Open Data Kit

Building Information Services for Low Income Regions

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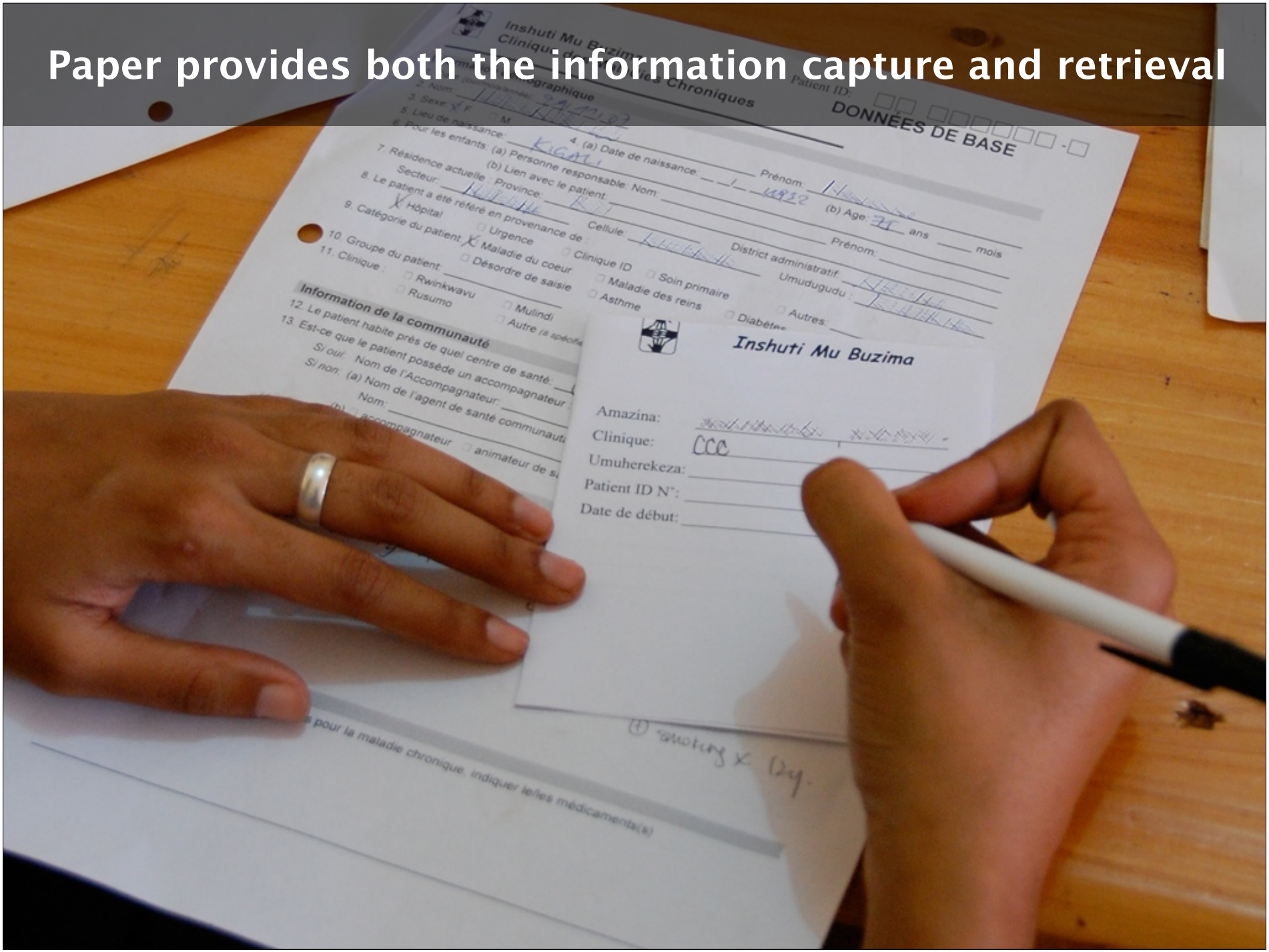
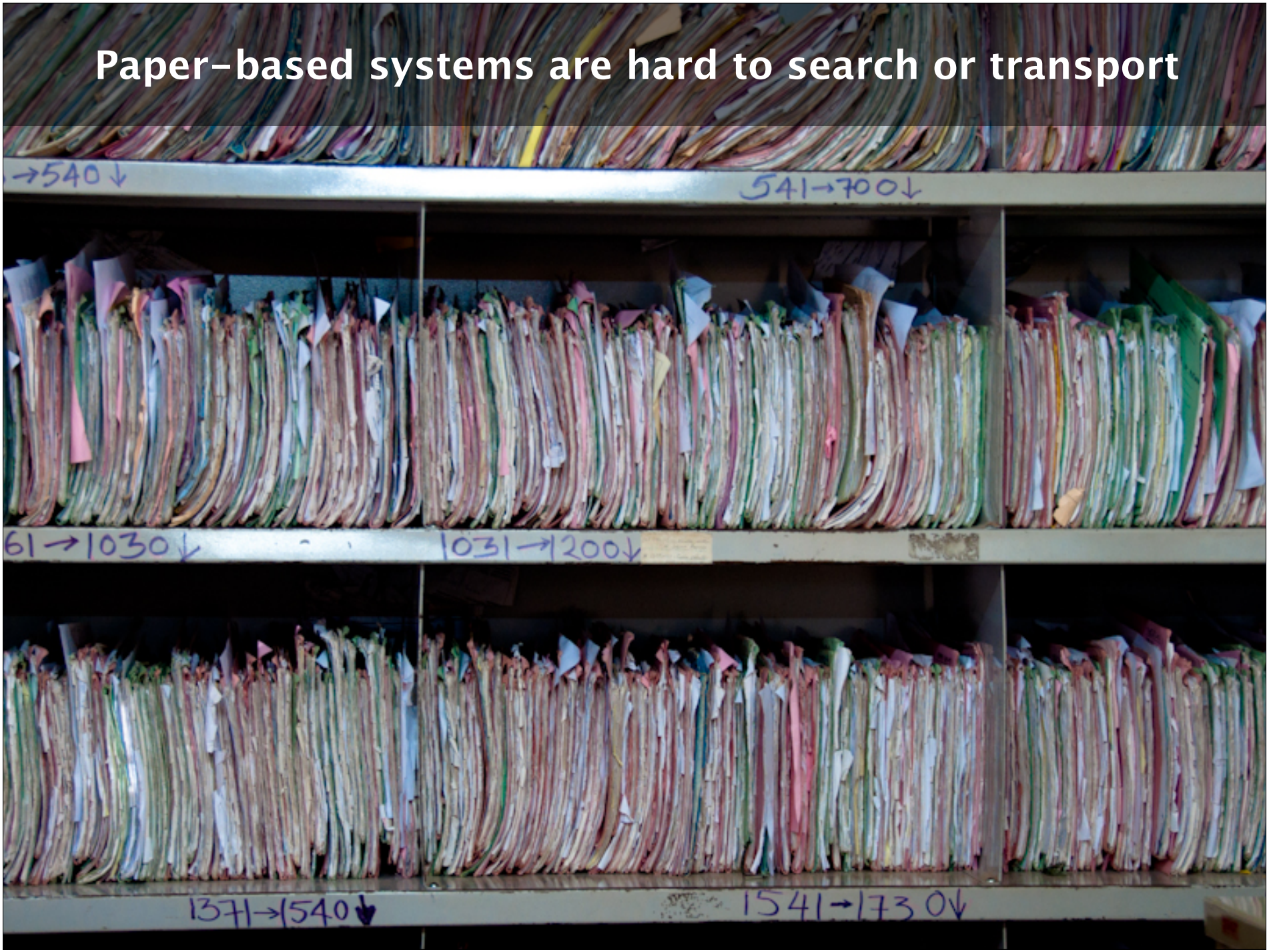
Adam Lerer, Clint Tseng, Gaetano Borriello

