations and their personalities took advantage of their preexisting mass audiences who trusted their content. Radio One, formally an all-music station, used its contacts with the Haitian music community to put star performers on air to communicate with the public. They helped to calm crowds, based on the principle that "one rap star at a distribution point can bring more calm than several soldiers." Cedre Paul, the host of the popular program "Radio One Haiti," also sent out prolific Twitter messages that provided real-time updates to his many followers.

Radio's importance as an information source was amplified because it complemented other critical information sources. Community networks and local churches were able to distribute messages more effectively by working with radio. Other forms of media such as text messaging and social networking combined with radio to improve delivery of key information with a consistent message to the widest possible audience.



Other media organizations also mobilized to help, including the Haitian Journalists Association, the local community organization Katye pa Katye (also known as Quartier par Quartier) and Haitian telecommunications providers such as Digicel and Voilà. Digicel was particularly influential in the relief effort and donated extensive time and resources.

Even before they resumed service, Haiti's local mass media helped international relief efforts by offering vital local knowledge. Local Haitian organizations and diaspora networks also joined the communications process through social media. These groups drew on telephone (and less frequently, Internet) contact with friends and family in Haiti to post updates on Twitter, Facebook and Flickr to communicate to a broader public.

<sup>8</sup> "Radio ownership in Haiti is virtually universal with 97 percent of respondents reporting that they own a working radio. Radio is the most popular and [most] used media with 68 percent of respondents listening to radio yesterday." Radio Lawwadlamerik (VOA) Programming to Haiti - Survey Results at-a-Glance, InterMedia, August 2009.  
<sup>9</sup> [http://www.signalfmhaiti.com/index.php?option=com\\_content&view=article&id=2327:haitis-signal-fm-radio-to-be-honored-at-nabefs-service-to-america-awards&catid=44:cooperation](http://www.signalfmhaiti.com/index.php?option=com_content&view=article&id=2327:haitis-signal-fm-radio-to-be-honored-at-nabefs-service-to-america-awards&catid=44:cooperation).

As news of the earthquake traveled, various international organizations determined their plan of action. Forty-eight hours after the earthquake struck, UNOCHA asked the media development organization Internews, which had been working in Haiti since 2007, to coordinate CDAC operations on the ground and help the relevant players carry out needs assessments, avoid overlap and fill as many gaps as possible.<sup>10</sup> This initiative marked the inception of CDAC efforts in Haiti, and an attempt to fill a gap noted in previous responses.

The international community worked closely with Haitian radio stations to produce humanitarian reporting. Materials were shared across multiple platforms, including SMS messaging, call-in programs and direct citizen engagement tools. The aid community supported the mass distribution of radio sets to affected populations to guarantee their access to information.<sup>11</sup>

Humanitarian information programs produced by Internews with local journalists invited listeners to text message comments about their needs for relief services. These were then communicated to humanitarian responders through meetings organized by CDAC.

Social media also had a dramatic impact in Haiti, though not in the same ways one would find in other regions. Officially, close to 10 percent of the Haitian population is described as “Internet users,” but that figure masks the limited connectivity outside the capital, as well as the extremely limited access to broadband throughout the country.

Under normal circumstances, Haitian energy companies provide energy for only a few hours a day. With the earthquake, metropolitan Port-au-Prince lost power completely. Meanwhile, Internet relays provided from phone companies (such as WiMax, microwaves and satellites) slowed because the receptors were not properly aligned. People trying to communicate with family members and friends jammed the few functioning networks. Much of the remaining connectivity was redirected to the UN and other organizations mobilizing humanitarian assistance.

Despite these difficult conditions, Haiti’s Internet service providers also played an important role in the process. All of the text messages and data coming out of Haiti passed through Internet exchange points that were built and operated by a coalition of local Internet service providers. These companies were asked by international nonprofit organizations (and their existing customers) to offer connectivity for free, at a considerable cost to their businesses.

Given the scarce access and widespread disruption of Internet service, much of the internal Haitian media initiative was fueled by cell phone. Haiti’s population of 9.6 million possessed only 108,000 landlines in 2009 (ranking it 142nd in the world per capita), compared to 3.6 million cell phones.

The international community and Haitian bloggers crafted online platforms to aggregate, organize and share humanitarian information with responders. One important example was Ushahidi, a crisis-mapping platform that was quickly adapted to provide emergency and rescue data in Haiti (see below).

Haitian cell phone service was often erratic, but it allowed a platform for the SMS services that provided a critical interface between the Haitian public and international humanitarian organizations.

The SMS reporting initiative began shortly after the earthquake, as Haitian journalists fielded pleas for help from their audiences. As one Haitian journalist recalled, “We didn’t know what we could say to our listeners or people who came to the radio station. People came, complained, didn’t get help. We didn’t know what to tell them – we were missing a link between humanitarian organizations and the media.”<sup>12</sup>

## Short Code

Short codes are special telephone numbers that are significantly shorter than full telephone numbers. They are designed to facilitate the transmission of SMS (short message service) texts from both mobile phones and landlines for a variety of commercial and nonprofit uses. Although they are often subject to charges, in emergency situations they may be made available to the public for free.

<sup>10</sup> The ICRC, IFRC, Ushahidi, InSTEEDD, Sahana Open Street Maps, FrontlineSMS:Medic, Crisis Commons, Global Voices, Microsoft Research, Google, The MIT Center for Future Civic Media, CartONG and other loosely affiliated technologists also joined the effort.

<sup>11</sup> The timeline provided in this report offers detail on which interventions took place and when.

<sup>12</sup> Haiti Roundtable, Miami, May 24, 2010.

This connection was created in the form of a “short code”; in this case, it constituted a four-digit code that enabled cell phone users to send free messages to central information centers about missing persons and emergency needs. Several organizations were involved in the development of the short code to serve Haiti. One was InSTEEDD, a humanitarian organization that emerged from the TED conferences, which brings together leading figures from the technology field to discuss innovation.

Digicel, one of Haiti’s major cell phone providers, was a critical partner in the early stage. The company lost approximately 70 percent of its towers in the earthquake; but other than a brief outage in the first few days, its service remained active over the initial period. The architects of the SMS system began work on January 13, the day after the earthquake, and the messages began to flow about three days later.

The technology team settled on the digits 4636, and Digicel agreed to make it available to the public for free. At this point, Digicel’s service provided the only means through which the Haitian population could make remote contact with aid agencies for no cost. Later, Haiti’s second largest telecom, Voilà, joined the effort and added a second short code: 200.

Once the text messaging system was set up, additional technology teams set to work. International Media Support, a Copenhagen-based NGO, worked with Internews and other organizations to create a mapping system based on Google maps to identify working radio stations in the Port-au-Prince area. A representative of Thomson Reuters visited Haitian radio stations within a few days of the earthquake to offer an orientation on their SMS service.

Within days, thousands of messages were coming through the system. Teams of Haitians from the diaspora volunteered to translate and map the information, which was then delivered to the United States Coast Guard and other units on the front lines.

The next level of utility was provided by the online crisis-mapping program Ushahidi, created in Kenya to chart the 2007 election violence. Practitioners soon realized the platform had wider applications. After the Haiti earthquake, a team of volunteers at Tufts University in Boston began to receive information from sources on the ground. They placed coordinates for the incidents on an electronic map and published the results online, continually updating the material. Initially they depended primarily on phone calls and press reports, but as time went on, the SMS short code provided increasing numbers of incident reports from the Haitian population.

