

Open Source for Humanitarian Action

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Ushahidi develops free software that allows volunteers to map humanitarian crises from their mobile phones **BY BRANDON KEIM**



IN THE DAYS FOLLOWING the Jan. 10, 2010, earthquake in Haiti, chaos prevailed. Transportation was limited, if not impossible. Lines of communication were broken. A few radio stations continued to broadcast, but the disaster's scale was overwhelming. Only one form of mass communication remained relatively intact: cellular phones.

Even before the disaster, there had been only 108,000 land-based telephone lines in the country, compared with 3.5 million mobile phones. After the earthquake, mobile communications, particularly text messages, were one of the few means by which people could report their needs and location. Around those calls for help coalesced a community of techno-humanitarian volunteers using computer software that helped turn text messages into a real-time online disaster map, usable by rescue workers and aid organizations.

Foremost among the volunteer groups was Ushahidi, an organization founded two years earlier by four tech-savvy activists frustrated by a lack of mainstream Kenyan media coverage of the country's postelection violence. But while Ushahidi (Swahili for

Angela Oduor teaches two new volunteers to install the Ushahidi platform at the iHub in Nairobi, Kenya.

“testimony” or “witness”) and its mapping platform had been used elsewhere, Haiti marked their big-stage debut. Within days of the Haiti earthquake, the platform was customized and a text message hotline set up. Hundreds of volunteers from around the world processed text reports of trapped people, medical emergencies, and requests for aid, feeding the reports into a map that rescue workers could use. A total of 1,500 reports were gathered and mapped in the first two weeks, and more than 3,500 created altogether.

Since that time, some 17,000 maps have been made, some with the help of Ushahidi's personnel and volunteer community, but most by people unconnected with the organization. The maps have chronicled everything from political violence in Africa to calamitous weather in New York and neighborhood news in Sydney. In principle, the potential uses are almost infinite.

“When we originally drew up our first mind maps of the different stakeholders, we figured that some organizations and journalists and NGOs might use it. We couldn't have envisioned what would happen today,” says Ushahidi co-founder Juliana Rotich.

The platform has by no means become mainstream. And back in January 2010, only some Haitians and a few on-the-ground workers knew about it. But hundreds of people were adding to the maps and at least some government personnel were paying attention. Patrick Meier, Ushahidi's director of crisis mapping, recounted, “On the third day [after the earthquake], FEMA (the US government's Federal Emergency Management Agency) called us to say keep mapping no matter what people say—it's saving lives.” This social activism approach revealed the essence of Ushahidi's model. Though the nonprofit is nominally tech focused, its activism is less about building technology than building community. “One thing we've realized,” says Rotich, “is that the platform is just 10 to 15 percent of the solution.”

CLOSING THE LOOP

Of course, technology isn't unimportant. Without that 10 to 15 percent, as represented by the code that ultimately turns instruction and information into maps, the organization wouldn't exist. So when Rotich and three co-founders started Ushahidi, they didn't build a tool from scratch, but decided to combine the abilities of simple, widespread tools: mobile phones, databases, and online maps.

In those early days, before anyone else would help them, they relied on a programming technique called agile development. “You just jumped in,” says Rotich. “If something needed to be done, you did it. If e-mails needed to be answered, you answered. Until you

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could set up the system, you just did it.” Having a dedicated core group was a necessary precursor to building their first volunteer community: software programmers.

Inspired by WordPress, Firefox, and Redhat Linux, software packages built on open-source—publicly available—code and developed by far-flung communities of volunteer programmers, Ushahidi asked the programming community for help. As Ushahidi developed its platform, a coder named rabble was especially important. He posted scathing critiques of Ushahidi’s methods in its online forums. “Some of us were very new at the time. We didn’t know best practices; rabble called us out,” says Rotich. “We responded and said, ‘Sorry, we’ll do what we can to fix that.’” Without that responsiveness, Ushahidi would never have been able to engage the 125 programmers who have maintained and refined its software package, which has been translated into no fewer than 16 languages.

Another community of volunteers helps during Ushahidi mapping deployments. In Haiti, those volunteers were responsible for customizing the software to local needs and manually processing each texted report.