http://opendatakit.org

Paper provides both the information capture and retrieval



Paper-based systems are hard to search or transport



Paul Persil Patient

Back Print

Gender **Male**
Age **44 years** (~ Jun 01, 1934)
Last Visit **1 week ago** (Aug 14, 2008)
Doug Doctor, Rwinkwavu Hospital

TRACnet ID: 12345
Carte d'Identité: 1234567

IMB ID **12345678-A**

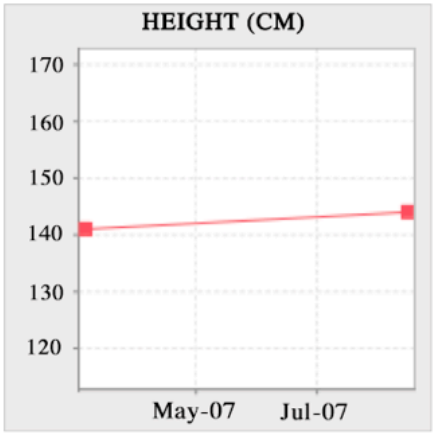
Alerts
NO XRAY RESULT IN THE LAST 6 MONTHS
NO CXR RESULT

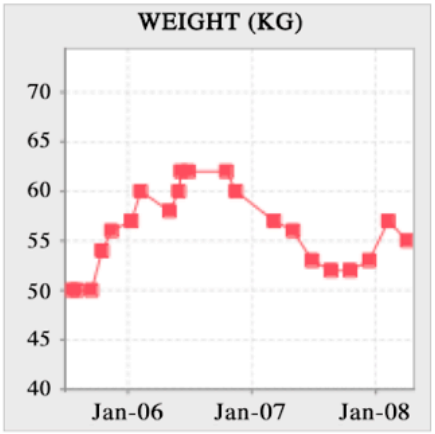
Notes
No known allergies

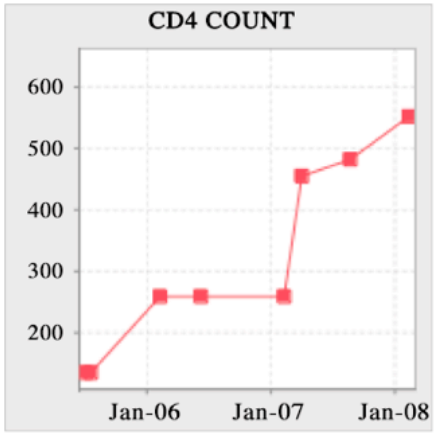
Drug Order	Dose	Frequency	Start Date	Stop Date	Notes
AZT+3TC	1.0 tab(s)	2/d x 7 d/w	Sep 13, 2007		
D4T	150 mg	1/d x 7 d/w	Aug 02, 2007		
Triomune-40 (stopped)	1.0 tab(s)	2/d x 7 d/w	Sep 01, 2007	Sep 13, 2007	Unexplained facial rash
EFV 600 (stopped)	1.0 mg	1/d x 7 d/w	Aug 02, 2007	Sep 13, 2007	

Lab Test	Result	Date	Notes
CD4	**512**	Aug 15, 2008	Ordered by Dr. Doctor
CD4	**259**	Aug 01, 2008	
Viral load	**515**	Jul 28, 2008	Second test for verification of status
Viral load	200	Jul 27, 2008	Ordered by Dr. Green