Many of these coordinates were of direct assistance to rescue workers. Ushahidi developed an RSS feed for the U.S. Coast Guard to help them retrieve emergency information that required immediate assistance. A team of four to eight Coast Guard responders retrieved the information and disseminated it to forces on the ground for search-and-rescue operations. The Tufts support team worked directly with a Coast Guard dispatcher to ensure that emergency reports were processed in a timely manner.

The U.S. Marines also worked with the Ushahidi platform. Craig Clarke, a civilian analyst for the Marine Corps, learned of Ushahidi from a Marine who was studying at Tufts. From his base at Quantico, Va., Clarke provided support for Marines on the ground, reporting on disaster incidents and relief efforts in the southern peninsula, west of Port-au-Prince. He began with information from NGOs on the ground and social media outlets such as blogs, Twitter, Facebook and major websites. Then he contacted a group of students at Georgia Tech’s School of Computer Science to convert the data from Ushahidi to Google Earth file formats. These were easier to access under the bandwidth limitations in the area of Marine Corps relief operations. The Marine Corps began using Ushahidi on January 29, 2010, 17 days after the earthquake.

## An example of an Emergency Report sent to the RSS feed:

The following SMS message was sent by a doctor with the Tufts/Mission 4636 group to the United States Coast Guard to follow up with assistance.

[1/24/10 5:17:47 PM]

*D. R-- S-----: Two persons are trapped under the rubble at the Caribbean Market. One of them, Regine [M-- -] here is using this number: (+1) 305 --- ---- to call for help.*

*Coordinates: 18.522547, -72.283544.<sup>13</sup>*

<sup>13</sup> Name and number withheld to protect privacy.

Clarke credits Ushahidi data with helping Marines deliver assistance to those in need. One example involved reports from a displaced persons camp at Carrefour that safe drinking water was in short supply. Once they received the information, the Marines delivered water to the camp and distributed devices to sanitize drinking water. In another area, the platform informed the Marines of locations of violence and roadblocks. They policed the areas and made sure that barricades were not blocking aid from reaching victims.<sup>14</sup>

Although these were promising examples of collaboration, there were also limitations and drawbacks. There were no systematic technology-based connections between the media activists and the military or the large humanitarian organizations. Contacts such as those mentioned above, to the Coast Guard and the Marines, took place on an isolated, ad hoc basis, through personal connections. Almost a year after the earthquake, Ushahidi was still unknown to major figures from the relief effort, such as U.S. Air Force Col. Lee Harvis, the chief medical officer who landed in Port-au-Prince 36 hours after the earthquake. Harvis, who oversaw the aeromedical evacuation, reports that his team initially relied on GPS coordinates provided by the U.S. Embassy, all of which were incorrect. (He finally asked a Haitian to ride a motorcycle through the city and remap the coordinates to locate medical facilities and rescue sites). Harvis adds that none of the other United States military doctors operating in country over the first week were aware of Ushahidi either.<sup>15</sup>

There were also many technical problems. Some estimates hold that SMS messages were flowing only 60-70 percent of the time, and there was no way of knowing whether an SMS message reached its destination. Ushahidi's novelty meant there had not been time to build backup systems. At some points, the cell network would go into "sleep mode" to save energy, resulting in a backlog of SMS messages which would then flood the system. For those working on the platform, this meant that nothing might come through for four to six hours and then suddenly thousands of messages would arrive at once.

Haiti's overwhelmed cell phone providers made their systems available for the relief efforts, but often could not handle the volume. In some cases, SMS broadcasts from a relief organization crashed a cell phone network for over four hours at a time.

Nevertheless, the relief workers who used the SMS and Ushahidi platforms soon recognized their potential. After a few days, the Ushahidi teams started seeing clusters of locations and identified GPS coordinates. Search-and-rescue teams started approaching them



when they couldn't find locations. According to a Ushahidi team leader at Tufts, "On the third day, FEMA (Federal Emergency Management Agency) called us to say keep mapping no matter what people say – it's saving lives."<sup>16</sup>

There were several factors specific to Haiti that affected the roles that media and digital technologies were able to play. Many of these related to Haiti's powerful neighbor to the north, the United States. In most respects, Haiti's proximity to the U.S. was advantageous. Immediately after the earthquake, President Obama made a vigorous pledge to support relief efforts and followed it up with considerable U.S. military and diplomatic engagement. This both expanded capacity and complicated coordination. For the digital technology and media sectors, it brought political clout to back the use of tools, to make the information they provided actionable and to provide funding support.

The United States media gave the earthquake extensive coverage, which raised expectations for the scope of the response among an influential community of individual donors from the United States. It also placed pressure on both the U.S. government and the humanitarian sector to show results. The situation was further complicated by the arrival of large numbers of volunteers, many of them from the United States, who did not belong to any formal organization and had no previous humanitarian experience. Redundant and confused responses abounded, including unreasonable expectations about coordination and assistance.

<sup>14</sup> Telephone interview, December 15, 2010.

<sup>15</sup> Telephone interview with Col. Lee Harvis, December 8, 2010.

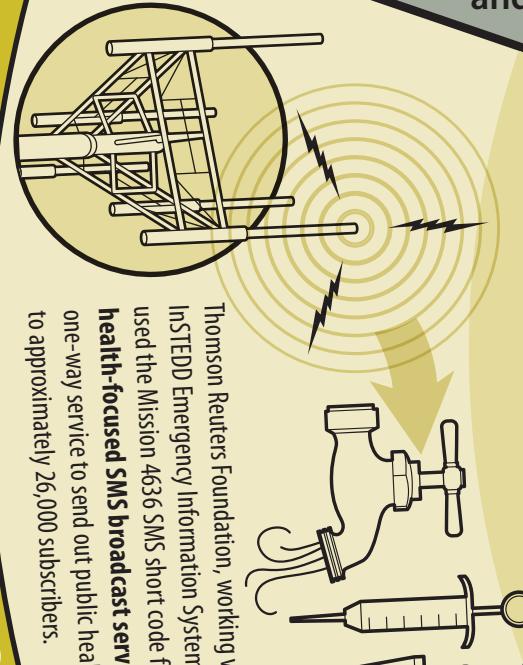
<sup>16</sup> Haiti Roundtable, Miami, May 24, 2010.

# Media and Communications Ecosystem

## SMS BROADCASTS

### MISSION 4636

The Haiti relief efforts quickly became a living laboratory for new applications of SMS texting, interactive online maps and radio-cell phone hybrids.



Thomson Reuters Foundation, working with the InSTEED Emergency Information System platform, used the Mission 4636 SMS short code for a **public health-focused SMS broadcast service**, creating a one-way service to send out public health messages to approximately 26,000 subscribers.



**Separate from the Short Code**, International Federation of the Red Cross & Red Crescent (IFRC) institutes its own **SMS broadcast system** in partnership with the cell phone company Voila. IFRC issues public health messages on relief services, general health, hygiene, vaccines, sanitation, malaria, and HIV/AIDS and condoms, in both English and Creole. SMS blasts sent to all Voila subscribers.

Two weeks after the earthquake, Crowdflower took over management\* of the message workflow becoming the "switchboard" for Mission 4636.

Messages (triaged with a translation and coordinates) **streamed back** to relief groups in Haiti.

