



Speed Evidence: Rapid, Accurate Information to and from Disaster Sites

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World Vision's Speed Evidence Project was designed to rapidly access, filter and harness the abundance of information competing for the attention of humanitarian professionals immediately after a disaster strikes. Within hours, it gives humanitarian workers around the globe access to relevant, real-time disaster-related information required to make effective decisions. The prototype developed for the project provided information such as: damage assessments, number of people affected, their priority needs and essential logistics information. The prototype platform for the project continually and quickly updated information as surveys, done using smartphones or other technology, were newly completed. The project rapidly made information available that was location specific (geo-tagged),

which helped give context to the information and made it easy for frontline staff and decision makers to determine the rapid response interventions necessary to meet urgent needs.

The project prototype was built and tested using World Vision emergency responses as test cases, but with an eye towards the needs of the entire global humanitarian community.

The challenge

The need is three-pronged:

First, in the immediate aftermath of most disasters, incomplete and inaccurate data are the norm. Lack of valid data hinders the ability of humanitarian organisations to understand and anticipate the rapidly changing needs of affected populations, predict the required scale of a response and limits robust engagement with other stakeholders such as affected communities, donors, media and UN/peer agencies. Affected communities often find themselves in an information vacuum, where rumour and counter-rumour are all they have to make the life-saving and supporting decisions necessary for them and their families. All this results in lost opportunities to appropriately assist affected populations.

Second, as shown in Figure 1, because of the need for immediate, accurate, substantive information for their rapid response processes to work, humanitarian response teams experience significant strain due to continual, multiple information demands (sometimes for the same information) from various offices and individuals. This wastes precious response time, limiting humanitarian teams' ability to help communities.

Third, humanitarian organisations are inundated with information from multiple sources. With the increase of mobile technology and Internet access, affected communities and individuals are communicating directly with aid providers. For instance, in the Typhoon Haiyan/Yolanda response, over 180,000 Twitter messages were sent in the first 24 hours of the typhoon making





Fundraising HQ Offices Offices Regional President Offices External Humanitarian Depts. Comms/Media Security Depts. Actors Humanitarian Marketing Sector Leads Grant Teams Depts. Clusters Comms/Media **Partners** Security NGOs **Continual Information Demand** met on one-to-one basis **Response Team** Limited due to internal demands Community

Figure 1. Information demands without the Speed Evidence Platform

landfall. This is reminiscent of the Haiti earthquake of 2010, which propelled social media, mobile technology and crowdsourcing into critical aspects of humanitarian interventions. As *Disaster Relief 2.0* states,¹

For the first time, members of the community affected by the disaster issued pleas for help using social media and widely available mobile technologies. Around the world, thousands of ordinary citizens mobilized to aggregate, translate, and plot these pleas on maps and to organize technical efforts to support the disaster response... The international humanitarian system was not tooled to handle these two new information fire hoses—one from the disaster-affected community and one from a mobilized swarm of global volunteers.

Humanitarian organisations must be equipped to rapidly and effectively engage with communities that are increasingly reaching out directly to aid providers.

The three challenges noted in this section make the need clear. If humanitarian agencies are to be responsive, it is critical to improve the speed and ease with which accurate, usable humanitarian information is available to all parties concerned, including communities. This is the only way humanitarian organisations will be able to effectively support the recovery of disaster-affected communities.

¹ The UN Foundation, the Vodafone Foundation, OCHA and the Harvard Humanitarian Initiative. Disaster Relief 2.0: The Future of Information Sharing in Humanitarian Emergencies, (2011) pp. 8–9. http://www.unfoundation.org/assets/pdf/disaster-relief-20-report.pdf>



Background and scope of project

World Vision designed the Speed Evidence Project to better understand the needs of affected populations and therefore lead to better operational decision-making and more effective, contextualised responses. The project is ultimately about two things:

- 1. Enhancing humanitarian services and support available to affected communities by enabling better targeting of assistance, empowering affected communities to have a say in the quality and coverage of the services provided to them and informing them of available services.
- 2. Providing the best possible information to disaster-affected communities by using community-preferred media and communication channels.



The context

To understand the context, World Vision undertook a significant literature review,² which highlighted various software and hardware currently in use and in development for humanitarian use. World Vision's research was also informed by technological advancements in related fields, World Vision's own end-of-project evaluations and input from field practitioners.

