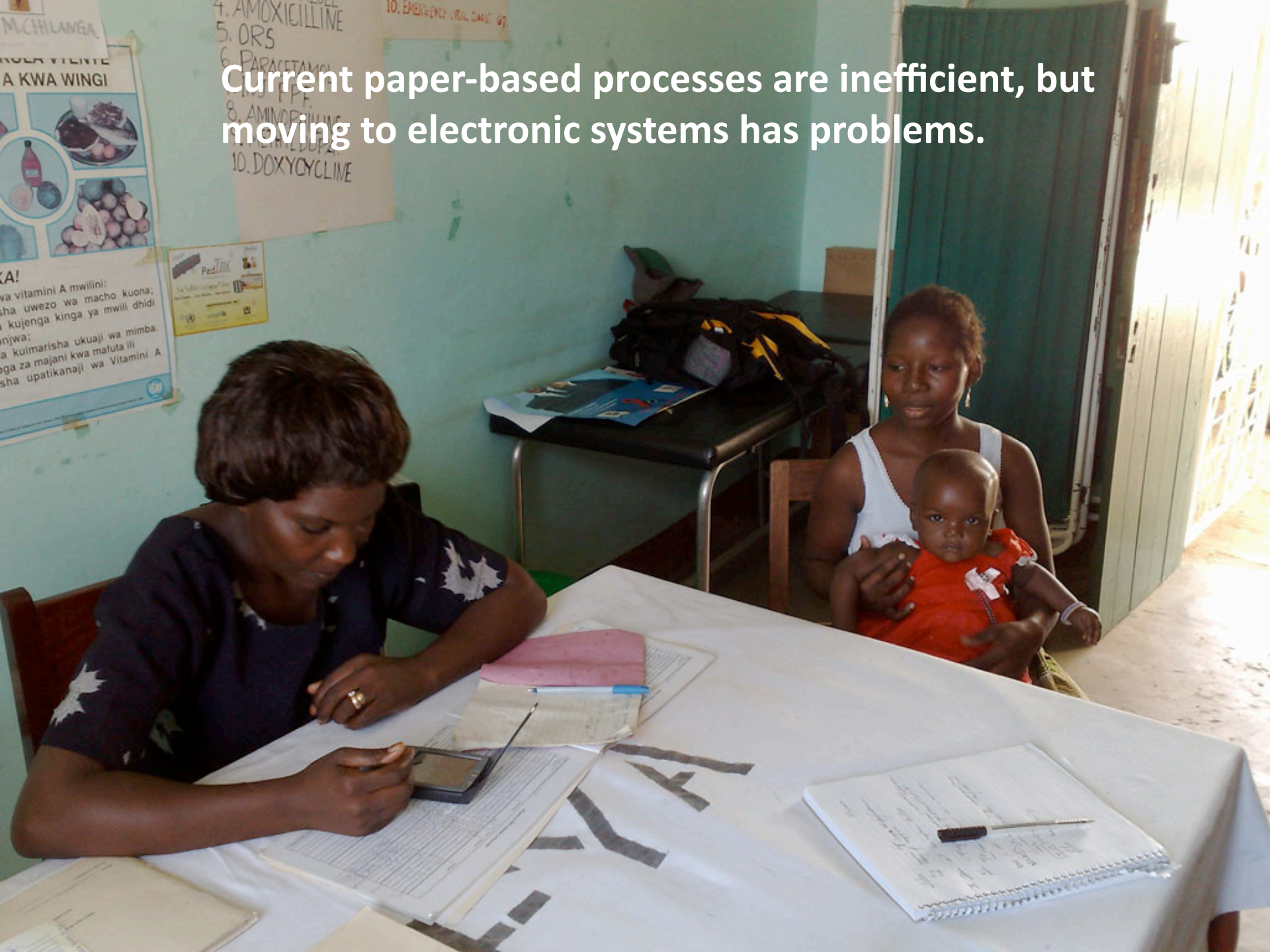
Open Data Kit

http://code.google.com/p/open-data-kit

A set of open source tools to help organizations collect, aggregate and visualize their rich data.

