I would like to share with you today some thoughts on the potential of new technologies to generate new forms of data and the opportunities and challenges that these pose to development research and practice.

One up and coming approach that supports the generation of a new type of data, and in particularly data from the ground up, from citizens themselves is crowdsourcing. Crowdsourcing describes a process whereby large groups of people are called upon to report on a story or perform a specific task that usually form part of a bigger picture.

This technique was first used to collect and publish reports about incidents of violence that broke out at the aftermath of the Kenyan election of 2007 and 2008. To respond to the information vacuum created by the government's media ban an activist called Ory Okolloh asked Kenyans to send in reports via their mobile phones, by email and the Internet about what had been happening on the ground. These reports were then presented on online map which gave insights into how the post-election situation unfolded over different parts of Kenya and over time. This initiative led to the creation of Ushahidi, one of the most popular online tools for crowdsourcing crisis information.

A second example of crowdsourcing. When relief workers arrived in Haiti after the earthquake they found that there was no available information on health facilities, roads and NGOs that were active on the island. Despite the decades of UN involvement in the area very little information was readily usable. What information was available was fragmented and virtually useless and the National Haitian mapping agency lay under a pile of rubble. So a race began then and there to gather information that could help the relief effort.

The difficulties that relief workers faced became quickly known through their professional networks. Google and Yahoo released high resolution aerial imagery of the affected areas and teams of volunteer geospatial experts and programmers started to trace them, annotate them, identifying routes and health facilities using a mapping tool called OpenStreetMap. OpenStreetMap is essentially a wikipedia of maps. It aims to create the first free digital map of the entire world. The effort to update this publicly available map involved more than 640 people, experts and students who were trained to use of these tools. These people worked over the internet, from around the world, each of them contributing one piece of the puzzle. When the different pieces of the puzzle came together, they resulted in the most detailed and up-to-date ma that the international community had ever had at its disposal.

A third example of crowdsourcing. Kibera one of the largest informal settlements in Africa appears as a forest in many official maps. In 2009 two Americans Erica Hagen and Mikel Maron began to train local youth to use GPS and OpenStreetmap to create the first public digital map of Kibera. Their effort was based by the idea that without access to basic geographical information about their community, Kiberans would not be able to improve their living conditions and claim their rights. The project has succeeded to create a thriving community of local mappers and has expanded into other informal settlements in Nairobi.

So how are these technologies and approaches transforming development? I would like to draw attention to three opportunities presented by crowdsourcing.

First, software programs like Ushahidi and OpenStreetmap can support the generation of data by citizens themselves in ways that supplement other sources of information or make up for a complete

lack of data. Although development practitioners have promoted the production of knowledge from the poor themselves, these new tools allow us to do so at a scale, at a speed and at a cost that participatory development methodologies cannot achieve.

Secondly, they bring to the fore, a new type of development actor, open source software technologists that bring a new dynamism to the development arena. Both Ushahidi and OpenStreetmap are tools that anyone can use and modify according to their specific needs. What's more they developed cooperatively, by communities of volunteers and professionals who believe that information should not be a commodity, but a resource that everyone should have access to. The maps that were created for Haiti are being used as part of the reconstruction effort. The map of Kibera can be in principle used or edited by anyone with the necessary skills.

Thirdly, they can greatly contribute to local capacity building and support a new kind of global volunteerism. The mappers that were trained on the ground in Haiti were mobilised to track the outbreak of cholera on the island. The Kiberan mappers have formed their own foundation and have started to train youth in other parts of Nairobi and more recently Tanzania. The success of Ushahidi and OpenStreetmap has given rise to new networks of volunteers like Crisis Commons, Crisismappers that have been mobilised to assist relief agencies at the aftermath of the major crises.

However, all is not positive. I would like to highlight three challenges that crowdsourcing brings into the development arena.

First, there is a lot that we don't understand with regard to the character of these new information flows. We don't yet understand, for example, how citizen reporters in the case of the Kenyan elections understood their role and what they expected that would

come out of texting a story. An informal evaluation of the use of Ushahidi in Haiti revealed that many appeals for help to save people trapped under the rubble were sent by distressed relatives that had no other way of recovering their dead. In social science we have developed ethical frameworks to ensure that people taking part in their research understand what is meant to do and deliver. Do we need similar standards in crowdsourcing? Can they be implemented in the same way, given the scale of participation that we are talking about and by whom?

There has been a lot of discussion about whether crowdsourcing should follow the same standards as social science research. Its proponents argue that it is not meant to replace more systematic forms of investigation and that it's role is simply meant to highlight issues that may necessitate further investigation. Even if we agree with this view, we cannot deny the fact that the power to set the agenda, to define these issues that require further investigation is indeed very important and should not be taken lightly.

The second challenge relates with recognising and addressing the ambiguous character of these new information processes. Crowdsourcing is becoming a very appealing, cost-effective, proposition for generating information for advocacy and for assisting organisations in showing concrete and measurable results. The history of participatory development shows that methodologies meant to support knowledge co-creation can easily be co-opted and used to extract information for the benefit of outsiders rather than that the poor. New technologies can be as, if not, more extractive and disempowering than participatory methodologies.

The third challenge relates to understanding the interplay between offline and online dimensions of participation and their implications of decision-making. Technologists driving the use of these new

technologies are fluent in the language of technology, but not necessarily in that of development. The founders of the Map Kibera project, for example, had every intention of involving the local community in shaping the character of the project, but they adopted a trial and error approach. This resulted in misunderstandings, false starts and expectations that plague the project to this date. At the same time development practitioners fluent in the language of participation and social transformation often lack understanding of the potential of control embedded in the technologies, about how choices at a technological level translate into different possibilities. Each community understands a part of, but often does not grasp the entire picture.

Why is it important to for the development and the technology community to work more closely together? There are a number of important conversations happening that will provide a steer in how these processes are shaped to support and protect the poor. This is website of Global Pulse, a UN level initiative that aims to harness the potential of new technologies and real-time data in particular to support and protect the vulnerable. UNICEF and the WorldBank are also investing heavily in these types of technologies.

In many these spaces assumptions about are being made about the character of participation and how access to information can support social change that have long been debunked or qualified by development researchers and practitioners.

So the key challenge that new technologies present for development is whether we will repeat to some extent the discussions of the past or push the conversation forward by respecting both the uniqueness of these new approaches and the enduring politics of access, information and participation.