Graphs

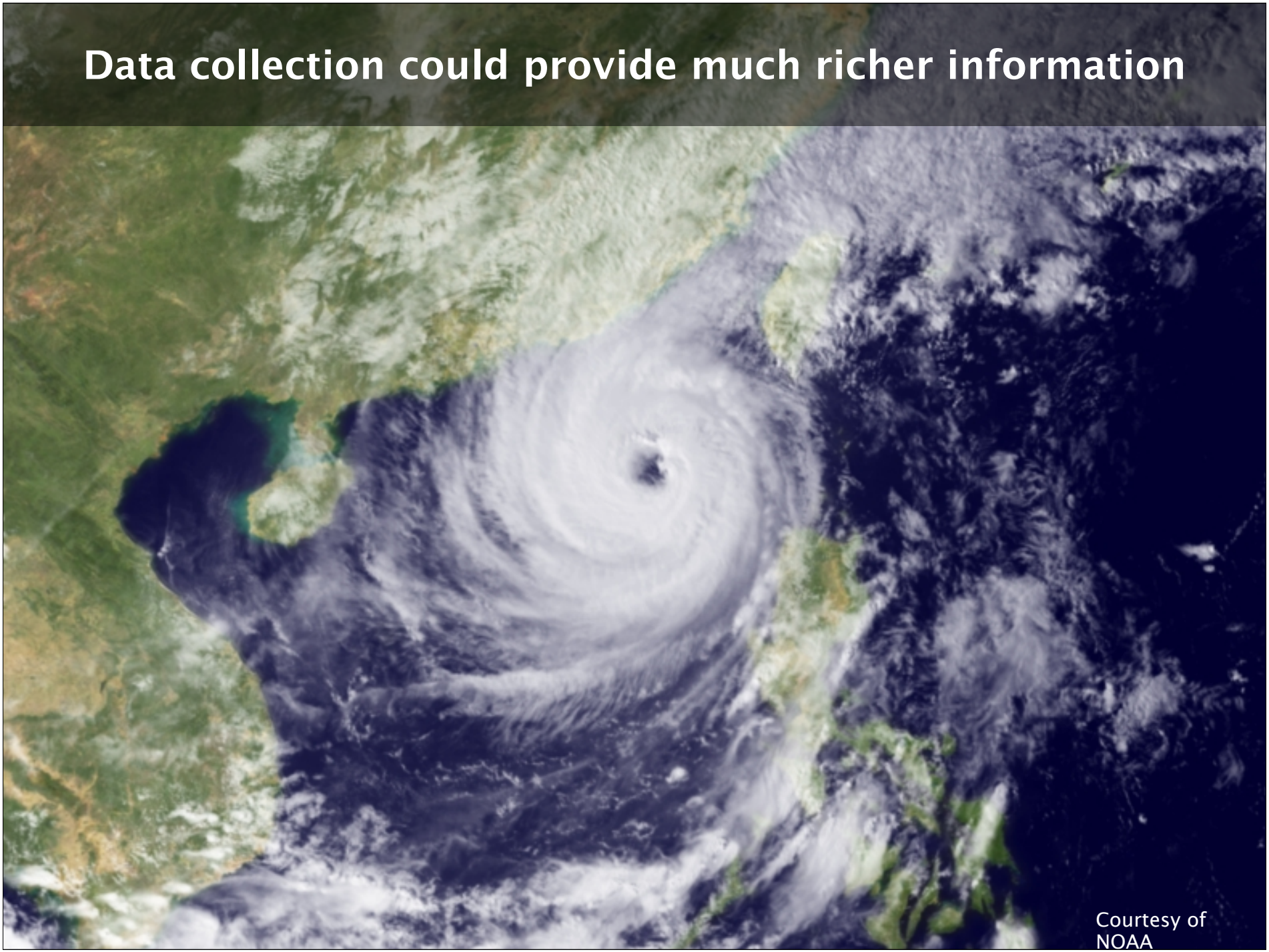






Lag between data collection and actionable information

Data collection could provide much richer information



Courtesy of NOAA

Paper-based practice in low-income regions limits the scale, complexity and impact of interventions.