Use of Haitian diaspora to crowdsource translation – volunteers gathered through Union Haiti of Montreal, Service Employees International Union, Crisis Commons camps.

Energy for Opportunity and Stanford University enlist thousands of Kreyol (Creole)-speaking volunteers to **translate and categorize SMS messages** coming through 4636, while plotting the senders' locations on a map.

Short Code 4636 is provided as free service by cell phone company Digicel – support provided by State Department, Frontline SMS, Medic and InSTEED. The general population send information via text messages (SMS) using the short-code 4636.

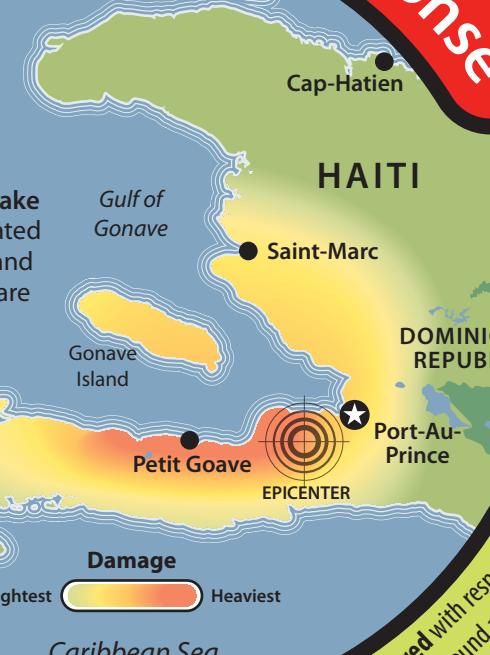
Short codes are truncated phone numbers that are easier to remember and use than full-length numbers.

Radio broadcasts from Port-au-Prince provide most of the local coverage. Signal FM never stopped broadcasting throughout the crisis. Radio One, Radio Métropole, Radio Mélodie and others gradually recovered service.

Many organizations supported local media with technical equipment, training, cash grants, facilities.

## Haiti Humanitarian Response

Jan. 12, 2010: A 7.0 magnitude earthquake hits Haiti. An estimated 230,000 people die and more than a million are left homeless.



Shown below is a broad overview of five applications of how these media tools were applied to urgent tasks in the aftermath of the earthquake.

The **crowdsourced maps** became the standard/default maps for responders.



**Humanitarian Open Street Map** team (H.O.T.) build a functional dynamic map to help emergency services find their way to affected areas.



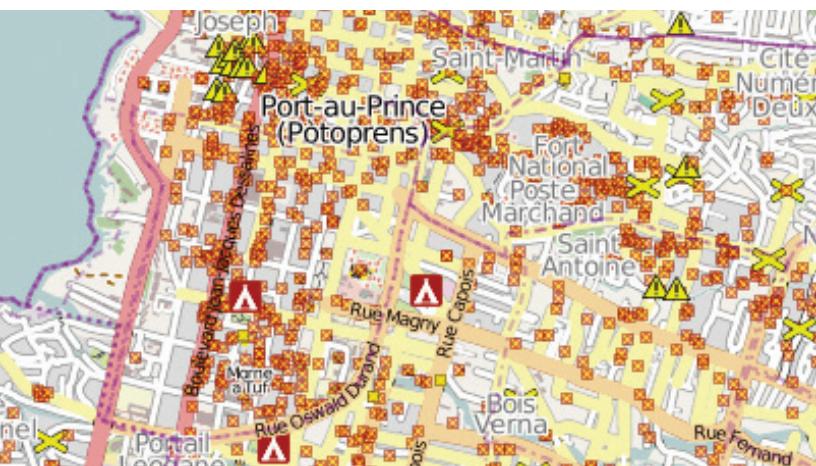
**GEO-TAGGING**  
Volunteers at Fletcher School at Tufts University organize to provide technical support for an Ushahidi application. **Ushahidi @ Tufts** establishes a direct live feed that plugs into the information stream from the 4636 Short Code.

The diagram illustrates the main elements of the media and communications ecosystem, and does not show all the actors involved and the relationships between them. Available only in English.

## CROWDSOURCED MAPS

\* Later, Samasource took over the bulk of the translation and coding work as a long-term local solution.

## Innovations



The Haitian earthquake may have provided a laboratory for innovation in emergency media response, but it is still difficult to provide a comprehensive assessment of the results. Most of the organizations involved are still gathering information and evaluating outcomes. Some of the projects offer compelling anecdotes but scarce empirical data.

Nonetheless, some patterns have begun to emerge. The first is the importance of new hybrid technologies. Radio has long been Haiti's most popular medium, but once cell phone penetration is added, it becomes something new and interactive. Mobile platforms permitted the creation of feedback loops and conversations to give humanitarian responders access to the voices of affected populations. SMS was a related component of this hybrid, but it was also significant in its own right. The SMS responses in Haiti generated complete data sets of crowdsourcing and mapping incidents and requests, as well as numerous individual accounts of the value of technology in emergency response.

### The most notable innovations to emerge from Haiti were:

- The translation of crowdsourced data to actionable information.
- The use of SMS message broadcasting in a crisis.
- Crowdsourcing of open maps for humanitarian application.

### From Crowdsourced Data to Actionable Information

The use of crowdsourced information in crisis response is a relatively new phenomenon. In most previous efforts, information was collected mostly to understand when, where and why events were occurring. It had been relatively rare for such information to be useful for actual response to a specific problem. In Haiti, by contrast, limited numbers of humanitarian responders attempted to include crowdsourced information to help form their decisions about where to respond, to send search-and-rescue teams, to identify collapsed structures and to deliver resources. While these efforts were not systemic in nature, they were nonetheless groundbreaking.

This information was used by Ushahidi to capture, organize and share the critical information coming directly from Haitians through text messages sent via mobile phones and social media (e.g. Facebook, Twitter and blogs).

Reports about trapped persons, medical emergencies and specific needs such as food, water and shelter were received and geotagged on maps updated in real time by an international group of volunteers. These teams of volunteer translators and coders made it possible to launch [haiti.ushahidi.com](http://haiti.ushahidi.com),<sup>17</sup> a web-based platform to geolocate data that was then shared with response teams on the ground.

<sup>17</sup> <http://haiti.ushahidi.com>. For a full description of the data-flow process, see Patrick Meier, "Ushahidi & the Unprecedented Role of SMS in Disaster Response," Feb. 23, 2010, Ushahidi Blog, <http://blog.ushahidi.com/index.php/2010/02/23/ushahidi-the-unprecedented-role-of-sms-in-disaster-response/>. For a narrative timeline of events and participants, see "Collaborating organizations and history," Mission 4636, [www.mission4636.org/history/](http://www.mission4636.org/history/).

This process required coordination between outside technologists and Haitian cellular providers. A coalition emerged out of ad hoc relationships organized in Skype chats between FrontlineSMS:Medic, InSTEED, Ushahidi and many others. The U.S. State Department offered early support for the project, lending crucial credibility and clout to the negotiations with the Caribbean cell phone provider Digicel, convincing it to participate in the 4636 short-code initiative.<sup>18</sup>

Brian Herbert of Ushahidi built the initial interface with assistance from Robert Munro of Energy for Opportunity.<sup>19</sup> It was up and running in several days on a Haiti-focused installation of the Ushahidi platform. Patrick Meier of Ushahidi initiated and coordinated the translation and coding tasks carried out by volunteers from Tuft University's Fletcher School of Law and Diplomacy in Boston. This group took the working name Ushahidi-Haiti @ Tufts. Other volunteers gathered through Crisis Commons camps,<sup>20</sup> the Service Employees International Union (SEIU), and many other organizations around the world.<sup>21</sup> Thanks to their collective efforts, over 1,500 messages were coded during the first two weeks.