The frustration of the organisation's humanitarian practitioners was palpable. They were aware that the information they needed was available and that technology should be able to help meet their information management and analysis needs. However, there was no single 'endto-end product' available that captured, in real time, all the critical

humanitarian information in one place, let alone had the capacity to almost instantly receive information from and give it to disaster-affected

communities and the larger humanitarian industry. Still, collectively, the research found it was possible to create such a humanitarian platform given current technology.³

The resulting project aimed to provide an information management and analysis platform that would enable not only World Vision, but any humanitarian agency, to increase the speed and quality of information they receive about disasters, while also improving their communication with communities, their programme design, operations, impact and accountability. 'Developed on an open source platform, the Speed Platform will be made available on a no-cost basis for other humanitarian actors to customise for their specific needs.'

² Including reports by the United Nations Foundation and the Vodafone Foundation. New Technologies in Emergencies and Conflicts: The Role of Information and Social Networks Report (2009) http://www.unfoundation.org/news-and-media/ publications-and-speeches/new-technologies-emergencies-conflicts.html> and the Disaster 2.0 Report (2011). http://www.unfoundation.org/news-and-media/ unfoundation.org/assets/pdf/disaster-relief-20-report.pdf
A list of the entire literature reviewed is available on request. For information, please see the Speed Evidence website at www.speedevidence.com.

³ Accenture Development conducted much of this research on World Vision's behalf.

The development & testing of the Speed Evidence Platform

World Vision provided initial funding of \pounds 150,000, plus staff and travel resources in a 12-month, proof of concept phase, which served to enable research, identify potential partners and

technology solutions. The Speed Evidence Project used focus group discussions, surveys and questionnaires with a wide range of usergroups regarding platform use. This consultation with user groups, combined with learning from the various tests and consultations with information technology companies, assisted in shaping and reshaping the platform's ongoing development and design.

The Speed Evidence Platform is so easy to set up that it only takes 10 minutes.

Pieces of the platform were tested in a number of countries:

- mobile options for needs assessments (Horn of Africa, Thailand and Romania)
- input of information into the platform⁴ (Ethiopia)
- combining survey data collection and short message service (SMS) input (Cyprus)
- two-way communication with drought-affected communities using text messages and interactive local radio programming (Kenya).

After World Vision's initial work, the Humanitarian Innovation Fund (HIF) awarded World Vision a grant (2013–2014) of £148,200, with World Vision providing a match of £113,041, for a total of £261,241 in additional project funds. This funding allowed World Vision and its partners⁵ to create and deploy the minimum viable product of the platform, conduct basic learning reviews, create training and promotional materials and conduct basic evaluations.

There were three key areas for Speed Evidence Project implementation: platform development, stakeholder engagement and information management training. The methodology used to create the platform was highly agile and adaptive to changing contexts, while also being grounded in the practical realities of frontline response.

As can be seen in Figure 2 when compared with Figure 1, the platform was expected to reduce the amount of time frontline responders spend responding to requests for up-to-date information.

As part of its stakeholder engagement, the project engaged representatives from the non-governmental organisation (NGO) community including Concern Worldwide, the CDAC Network⁶ and HIF. This wider engagement ensured the Speed design and development processes were appropriate for coordination and collaboration across the industry.



⁴ The initial, and subsequently the base, platform used was the Ushahidi platform.

⁵ World Vision's partners included FrontlineSMS, Ushahidi and Smap.

⁶ The Communicating with Disaster Affected Communities (CDAC) Network is a unique, cross-sector initiative that brings together leading humanitarian and media stakeholders to improve communication between NGOs and communities that are prone to disasters and those that have been hit by disaster. http://www.cdacnetwork.org/





To accommodate other humanitarian stakeholders, the platform was purposely built on an open source platform. It was developed within World Vision to have a viable product that subsequently could be customised for other humanitarian actors. Due to its open source software,⁷ in the future, the platform could have both a customised organisational interface as well as a humanitarian industry-wide interface. This would significantly improve coordination efforts among key stakeholders.

Implementation

While hands-on staff training events, called learning labs, were used in the initial design stage and for testing various components of the platform, the testing of the initial prototype of the platform was done in a real, live response. The completion of the initial prototype corresponded with the onset of Typhoon Haiyan in the Philippines

so a limited iteration of the platform was deployed for testing. Following this, the platform was also assessed for possible use with a consortium building disaster resilience in Somalia.

'Assessment processing time was reduced from days to hours.'

As a minimum viable product, the resulting platform is a success, as far as it was intended. It is an information management and analysis

platform with four information input streams (staff, communities, assessment data and external websites, including social media) that are aggregated, analysed and then shared through the platform. During its use in an emergency response, the platform enabled frontline responders to immediately access situation analyses and other essential disaster management data, all with a few keystrokes on their computers. During and after each use of the platform, World Vision completed basic learning reviews and made numerous platform improvements.

⁷ Even though the platform was developed using open source software, it does not mean that data will be available for anyone to see. Security applications in the software will ensure information is only available to legitimate humanitarian actors.