Many were also Haitian emigrants in Boston, where Meier was a student at Tufts University’s Fletcher School of Law and Diplomacy. Recruited largely through social media tools, the Haitian diaspora community was essential, translating both the Creole language and locale-specific references unfamiliar to foreigners.

“You need to have in your partnership someone who understands the context,” says Rotich. It was a lesson they’d learned in 2009 in the Democratic Republic of the Congo, where—unlike Kenya, the country where Rotich was raised—Ushahidi had little knowledge of local circumstances, and mapping faltered for lack of on-the-ground support and participation.

“That galvanization of such huge communities in such a short period of time is really impressive, and really inspiring,” says Catherine Dempsey, a research consultant at PAX, a nonprofit organization developing an Ushahidi map for spotting early warning signs of social unrest in southern Africa.

In Haiti, Ushahidi also contacted Haitian telecommunications companies that provided technical assistance in setting up a hotline and media outlets that announced it. But they didn’t fully engage with one essential community: humanitarian workers. People in a position to use their maps didn’t always know about them, and those who knew didn’t necessarily find them useful. “We had extremely limited engagement with crisis mappers and volunteer efforts,” says Andrej Verity, an information manager with the U.N. Office for the Coordination of Humanitarian Affairs who saw Ushahidi’s map but found it impracticable. “I was sent a link to the crisis map based on Ushahidi. I open it up, and it’s got a bunch of red circles on it. With the amount of information that was being thrown at me, working 18 to 20 hours a day, it didn’t do anything for me.”

Verity’s experience was far from universal, but it underscored Haiti’s chief lesson for the organization: the importance of building relationships with the people who ultimately could use the volunteers’ maps and of hearing their criticism as well. In Haiti’s after-

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math, Ushahidi and other members of the crowdsourced mapping community worked closely with Verity and established aid groups, setting up protocols and working groups that could better provide the type of data they needed. To help ensure that the volunteer effort catalyzed by Haiti’s earthquake could be replicated elsewhere in the future, Ushahidi also helped set up the Standby Task Force, an Ushahidi-independent mapping community of trained volunteers who can participate immediately after a crisis, before a larger community assembles.

The tangible impact of these improvements remains to be seen, but the potential was enough for Verity to invite Ushahidi’s collaboration as the Libyan civil war intensified in March 2011. “The map-

pers really wanted to learn from the humanitarian community. They were willing to listen,” said Verity, who went on to echo Rotich’s assessment about its utility.

“Ushahidi itself is the technical component, which is 10 to 20 percent of the larger solution,” said Verity. “You need to figure out how you are going to build your community.”

USHAHIDI 2.0

Ushahidi’s work with the United Nations is, for the moment, unpaid, and about 80 percent of the organization’s budget comes from foundation support, which started with a crucial \$200,000 grant from Humanity United in 2008. Since then, the staff has expanded from Rotich and her three co-founders to a total of 14 employees. Other supporters include the John D. and Catherine T. MacArthur Foundation, the Knight Foundation, and the Omidyar Network, which in 2009 gave the nonprofit \$1.4 million. The other 20 percent of Ushahidi’s budget comes from fee-based consulting projects, with customers currently including the ICT4Peace Foundation and the World Bank.

Rotich characterizes these consultancies as early stage. As with its U.N. work, Ushahidi must establish its maps’ real power and utility. Rotich also acknowledges that Ushahidi has had a great start in part due to media coverage. Nick Martin, president of activist technology training provider TechChange, has described Ushahidi as “the darling child of the tech crisis space.” Indeed, after Haiti, the organization received glowing press coverage, with some journalists hailing their work as revolutionary. Such praise made Ushahidi a household word, but only for about 15 minutes.

Rotich’s advice to nonprofits working at the intersection of technology, global aid, and social justice is to find staff with diverse expertise who can successfully work together and with volunteers. “People fall in love with a prototype, not an idea,” she says. “As much as possible, make sure your team has a good technologist who can prototype the idea you’re working on.” Equally important is storytelling: Keep a blog, use Twitter, and “share the journey of what you’re creating.” Ask for help, too: Encourage people to participate with whatever skills they have. That helps an organization immediately and helps create a community of people who spread the word about their work.

“We did not have an advertising budget,” Rotich says. “We still do not.” ■