Two weeks after the earthquake, the labor-on-demand company CrowdFlower took over management of the workflow of volunteers to "translate, classify and geocode the messages," becoming the "switchboard" for Mission 4636.<sup>22</sup> This helped ensure a more robust and secure platform.

## Crowdsourced Data

A coalition of volunteers, technology organizations and companies joined to coordinate a flow of reports from crowdsourced data to actionable information. Several initiatives cooperated and shared data in this effort. These groups included: Digicel, Voilà, the U.S. Department of State, Ushahidi, InSTEED, FATEM, UnionHaiti, CrowdFlower, Samasource, 1000 Jobs/Haiti, FrontlineSMS:Medic, Thomson Reuters Foundation, International Federation of Red Cross and Red Crescent Societies (IFRC), International Committee of the Red Cross (ICRC), Sahana, Energy for Opportunity, Microsoft Research and the Crisis Mapping Net.



<sup>18</sup> Interview, Katie Stanton and Katie Dowd, June 2010. Interview, Josh Nesbit, June 2010.

<sup>19</sup> [www.energyforopportunity.org/](http://www.energyforopportunity.org/).

<sup>20</sup> Crisis Commons is a "common community [made of] a mash-up of citizen volunteers, crisis response organizations, international humanitarian relief agencies, nonprofits and the private sector." Crisis camps "unite communities, seek common ground and cultivate innovation in the use of technology for mobility and efficiency during crisis." <http://crisiscommons.org/about-us/>.

<sup>21</sup> <http://haiti.crisiscommons.org/>. Interview, Chris Csikszentmihalyi, MIT Center for Future Civic Media, June 2010. See "Ushahidi & the Unprecedented Role of SMS in Disaster Response," *Ibid*.

<sup>22</sup> Lukas Biewald, "Crowdsourcing the Haiti Relief," The CrowdFlower Blog, January 29, 2010, <http://blog.crowdflower.com/2010/01/crowdsourcing-the-haiti-relief/>.

<sup>23</sup> "The Heart and Soul of Mission 4636," Mission 4636, Feb. 10, 2010, [www.mission4636.org/heart-and-soul/](http://www.mission4636.org/heart-and-soul/).

Later, Samasource, a socially responsible outsourcing company, established a working partnership in Haiti with 1000 Jobs/Haiti in Mirebalais. They took over the bulk of the translation and coding work, starting about three weeks after the quake, and provided a long-term local solution.<sup>24</sup>

This activity signaled two other groundbreaking efforts: the use of Haitian diaspora to crowdsource translation, and the volunteers' application of locally provided data to populate maps created from remote locations.<sup>25</sup>

The combined efforts of the diaspora and technology volunteers created a solution to gather and parse a large amount of data, filling a structural gap in data management and enabling incoming information from SMS messages and other sources to be processed quickly.<sup>26</sup> The collective effort was named Mission 4636. The [Haiti.ushahidi.com](http://Haiti.ushahidi.com) website eventually recorded over 3,500 messages received, with 2,227 received via SMS.<sup>27</sup>

One organization that utilized the data was Sahana, an open software system for disaster management that emerged as a result of the tsunami relief efforts. Another was the Thomson Reuters Foundation, which made news updates available to the Haitian public and various humanitarian responders.

Reflecting on the Haiti experience, several points become clear. It was important to set up communications systems very quickly after the earthquake struck, to offer the greatest possible support for relief workers in the critical early days. The speed of implementation was facilitated by the willingness of the Haitian cell phone providers to allow free use of SMS short codes for humanitarian messaging. Nonetheless, little of the initial information was used by implementing agencies, beyond responses to individual incidents. This limitation was rooted in the technology groups' lack of pre-established relationships and understanding of information formats used by humanitarian organizations. Only later did humanitarian organizations draw trends by aggregating individual messages.



## The Use of SMS Message Broadcasting in Crisis

The Haiti case offers an unusual example of SMS being deployed as both a one-way and a two-way communication system. This includes several noteworthy applications of SMS broadcast of public health messages on a mass scale.

The Thomson Reuters Foundation, working with the InSTEDD Emergency Information System platform, used the Mission 4636 SMS short code for a public health-focused SMS broadcast service, creating a one-way service to send public-health messages to approximately 26,000 subscribers.<sup>28</sup> The foundation created a subscription list from individuals who texted to 4636, as well as through a public outreach campaign via texts, radio and word of mouth. Their messages focused on basic health needs such as hygiene, shelter and security.<sup>29</sup>

Although Mission 4636 achieved some success as both a one-way and a two-way communications system, the evidence argues that the same code shouldn't be used for both purposes. Haitians who heard reports that they could channel requests for assistance through 4636 were frustrated when it seemed that one-way messages were coming back in response.

Citizens sent text messages to short code 4636 to alert others to the need for water, food and medical aid. The expectations relayed by the Haitian citizens were that by reporting their needs through the short code, relief groups including the U.S. Marine Corps would arrive at their doorstep with the requested aid. In this way, the short code strategy for assistance was "tainted" in the view of some citizens.<sup>30</sup>

<sup>24</sup> Leila Chirayeth Janah, "Samasource and CrowdFlower in Haiti, Rebuilding After a Crisis," *Huffington Post*, January 17, 2010, [www.huffingtonpost.com/leila-chirayath-janah-samasource-in-haiti-rebui\\_b\\_426311.html](http://www.huffingtonpost.com/leila-chirayath-janah-samasource-in-haiti-rebui_b_426311.html). See also [www.1000jobshaiti.org/1000jobshaiti/home.asp](http://www.1000jobshaiti.org/1000jobshaiti/home.asp).

<sup>25</sup> Snoad, interview.

<sup>26</sup> Nathan Hodge, "Texts, Tweets Saving Haitians from the Rubble," *Danger Room, Wired.com*, January 21, 2010, <http://www.wired.com/dangerroom/2010/01/texts-tweets-saving-haitians-from-the-rubble/>.

<sup>27</sup> <http://www.mission4636.org/> and <http://haiti.ushahidi.com>.

<sup>28</sup> "Emergency Information Service helps thousands in Haiti: Text your location to 4636 to register," *Reuters Alertnet*, January 20, 2010, [www.alertnet.org/thenews/newsdesk/126400923428.htm](http://www.alertnet.org/thenews/newsdesk/126400923428.htm).

<sup>29</sup> Anastasia Maloney, interview, June 2010. "Telephone survey of subscribers to the emergency SMS 4636 service," *Ibid.*

<sup>30</sup> Telephone interview, December 2010.