Impact

Rapid onset emergency – Typhoon Haiyan

For the Typhoon Haiyan emergency response, the platform received 468,432 Twitter messages and 5,868 news feed messages. It made possible the approval of 2,259 reports, and the Speed Blog had more than 1,700 visits.

As the typhoon was beginning to make landfall in the Philippines, World Vision monitored Twitter and was able to visualise which parts of the Philippines were being hit by the massive storm, the severity of the impact, which parts of the Philippines were about to be struck and



Figure 3. Speed Evidence in Philippines

what agencies were preparing to respond to the impacted areas.

In the midst of the typhoon, social media posts with photos and videos were picked up by the platform. There was a large variation in the information picked up from social media, but some of the Tweets included the following:

- @cebudailynews: Food needed at #Tagbilaran #Bohol evac centers
- @PhilRedCross #RescuePh pls rescue my friend's mom and niece in palo, leyte. They're in need of immediate assistance.

As World Vision began to respond to the disaster, needs assessments were carried out using smartphones with software that automatically produced reports, allowing collation of assessments and sharing of priority emergency needs via the Speed Evidence Platform within less than 24 hours of the data being collected.

The top five priority needs (in order of importance) were food, shelter, water, health and

livelihood/income. This assessment data was layered onto the map of the Philippines on the platform along with all the other information for specific geographic areas in the country, giving a much more complete picture of the situation on the ground. Over time this 'picture' was made richer still by adding SMS to the platform from staff who were working with communities, continually creating a better picture of what was happening in real-time on the ground. Post-distribution monitoring was also done using smartphone technology.



Figure 4. Top five priority needs



Using the platform in the Typhoon Haiyan response was 'baptism by fire', which was fine for the technical side of the project, but not ideal to affect organisational change. Unfortunately there was no trained information manager for the Haiyan response, which limited systematic information flow to and from the platform. Therefore, it is not feasible to measure impact on decision-making. The deployment of the platform in Haiyan was therefore limited to testing the functionality of the minimum viable product.

Slow onset emergency - Somalia

In 2014 the project worked alongside the Somalia Resilience Programme (SomReP), a consortium of seven operational NGOs,⁸ which was implementing a large livelihood resilience programme in Somalia. The purpose of this effort was to determine whether the platform could be beneficial to the consortium's work.

Numerous complications arose. Information needs in this slow onset emergency were quite different than those for the rapid onset of Typhoon Haiyan, and these needed to be understood before any platform development could take place. The Speed Evidence Project worked in Somalia with seven agencies, rather than just one, complicating issues further, especially with regard to sharing information. Use of smartphones was not permitted in parts of Somalia, which challenged Speed's data collection methodology.

It was important for all stakeholders to step back from the platform and the lure of its visual technology to understand the



consortium's exact information needs. Unless information needs are clear before use of the Speed Platform in a new context, chaos can result. Speed Evidence Project staff had to press hard to help consortium staff understand the importance of detailing the information they really needed, rather than looking at all the potentially interesting things technology could do with information. After these efforts, the consortium decided to focus on three main areas of information needs: accountability to communities using SMS, early warning systems and basic tracking of programme implementation.

In the end, after considerable time working with the consortium, Speed Evidence Project staff determined that the complete platform was not the best option for the consortium at that time. Perhaps it will be useful for them in the future, but during the Somalia emergency, they needed to focus on getting the basic information systems running consistently.

Does this mean that the platform will not be useful in slow onset crises? The answer is simply, 'We don't know.' More work needs to be done to determine whether or not it would work well in such contexts.

⁸ NGOs in the consortium included ACF (Action contre la Faim), Adventist Development and Relief Agency, CARE, COOPI (Cooperazione Internazionale), the Danish Refugee Council, Oxfam and World Vision.



Learnings

There is no way in this short article to list all the learnings, which are abundant in number. Readers will find below a list of the most important general lessons.⁹

- I. The platform was built outside of World Vision systems because a) there was a critical operational need for digital assessments (including trained staff to carry out digital assessments), two-way communication with communities and an information management platform; and b) development of an appropriate system to meet this operational need was not scheduled in World Vision's IT plans. This decision allowed for quick development of the prototype, but also resulted in internal challenges.
- 2. Organisational reluctance to change was one of the biggest challenges the project faced. Organisational leaders were reluctant to use and further support a resource developed by World Vision staff outside the organisation's Information and Communication Technology group. Where possible, a new technology product should be integrated into existing organisational technology systems; however, readers should note that this would bring about its own challenges.
- 3. Information management is rarely thought about thoroughly enough by aid agencies. It is *critical for stakeholders to distinguish between what is needed, what is wanted and how the information will be used,* including the type of information, frequency for sharing and collecting the information, how it will be collected, what format the information should be in and who will collect it.
- 4. Mapping information flow in a dynamic fashion would prevent problems in the future. In both the Typhoon Haiyan response and the Somalia Resilience programme, staff did not have a good understanding of the information flow, causing frustration for many staff members.
- 5. It was helpful at times to focus on a single aspect of the platform to build familiarity and momentum with staff, e.g. use of smartphones for digital assessments in Asia, East

Africa and use of SMS for communication with communities in Kenya, the Philippines, Somalia and Lebanon; this focus resulted in a groundswell of interest in digital assessments and use of SMS. In the past two years, World Vision uploaded over 122,500 digital assessment surveys in more than 10 different countries.