Important features are lost when using basic technology

Domain-specific tools are inflexible and keep data siloed

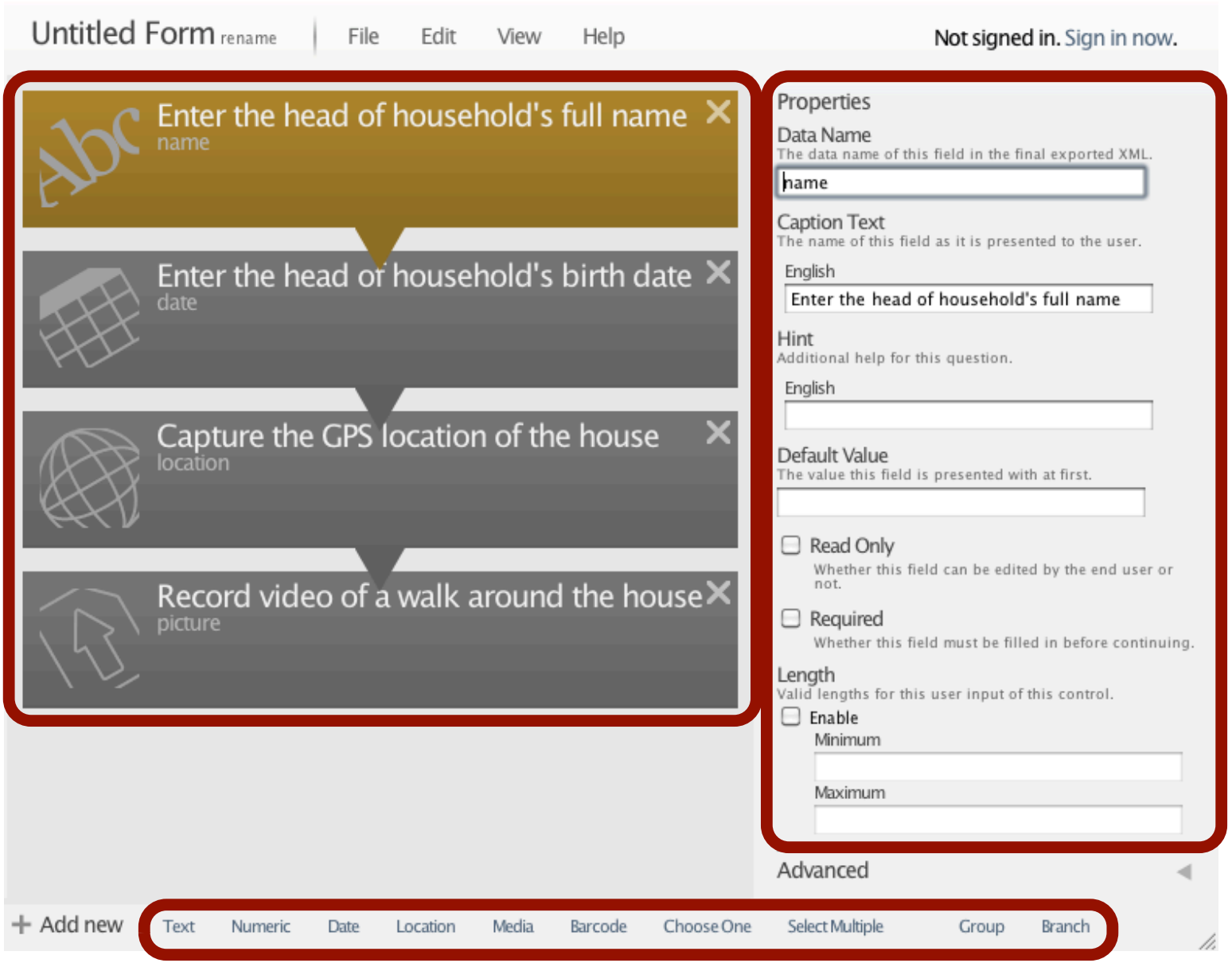
Sustainability is hard to achieve with a small team

Important features are lost when using the most basic technology.

Domain-specific tools are inflexible and keep data siloed.

Sustainability and scale are hard to achieve with a small team.