For their part, the media groups could collect data but couldn't deliver aid and had erratic communications with the relief organizations that could do so. As one media worker noted, "With 4636, there was confusion – people would say, you are telling me that you can give me help, but all I get is how to wash my hands. It was also a clogged system – no messages for several days and then seven messages."<sup>31</sup>

But Thomson Reuters had intended its platform to be one-way from the start; the public misunderstanding resulted from using the same short code for two separate goals. Despite this confusion, overall results of the SMS public health campaign seem to have been positive. In mid-April 2010, Thomson Reuters supported a telephone survey of 450 subscribers, conducted by a Haitian company, the Centre de Formation et d'Encadrement Technique (CFET), to assess the impact of the SMS service. It reported positive responses from subscribers: more than 97 percent said information received from the SMS 4636 service was "practical" and "trustworthy," particularly information about health. More significantly, 74 percent of subscribers said they changed their behavior based on information provided in an SMS 4636 message.<sup>32</sup>

The International Federation of Red Cross and Red Crescent Societies (IFRC) instituted its own SMS broadcast system three weeks after the earthquake in partnership with cell phone company Voilà. It issued public health messages on relief services, general health, hygiene, vaccines, sanitation, malaria and HIV/AIDS and condoms, all in both English and Creole. It advertised the service via SMS blasts from the provider and messages were sent to all Voilà subscribers, rather than with a short-code list of subscribers. Cumulatively, the IFRC sent over 12 million messages. However, there was a lack of coordination among the parallel efforts. The IFRC has been involved in similar efforts for years and some of the new organizations were not adequately informed of its precedent.

The IFRC was careful to avoid any expectation that the public SMS broadcasts could be treated as a hotline, since it did not have the capacity for two-way SMS communications. For two-way communications, the IFRC relied on megaphones in camps and volunteer face-to-face interactions. It also set up an information hotline that included 40 lines, and these were so congested over the first three or four weeks that it added another 20 lines.

## Short Code Potential and Concerns

SMS-based tools have demonstrated strong potential for supporting monitoring and accountability of service delivery. While such mechanisms are empowering to people in crisis, they may be challenging to service agencies that are oriented toward using tools to monitor themselves, not to be monitored by recipients.

The issue of monitoring arises in a different context in the area of security and privacy, and anyone who seeks to expand the role of SMS and related platforms must keep these concerns in mind. In many countries, vulnerable populations can expose themselves to greater peril by disclosing their locations or other sensitive information. In Haiti, many of these concerns related to the use of the new platforms by children, including orphans. One can imagine other situations in which police and military access to information could have long-term security implications. (This certainly would have been true at many points in Haiti's history.)

## Crowdsourcing Open Maps for Humanitarian Application

One of the biggest problems of crisis response in developing countries lies in finding locations that do not appear on any maps. In some cases, the maps have never been made; in others, rural populations have crowded into urban areas so quickly that maps soon become outdated.

These problems were addressed in Haiti by another notable development in information technology: the OpenStreetMap (OSM) Haiti mapping initiative.

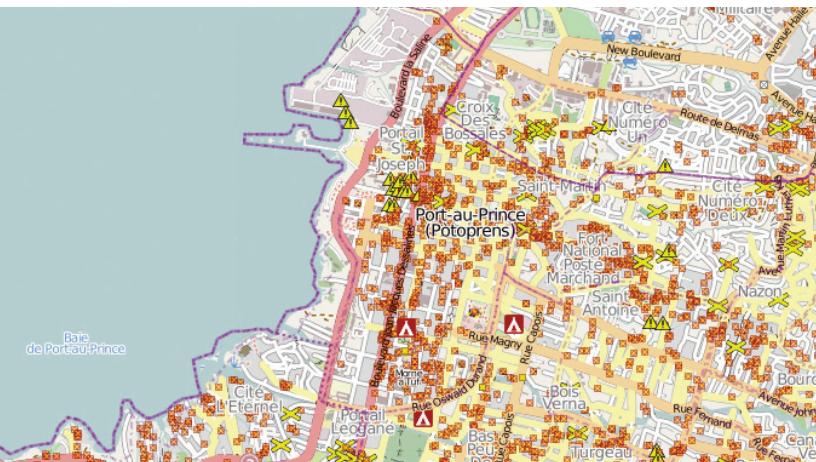
OpenStreetMap designs free and open maps around the world, built entirely by volunteers who survey with GPS, digitize aerial imagery and collect existing public sources of geographic data. In many parts of the world, OSM helps neglected communities acquire public services by literally "putting them on the map." When the Haiti earthquake occurred, OSM had already begun formalizing its Humanitarian OpenStreetMap Team (HOT), to help emergency services find their way to affected areas. The OSM community had been motivated by previous incidents that illustrated the need for crisis mapping, among them Hurricane Katrina and the 2004 Asian tsunami.<sup>33</sup>

<sup>31</sup> Haiti Roundtable, Miami, May 24, 2010.

<sup>32</sup> Anastasia Maloney, e-mail interview, September 2010.

<sup>33</sup> Mikel Maron, interview, June 2010. [http://wiki.openstreetmap.org/wiki/Humanitarian\\_OSM\\_Team](http://wiki.openstreetmap.org/wiki/Humanitarian_OSM_Team).

OSM's first challenge in Haiti arose from the need for the imagery required to build maps, usually activated through a disaster charter. This is not available to communities outside the humanitarian community and has strong restrictions on use. Initially, OSM had access to very little data and no mappers based in Haiti. As a result, the initial map was built remotely and contained little detail.<sup>34</sup>



Detail from map showing open street data in Haiti.  
©2010 CC-BY-SA OpenStreetMap contributors

However, OSM was able to gain access to many sources of highly detailed, usually restricted data from the National Oceanic and Atmospheric Administration (NOAA), Geo-Eye, Google, the World Bank, Digital Globe, ImageSat Eros-B satellite, CNES Spot Image, JAXA/ALOS and others.<sup>35</sup> This information was supplemented by data provided by Haitian volunteers with hand-held GPS devices.

By getting access to formerly closed maps and quickly building a functional dynamic map, the OSM version became the default map for responders. Users included not just information technology platforms such as Ushahidi, but also large providers of humanitarian services, such as UNOCHA and IFRC.

This project demonstrates the effectiveness of using crowdsourcing data to create maps. There are longer-term structural challenges to replicating it elsewhere, but these barriers relate more to cultural and political factors than they do to technical limitations.

These challenges include the question of whether humanitarian organizations can adapt and incorporate the approach into program design. This is why OSM is focusing on establishing a Humanitarian OpenStreetMap Team. As the OSM website states, “In order to fulfill its role as the interface where volunteers and the humanitarian community meet, HOT needs to get its own house in order. This means proper organizational establishment, either as an independent entity or under the umbrella of a response NGO, agency or university.”<sup>36</sup>

# Humanitarian Media Response and Local Coordination

Local Haitian media helped to connect international organizations to the Haitian public. In turn, the humanitarian information engagement in Haiti was notable for its preparedness, speed of response and attempts to integrate into local popular culture. It also drew on public opinion polling from an early stage and created the CDAC as a coordination and implementation mechanism.

Several organizations focused on supporting local humanitarian media initiatives, including Internews, IMS, AMARC, International Federation of Journalists (IFJ), UNESCO and Reporters sans Frontières. These groups provided facilities for local journalists (e.g., Centre de Presse of RSF), cash grants, and technical equipment and training.

Internews' response was multipronged. The organization had existing funds from the MacArthur Foundation and almost immediately received additional support from Knight Foundation and other private funders. This allowed a fully equipped team of humanitarian information professionals to arrive in Haiti within a week of the earthquake. Once the team was deployed, the funds were used to work with Haitian journalists to create broadcast programming, which went on the air within three days of the team's arrival. The foundation support was soon supplemented by institutional funding from USAID's Office of Transition Initiatives and the Emergency Response Funds managed by UNOCHA. This funding (both private and public) was also used to encourage the humanitarian community to engage in a dialogue with the affected population, and offer new avenues of communication.