Organizations in developing regions inefficiently collect mostly textual data.


Current paper-based processes are inefficient, but moving to electronic systems has problems.
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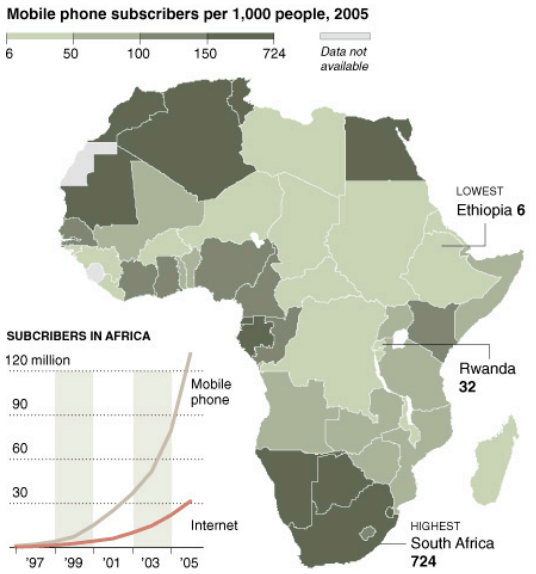
Data Collection Problems

- Current practice is paper-based forms
  - Physical collection tends to be slow and expensive
  - Data transcription errors are plentiful
  - No access to relevant historical data
  - Significant lag time to usable information
- Moving to electronic devices has problems
  - Limited processing, storage, transmission on PDAS
  - No location and multimedia on basic phones
  - Hard to setup and maintain databases

Your goals for your solution?

Project Goals

- Make tools modular and customizable so they can be easily adapted and composed.
- Build on open interfaces and standards so that solutions are not expensively “siloed”.
- Establish data collection tools which can evolve easily with technology.
- Build an open source community to drive the project.



With mobile phone growth comes infrastructure that makes this possible

How do you collect data?

ODK Collect

ODK Collect, our Android client, renders a form, survey, or algorithm into prompts that support complex logic, input constraints, repeating questions, and multiple languages.

Forms are based on the OpenRosa XForms standard and support a variety of data types, like location, photos, audio, video, and barcodes.

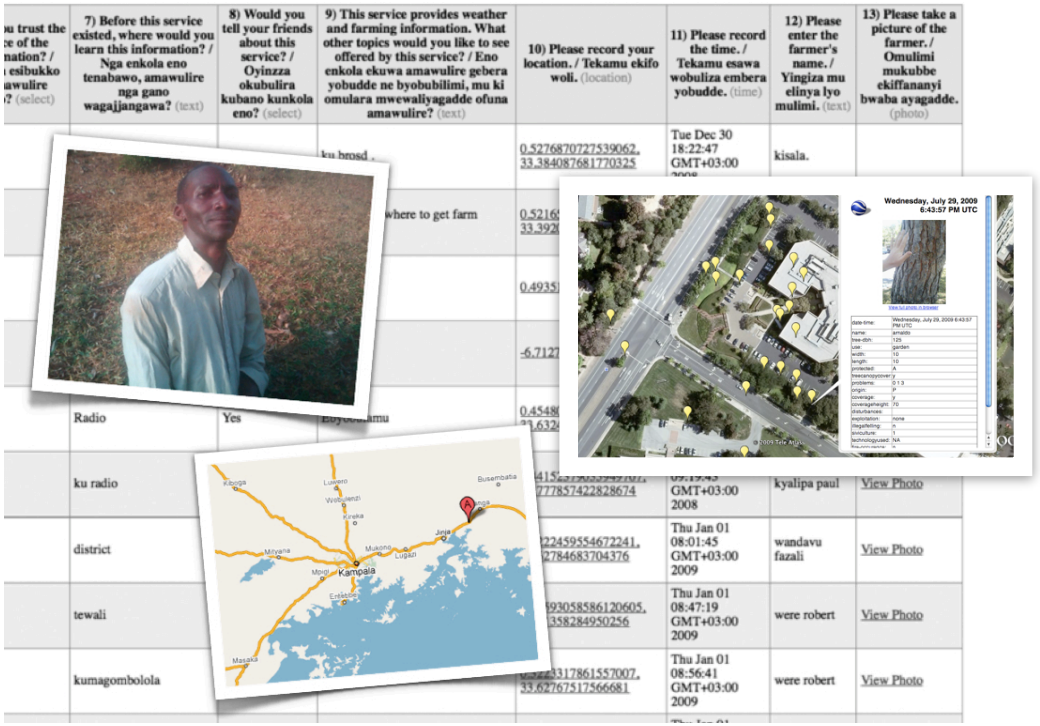
Data can be sent to any OpenRosa compatible server.