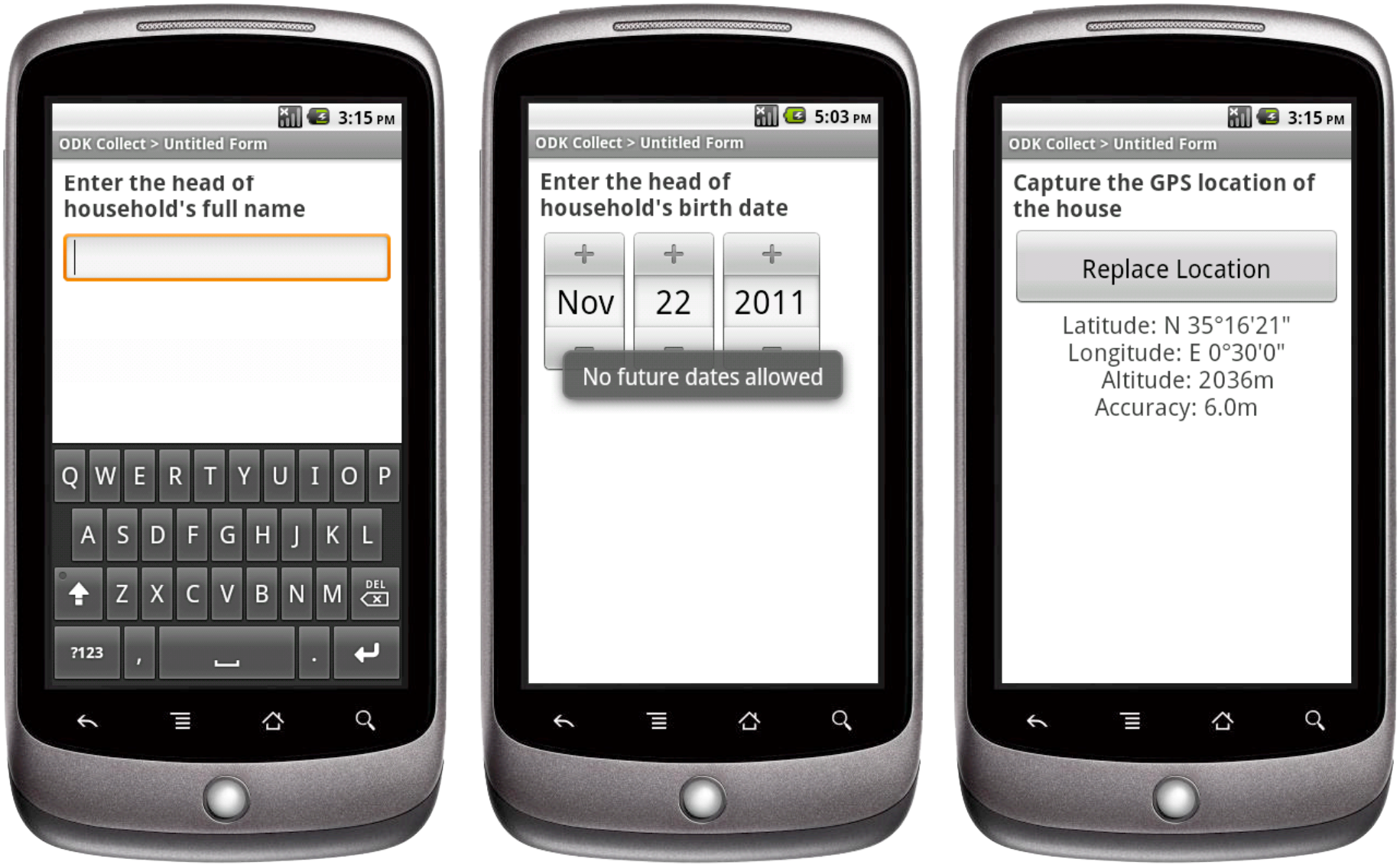
ODK Build: Drag and drop prompts for form creation



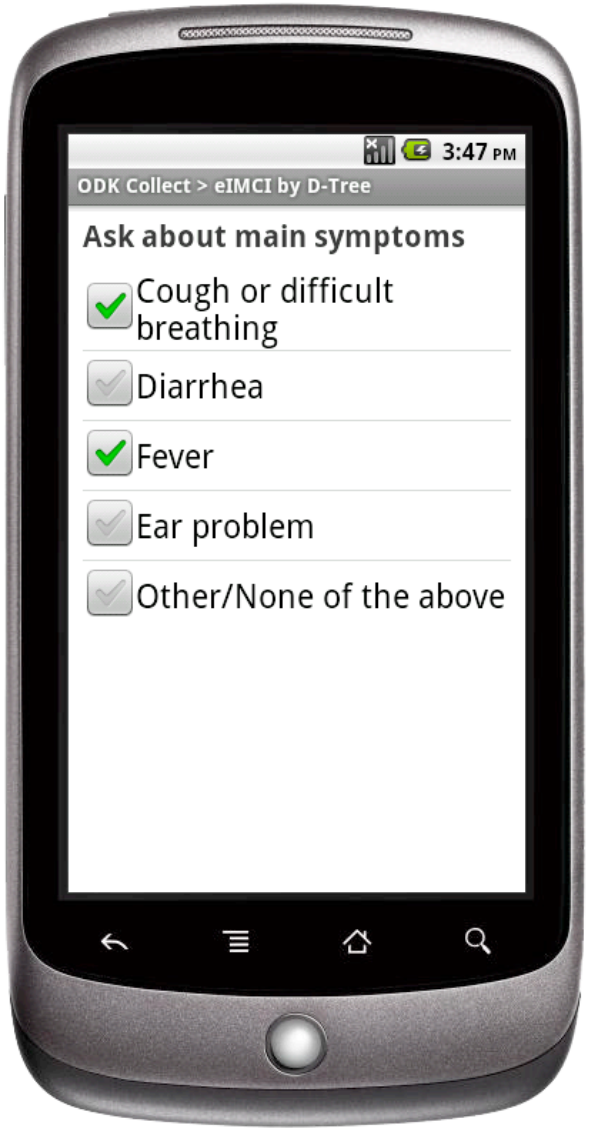
XForms: Describes the form logic and data schema