<sup>34</sup> [http://wiki.openstreetmap.org/wiki/WikiProject\\_Haiti#2010\\_Earthquake\\_Response](http://wiki.openstreetmap.org/wiki/WikiProject_Haiti#2010_Earthquake_Response).

<sup>35</sup> [http://wiki.openstreetmap.org/wiki/WikiProject\\_Haiti/2010\\_Earthquake\\_Response](http://wiki.openstreetmap.org/wiki/WikiProject_Haiti/2010_Earthquake_Response).

<sup>36</sup> [http://wiki.openstreetmap.org/wiki/Humanitarian\\_OSM\\_Team/Haiti\\_Strategy\\_And\\_Proposal](http://wiki.openstreetmap.org/wiki/Humanitarian_OSM_Team/Haiti_Strategy_And_Proposal).



On January 21, Internews set up a humanitarian reporting project, *Enfomasyon Nou Dwe Konnen*, (Creole for News You Can Use, [www.endk.info](http://www.endk.info)). The show began on 11 stations able to broadcast at the time and reported critical information about water distribution points, the status of displaced persons camps and public health advisories. (All of these stations had been affected, with losses that included journalists, family members and homes.) With the exception of Signal FM, these stations were off the air for a period and came back on air over the 10 days following earthquake. Those that resumed service needed to operate on generator power because city power was not yet restored. Additional stations resumed broadcasting over this time, but did not air the initial News You Can Use program.

Most stations aired the programming as soon as it arrived on CDs. Within several weeks, the program was available on 27 stations and was available for some weeks on Radio France Internationale.<sup>37</sup> Internews also distributed 9,000 of the 60,000 radio sets donated by the United States government.<sup>38</sup> Internews conducted surveys, including direct interviews, focus groups, audience surveys and SMS messages about information needs, which were promoted on local radio stations. This formed a baseline for analyzing audience needs and interest in their programming and created a foundation for ongoing audience research.<sup>39</sup>

IMS sent a team to Haiti to assist in providing for the earthquake victims. Together with the NGO CartONG, IMS mapped the need for support to the communication infrastructure in Haiti. The resulting data was plotted into an interactive Google Earth map. IMS also set up the Baz Lanbi Media Center in Port-au-Prince to host the National Association of Journalists in Haiti (AJH), Groupe Medialternatif (GMA) and SOS-Journalistes, which lost their offices in the earthquake.

AMARC (World Association of Community Radio Broadcasters) conducted an urgent assessment of the status of community broadcasting in the areas affected by the earthquake, and mobilized resources and technical assistance to support some of them. The group estimated that at least 12 community radio stations were located within the zones that suffered the most severe earthquake destruction. AMARC rallied community broadcasters to support the international relief effort by organizing airtime appeals and other activities, and to provide direct assistance (including donated equipment and funding) to community broadcasters affected by the earthquake.

Reporters sans Frontières set up a small emergency communications center in Port-au-Prince to help journalists cover the story and assist in providing assistance to the population. The center was equipped with laptops, mobile phones and generators provided by Quebecor. It was initially housed in the Canadian Embassy in Haiti and later relocated to a building in Bourdon (where the CDAC Haiti office later joined it). The center now has 20 workstations, a conference room and a broadband Internet connection. It hosts training programs and “meet the press” events between humanitarians and local media organized by CDAC.

IMS, together with AMARC, Internews and the Haitian Journalists Association, is also working on surveys and needs assessments for reconstruction and future development of Haitian media.

## Coordinating to Build a People-Finder Platform

One of the most urgent tasks in the aftermath of any disaster is locating missing persons. The ICRC had conducted such searches for years in different disaster zones and had built an existing website. Nonetheless, in the aftermath of the earthquake in Haiti, a number of different groups created independent new sites and applications to organize this information. These included The New York Times, CNN, the Haitian Earthquake Registry ([haitianquake.com](http://haitianquake.com)), The Miami Herald and Google.<sup>40</sup>

Within days, it became apparent that these efforts were redundant and potentially confusing because they separately tried to solve the same problem, lacked common coding standards and did not share information with other efforts.

<sup>37</sup> Yves Colon, "Haiti tunes in and moves on," *Global Journalist*, May 26, 2010, [www.globaljournalist.org/stories/2010/05/26/haiti-tunes-in-and-moves-on/](http://www.globaljournalist.org/stories/2010/05/26/haiti-tunes-in-and-moves-on/).  
"Haiti: Partnership between Internews and Radio France Internationale," Internews Europe, [www.internews.fr/Haiti-Partenariat-Internews-Radio](http://www.internews.fr/Haiti-Partenariat-Internews-Radio), 498.

<sup>38</sup> Quintanilla, *Ibid*.

<sup>39</sup> All published reports are available at the CDAC website ([www.cdac-haiti.org/resource/research](http://www.cdac-haiti.org/resource/research)).

<sup>40</sup> Interview, Katie Stanton and Katie Dowd, June 2010. Interview, Chris Csikszentmihalyi, June 2010. Julie Moos, "Google Centralizes Haiti People Finder: News Sites Share Data," PoynterOnline, January 18, 2010, [www.poynter.org/column.asp?id=176027&id=101](http://www.poynter.org/column.asp?id=176027&id=101).

Tim Schwartz's [haitquake.com](http://haitquake.com) was the first system online to use the People Finder Interchange Format (PFIF), which was created after Hurricane Katrina. Soon the technologists involved including Schwartz and Chris Csikszentmihalyi of the Center for Future Civic Media at MIT, with the encouragement of Katie Stanton, then with the U.S. State Department, realized that it would be more efficient to fold the various projects into a single system.

As Schwartz explains, "The idea of moving to Google was that everyone knows Google and that we could convince other large players (The New York Times, The Miami Herald, Facebook, CNN) to fold into a system if it was backed by Google. It was simply a matter of weight within the industry. We provided Google with the database and database updates throughout the Haiti disaster with updated versions of the ICRC data (thanks to UC Irvine and Chen Li's team), and created systems for processing unformatted data from CNN and forum posts for Haitian community volunteers to do."<sup>41</sup>

The unified tool, hosted by Google, is now reusable, scalable and functional in English, French, Creole and Spanish.<sup>42</sup> It has also been used to link missing persons following the Chile earthquake. However, the process could be further strengthened by improving communication and consultation between the ICRC and the other organizations.



<sup>41</sup> E-mail interview with Tim Schwartz, December 23, 2010.

<sup>42</sup> <http://haiticrisis.appspot.com/>.

<sup>43</sup> CDAC website: [www.cdac-haiti.org](http://www.cdac-haiti.org).

<sup>44</sup> Jacobo Quintanilla interview, May 2010.

## Coordinating Among Sectors

CDAC was another innovation that was first applied in Haiti. During the year preceding the earthquake, a group of humanitarian and media development organizations had developed CDAC in preparation for future crises. The group included UNOCHA, Internews, the BBC World Service Trust, Thomson Reuters Foundation, Save the Children, Irish Red Cross, British Red Cross and IMS.<sup>43</sup> CDAC had not formally engaged in crisis response before the Haitian earthquake, but its members quickly decided to use the mechanism to try to coordinate their response.

CDAC coordination helped to speed the implementation of projects by allowing responders to share plans, establish relationships with humanitarian organizations, and present a coherent and funded effort to potential Haitian media partners.