Where do you store the data?

ODK Aggregate

ODK Aggregate is a ready-to-deploy “cloud” server that hosts forms and submitted results and provides interfaces to extract data such as spreadsheets, queries, and maps.

Aggregate is built on Google’s App Engine, a free, reliable and scalable service where each organization is responsible for their own “instance”.



Examples of deployments?

A shared phone operator in Uganda collects customer feedback.

Grameen AppLab in Uganda

- ODK Collect has been used by AppLab since November 2008 by shared phone operators (SPO) in rural Uganda collecting 1000s of surveys.
- The SPOs survey their customers about available phone-based services and the results are used to guide the development of services like Google's Clinic Finder and Farmer's Friend.
- One user noted that unlike their old paper surveys, "*The survey process is real time as opposed to the paper forms where we had to wait for a month to be picked up...*".

A HIV counselor scans a patient's demographic information into ODK Collect.

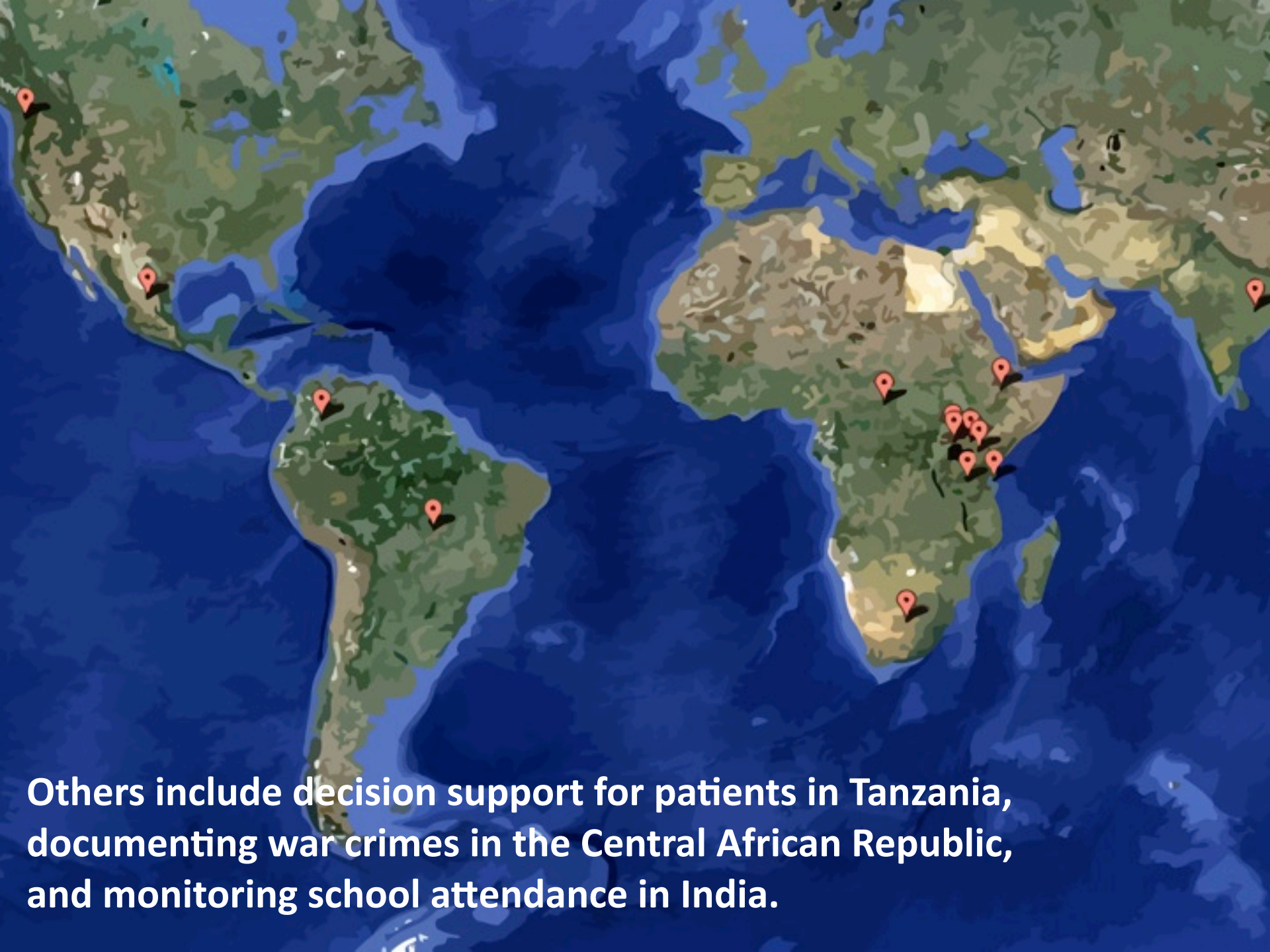
HIV Counselors in Kenya

- AMPATH is the largest HIV treatment program in sub-Saharan Africa and is Kenya's most comprehensive initiative to combat HIV.
- Over the next two years, ODK Collect will be used in a home-based testing and counseling program where hundreds of phones will be used to survey, train and follow up millions of people.
- The collected data will be submitted to OpenMRS, a medical records system, for analysis and followup.


Surui tribe members in the Amazon
monitor the forest with ODK tools.

Forest Monitoring in Brazil

- The Brazilian Forest Service is piloting ODK for in-situ monitoring of the Brazilian rainforest.
- ODK Collect will be used to confirm satellite imagery of the forest and document forest structure throughout the Amazon.
- ODK Aggregate will be used to generate live updating Google Maps with geocoded images and survey data.



Others include decision support for patients in Tanzania, documenting war crimes in the Central African Republic, and monitoring school attendance in India.

Other Deployments