- 6. Each disaster response that uses the platform needs to have highly skilled personnel in country in the following roles: information manager and platform champion, and an on-call programmer for addressing tweaks to the platform during actual use.
- 7. A principle for data input should be 'Don't duplicate and only consume data; contribute data as well.' In line with this, for future use, World Vision needs to better engage with the Digital Humanitarian Network and CrisisMappers. Ideally this would work so that in a future

Figure 5. Countries utilising digital assessment surveys

⁹ For a more complete list, please see the project blog written while implementing this project, http://speedevidence. wordpress.com/.



rapid onset disaster, CrisisMappers would manage public data input streams (social media, RSS, etc.) with World Vision contributing to this work, but also accessing the overall map from CrisisMappers as the organisation's main crisis map.

- 8. To increase the speed of processing information, a contact list (name, phone number, location, sector, Twitter handle and email address) of trusted information sources is needed and must be maintained in a dynamically managed manner, such as a shared Google Doc. Excel spreadsheets are out of date almost as soon as they are completed, especially in fast-moving relief responses.
- 9. Agencies have an immense opportunity to better engage their 'general public' supporter bases to help reduce information overload. The Speed Evidence Project team experimented with this during Typhoon Haiyan by using a small group of



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volunteers to plot information on the platform. The team learned this is possible, but to do it on a larger scale, better processes must be created. (CrisisMappers and the American Red Cross already have systems that do this well.)

- 10. For the platform to work properly, it is essential to understand which social media outlets are preferred by the community (e.g. in the Philippines it was Facebook, for which the Haiyan platform did not have a feed).
- Testing, experimenting and development is never done this is constant, requiring platform development to occur around people using the product; this is a different way of thinking for many NGO staff.

Implications for the industry

The Speed Evidence Platform, if adopted and further developed by the humanitarian community, could revolutionise humanitarian communications, decision-making, the time needed to prepare for and implement appropriate disaster responses and improve the quality of those responses. Communities would have greater say in the services and relief/recovery materials humanitarian agencies provide to them. Frontline staff and decision-makers located outside the country both would have virtually instant communications to provide much quicker, more effective emergency responses.

'Much more platform development is needed for it to be beneficial to the humanitarian community as a whole. And it will require funding that is currently unavailable.' Further, essential disaster preparedness information could be made available on a Speed Evidence Platform for use after a disaster hits. Agencies would not have to wonder if supplies or services have been pre-positioned, in what amounts, where and by whom. They would also know what actions have been taken to limit or prevent disaster, the results of those actions and could design disaster responses that help build preparedness as part of effective disaster response, rather than ignore what has already been done due to lack of knowledge.

Constantly changing humanitarian situations would be much easier to handle due to the Speed Evidence Platform, with communications flowing freely

back and forth on an almost instant basis, making it possible for agencies to effectively change programming more quickly and easily.



The future

The HIF funding of the Speed Evidence Project ended 31 August 2014. World Vision and its partners successfully created the minimum viable product for the Speed Evidence Platform.

Internally, the project team handed the Speed Evidence Platform over to World Vision's Global Information and Communication Technology team for further development and support to ongoing platform deployments during the final months of the grantfunded stage of the project.

At the end of August 2014, World Vision released the Speed code, designs, FAQs, lessons, evaluations, instructions for installing and running the Speed Evidence Platform externally on a promotional website (http://www.speedevidence.com) so other humanitarian agencies can make free use of it, in whole or in part. A final two-day close-out workshop with internal and external stakeholders was held in September 2014 in London. The project team shared the Speed Evidence journey, demonstrations of the Speed Evidence Platform as well as key lessons.



The minimum viable platform proved successful. However, much more platform development is needed for it to be beneficial to the humanitarian community as a whole. And it will require funding that is currently unavailable. Ongoing development of the Speed Evidence Platform is key, especially for the platform to adequately handle:

- information overload
- data congestion in how it displays information and allows its manipulation
- additional data feeds (e.g. Facebook)
- ability to handle multimedia messaging service.

Ongoing communications and training for use of the platform will also need to be enhanced and conducted.

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