CDAC member organizations landed in Haiti within days of the earthquake and soon began survey work, program design and humanitarian coordination. CDAC recognizes the systemic issues of mistrust among implementers, government and media. It seeks to reduce tensions and promote dialogue among these sectors.<sup>44</sup>

In recognition of CDAC's value, UNOCHA asked Internews to lead the newly created beneficiary communications working group within the overall humanitarian coordination effort. This placed humanitarian information at the heart of the response instead of at the margins, and allowed for an ongoing relationship between humanitarian information organizations and other responders, including the government of Haiti.

Additionally, UNOCHA introduced CDAC into the terms of reference of deployed staff, specifically to focus on beneficiary communications. This institutional shift complemented the promotion of CDAC to a cluster lead role, and ensured that UNOCHA would have staff assigned to beneficiary communications. UNOCHA also provided a coordination role at the headquarters level for the first three months of the response, calling regular meetings of the CDAC group at a global level, with a focus on ensuring optimum coordination on the ground in Haiti.

## Implications and Next Steps



The advances in humanitarian communications involved the twin elements of technology and community – as did the limitations. Many of the problems arose from the simple lack of familiarity among the communities involved, which shared a common mission but lacked a common language. So far, the aid community has not benefited from the opportunity to assemble the leading parties in the relief efforts for a frank and constructive discussion. Such a meeting should include representatives of the armed forces, humanitarian organizations, media assistance groups, and Haitian media and civil society. Without a full range of actors, neither achievements nor obstacles can be properly identified.

The Haiti response was driven by the need to assist during an urgent crisis. Of all the available humanitarian information tools, radio was the most effective means to share information with the community and to distribute information to affected populations.

Text messaging was another important source of information during the crisis, but also had serious limitations. Short message length meant that texts were at times a source of confusion and misunderstanding. In addition to offering more extensive and detailed information than texts could offer, radio also facilitated accurate real-time dialogue, as callers could get an immediate response from the radio broadcasters.

SMS short code, distributed translation and mapping were undeniably useful in Haiti, and the experience suggests that, applied more systematically, it could make a much more significant contribution in the next emergency. For this to happen, far more dialogue among media, humanitarian, and government sectors is required. The leading organization in the search and rescue efforts, the U.S. military, had only a limited awareness of the new tools; some humanitarian organizations had none at all.

It is unlikely that a single, universal tool will emerge to solve humanitarian information needs. Rather, we should expect the evolution of different networks and communities, along with multiple tools and solutions. We should aspire to design processes that are resilient, scalable and available for the next crisis.

Although the media innovations in Haiti had a relatively small impact at the time, their implementation showcased their potential. Citizens are finding it increasingly easy to gain access to digital media and create new platforms. New partnerships should be forged now, to connect their support to humanitarian efforts in the crises to come.

# Findings

There are at least two separate conversations taking place about the role of media and technology in crisis. One focuses on communicating with affected communities; the other focuses on the use of technology to manage and advance humanitarian response.

If the technology sector is going to continue to work in the realm of humanitarian response, it will need to address the hurdles to working with humanitarian organizations, including reliability, professionalism, recognition of humanitarian principles and the need to adhere to them, and the formalization of relationships. Meeting these challenges will be crucial to integrating new technologies.

However, this will require both sides to overcome the cultural divide. From the perspective of those working with new technologies, working independently removes allegiances to existing, possibly outmoded systems. Finding the right relationship to institutions is key to positive, practical applications of new technology in humanitarian response.

For its part, the humanitarian response community needs to build mechanisms for learning into program design and management. While there are many anecdotes about effects, little data exists to demonstrate effectiveness. Numerous best practices have been identified, but relatively few have been systematized. Project design should incorporate learning and sharing of best practices as an input and an outcome.

This process of creating new forms of collaboration between different organizational cultures will not be quick or easy. However, the promise of such collaboration is recognized by many of those involved, on both sides of the equation. The question is not whether this process will advance, but how.

## **1. Sectoral development and coordination. The community of implementers now recognizes that it constitutes an emerging field of practice:**

- The technology community acknowledges a need to relate its work to humanitarian codes of conduct, and devise commonly held principles for engagement.
- The community is actively seeking to hold ongoing forums for coordination, learning and sharing of best practices. CDAC and the Crisis Mappers events are two examples.

## **2. Integrating technology into humanitarian response. The media development sector and the information technology communities recognize the value of engagement with the humanitarian sector, but processes remain uncertain:**

- The technology and media communities recognize that the informal responders provide value in crises, and will not align their work solely with formal humanitarian institutions.
- More advocacy, preparation work and simulation exercises between media and new technology developers and humanitarian agencies (U.N. and international NGOs) need to be done in order to mainstream humanitarian media and new technologies within future emergency responses.

# Recommendations

Specific recommendations follow. They are meant to highlight priorities for next steps by sector. One overarching recommendation for all sectors is that more advocacy is needed to build the base of understanding among governments, donors and the humanitarian communities on the role and need for coordination on media and technology efforts.

## For All

- A.** The mechanisms used to coordinate humanitarian response work should integrate joint education on preparedness for crises, interaction during operations and procurement of funding. They should also include measures to promote coordination with local media and emergency responders.
- B.** All communities involved in humanitarian response, especially new actors from the technology sector, need to ensure that they have established coordination mechanisms for their sector, and are communicating and coordinating with each other.
- C.** Media and new technology developers and humanitarian agencies (both U.N. and international NGOs) should engage in preparation and simulation exercises to mainstream humanitarian media and new technologies for future emergency responses. This process will help to identify models for how formal institutions and self-organized efforts on the ground interact during humanitarian response.
- D.** All sectors should make better strategic use of pre-existing forums and coordination mechanisms such as CDAC, the International Conference for Crisis Mapping and the humanitarian clusters under UNOCHA, to ensure the integration of technology into effected humanitarian response. These forums should be used for testing new models and platforms.
- E.** Humanitarian and technology practitioners should be proactive in promoting promising new platforms to governments, international organizations and private sector parties such as telecommunications companies. These entities should improve the resilience of telecommunications infrastructure, early warning systems and the preparedness of regulators in advance of crises.

## For Technology and Media Development Sectors

- A.** The media development community should prioritize restoring local radio's broadcast capacity and ensure that local media are given support to adequately respond in a crisis. As new platforms and technologies expand and are tested, it should not be forgotten that local radio still stands as a primary source of information for the overwhelming majority of the world's population.
- B.** Technologists engaging in humanitarian operation should ensure that their platforms and tools interface with local media and are incorporated into daily operations where appropriate.
- C.** The crisis mapping community should develop a framework for cooperation between the volunteer technical community and the existing humanitarian system in order to ensure stronger linkage between future initiatives and mainstream humanitarian response operations.
- D.** Practitioners from various sectors of the humanitarian information community should participate in a common wiki or research hub to share best practices.<sup>45</sup>
- E.** The technology and media development sectors should be prepared to engage with a range of humanitarian responders, both formal and informal.
- F.** The technology and media development sectors should develop an understanding of the new architecture of the humanitarian system, in particular, the thematic clusters (protection, health, shelter) to engage with it more effectively.
- G.** To support their ideas, the technology and media development sectors should develop advocacy strategies with bilateral and multilateral donors, national governments, humanitarian organizations, the media and the private sector, especially the telecommunications companies.
- H.** Data security should be prioritized and models should be tested by the technology and media implementers to ensure that the data collected is secure and does not endanger those who send in their information during any phase of a crisis.