- Tracking conservation efforts in Tanzania
- Surveying animal health in Zanzibar
- Creating tools for entrepreneurs in Columbia
- Studying businesses in South Africa
- More expected in Ghana, Vietnam, Cambodia, Peru, and Egypt

A patient checks his personal phone for calls and text messages.

Upcoming Tools

- Voice based forms for automated follow up
- Remotely manage forms and applications on devices
- Simple drag and drop form designer
- On phone patient portal for clinicians
- Local (non-cloud) server storage
- Task assignment and workflow management
- Visualization and reporting of collected data
- Usable encryption for storage and transfer
- External sensors to enable field medical devices like ultrasounds and stethoscopes

What about the community?

An external developer gathers user feedback in a rural village in Kenya.

Growing Community

- Developers are checking in code and implementers are helping each other.
- Organizations as large as Google.org are training their staff and others on ODK.
- University of Washington is teaching a grad/ugrad class on extending ODK's functionality.
- Papers and demos are being published in academic conferences and the public press.
- Cost/benefit tradeoffs are being measured and smartphones seem worth the investment.

Anything else?

OPEN MOBILE CONSORTIUM

Open Data Kit	Text, location and multimedia data collection for Android devices
JavaRosa	Textual data collection for lower-end J2ME phones
Commcare	Mobile support for community health workers on low-end phones
Rapid SMS	Mass scale data collection, logistics and communication via SMS
Rapid Android	Data and logistics SMS server that runs on Android
Ushahidi	Crowd sourcing crisis information via SMS
Geochat	Mobile field communications and situational and awareness
Mesh4X	Seamless information sharing across devices and platforms
Mobilisr	Enterprise open source mobile messaging

ODK is a result of Change – a group at the University of Washington exploring how technology can improve the lives of underserved populations in the developing world.

ODK is possible thanks to generous support from Google and the University of Washington.