<sup>45</sup> See the ICT4Peace Foundation wiki, <http://wiki.ict4peace.org/w/page/17234280/FrontPage>.

**I.** Practitioners in humanitarian communications should take steps to improve their program management capabilities and acknowledge that powerful information tools can be undermined by poor implementation systems.

**J.** The use of short codes in humanitarian crises needs to be accompanied by protocols that create different short codes for incoming and outgoing messages.

**K.** Technologists should understand the established mandate held by the ICRC for the tracing of missing persons and reunification of families and reinforce the ICRC's work rather than undertake parallel initiatives.

**L.** The technology and media development sector needs to establish mechanisms for coordination to avoid competing initiatives and duplication of efforts. This should be linked to the humanitarian community's established coordination mechanisms to ensure cross-fertilization and to avoid duplication.



## For the Humanitarian Sector

**A.** The humanitarian sector should recognize the vital role that information plays in any crisis and that, along with media development organizations, the informal technology community is increasingly present in humanitarian crises and should be considered an important actor in the humanitarian space.

**B.** Humanitarian organizations should recognize that the information needs of local populations in crisis require more than sending messages through traditional media and SMS. Rather, a dialogue is needed between the humanitarian community and the affected population through local media (both traditional and new media) to create a platform for discussion.

**C.** Humanitarian organizations should seek out both formal and informal engagement opportunities with the technology sector via the International Conference on Crisis Mapping and Crisis Commons and facilitate the participation of technologists in key humanitarian planning and policy forums.

**D.** Humanitarian organizations should dedicate resources toward structuring available, useful information into actionable data, and engage information technology providers to identify what is required to expand their data management systems.

## For National Governments and Donors

**A.** Donors need to develop financing mechanisms that are rapid enough to respond quickly to emergency information needs and sufficiently flexible to meet new opportunities and needs emerging from crisis zones.

**B.** Governments and donor organizations should recognize that the two-way flow of information between responders and affected populations is a critical element in humanitarian response.

**C.** Public and private donors should support technical and media development organizations that incorporate the management of humanitarian information into work.

**D.** Donors should play a convening role in furthering the use of information technology in humanitarian preparedness and response.

# Timeline

## Events and Media/Technology Sector Relief Efforts after the Haiti Earthquake

**January 12, 2010:** A 7.0 magnitude earthquake hits Haiti. An estimated 230,000 people die and over a million are left homeless.

### Week 1

#### January 13-16, 2010

##### The Launch

- On January 13 an emergency meeting of the CDAC Steering Committee sets up the CDAC Haiti operations group.
- Limited radio broadcasts from Port-au-Prince provide most of the local coverage.
- Across the country, multiple organizations seek the best possible application of available Haitian technology.
- Internews, which already has a project in Haiti, locates local staff and deploys international staff. Humanitarian productions go on the air and begin broadcasting across Port-au-Prince.
- Reporters sans Frontières (RSF) sets up a small emergency communications center equipped with laptops, mobile phones in Port-au-Prince to help journalists cover the crisis.
- Stand-by broadcast equipment and a suitcase radio station is sent on the first USAID plane into the country.
- Thomson Reuters Foundation launches its Emergency Information Service (EIS), a system that delivers information to and from disaster survivors by text message.
- The U.N. Office for the Coordination of Humanitarian Affairs (UNOCHA) helps coordinate CDAC members at the global level and charges Internews with coordinating the efforts of members in the field. UNOCHA also works closely in the field to provide support for this work.
- Josh Nesbit from FrontlineSMS:Medic and Katie Stanton from the U.S. State Department contact Digicel, a Haitian cell phone service provider, which offers the 4636 short code as a free service for the rescue and relief efforts.
- Votident establishes the data connection with Digicel, and sent messages are collected on a software platform created within hours of the devastation.
- Energy for Opportunity and Stanford University mobilize a work flow that enlists thousands of Creole-speaking volunteers to translate and categorize SMS messages, while plotting the senders' locations on a map.
- The messages (now triaged with a translation and coordinates) are streamed back to relief groups in Haiti. Among the most active group of volunteers is UnionHaiti of Montreal, which organizes teams of

Creole-speaking volunteers. They are joined by members of the Service Employees International Union across the United States.

- The system comes together quickly – conception to launch is just 48 hours – gathering a global collective of leaders in mobile technologies, content management and crisis response. People establish a robust architecture that includes ActiveXperts, Energy for Opportunity, The Extraordinaries, FrontlineSMS:Medic, Google.org, MIT Media Lab, Sahana, Stanford University, U.S. State Department, Ushahidi and Votident.
- Thomson Reuters Foundation gathers and disseminates vital information with its technical partner InSTEEDD. They publicize the short code on local radio, making the service known to a large part of the Haitian population.
- Within days, the 4636 project becomes part of a much larger response effort. Students at the Fletcher School at Tufts University organize to provide technical support for an Ushahidi application. Ushahidi launches a version of its open-source project within hours of the earthquake, allowing users to map crisis information from the ground.
- The Ushahidi call-in system is in place on January 13. By January 18, Ushahidi Haiti is linked directly to the 4636 live feed. The U.S. Marines start taking the feed of messages and establish a dedicated force to monitor and respond to them.

### Week 3

#### January 24-30, 2010

##### Becoming a Trusted Source

- CrowdFlower donates its micro-tasking platform to host the translation service. It is later joined by long-term partner Samasource, a nonprofit that brings computer-based work to women, youths and refugees living in poverty. Samasource had been training over a hundred workers in Haiti and had signed an agreement with workers in Haiti just hours before the earthquake.
- Haitian translation services to English are transferred from Ushahidi to CrowdFlower (January 27-28).
- While the emergency response continues, an increasing number of organizations are using the crowdsourced maps to plan and coordinate relief efforts. These include the Red Cross, Plan International, Charity Water, the U.S. State Department, International Medical Corps, USAID, FEMA, the U.S. Coast Guard, the World Food Program, Southern Command, and UNDP.

### Week 4

#### January 31-February 6, 2010

##### Preparing the Move to a Haiti-based Service

- Microsoft Research begins a partnership with Mission 4636 to create Creole-English language technologies. The messages and translations have already been used to increase the accuracy of the Bing automatic translation system.

### Week 2

#### January 17-23, 2010

##### Expanding the Response

- Members of the joint relief effort come to recognize Ushahidi as an invaluable resource and establish a direct contact with Ushahidi @ Tufts, enabling a coordinated response to actionable messages. The U.S. Coast Guard joins the Marines as responders, working as part of U.S. Southern Command.
- Internews deploys media specialists and radio technicians. The response team begins an assessment of the information needs of local radio stations.
- International Media Support (IMS) and AMARC teams arrive, initiate information and media assessments, and offer assistance to local journalists.
- On January 21, the humanitarian program "News You Can Use," is delivered on CD to all radio stations and begins to air in seven-minute installments.

### Week 5 and Beyond

#### Beginning February 7, 2010

##### The Move to Haiti

- Haitian Translation services are switched to Samasource (beginning in late February) and are all fully switched over by early April.
- The crisis-mapping initiative at Ushahidi @ Tufts also begins transferring its service to Haiti, partnering with local tech company Solutions, which had been developing Noura, a similar emergency reporting service on a new number, 177.