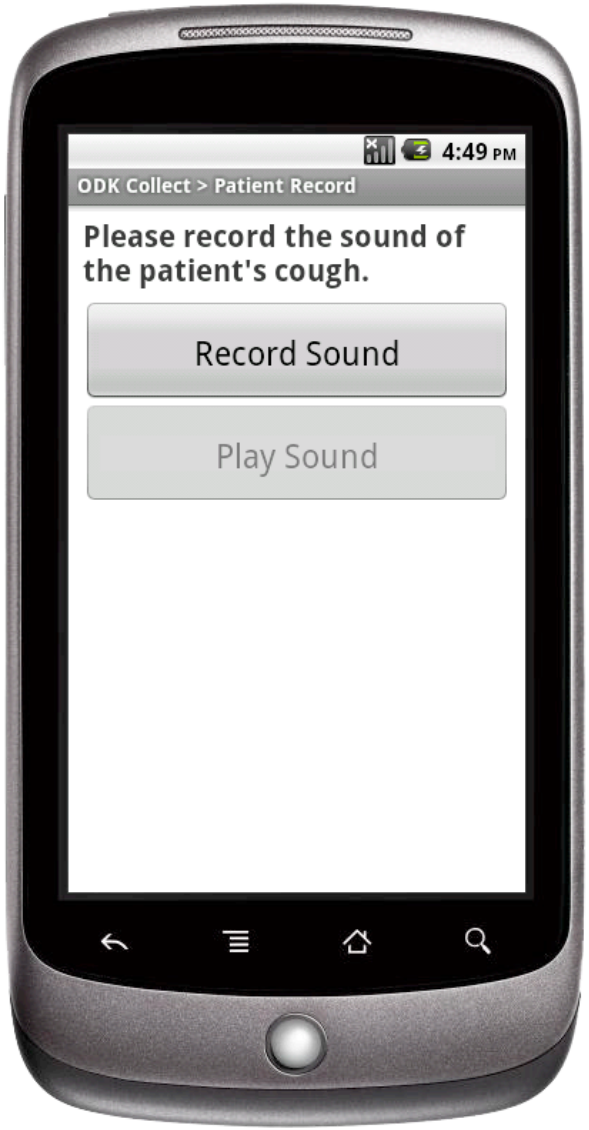
```
        <instance>
            <data>
                <name/>
                <date/>
                <location/>
                <picture/>
            </data>
        </instance>
        <itext>
            <translation lang="eng">
                <text id="/data/name:label">
                    <value>Enter the head of household's full name</value>
                </text>
                <text id="/data/date:label">
                    <value>Enter the head of household's birth date</value>
                </text>
                <text id="/data/location:label">
                    <value>Capture the GPS location of the house</value>
                </text>
                <text id="/data/picture:label">
                    <value>Record video of a walk around the house</value>
                </text>
            </translation>
        </itext>
        <bind nodeset="/data/name" type="string"/>
        <bind nodeset="/data/date" type="date"/>
        <bind nodeset="/data/location" type="geopoint"/>
        <bind nodeset="/data/picture" type="binary"/>
    </model>
</h:head>
<h:body>
    <input ref="name">
        <label ref="jr:itext('/data/name:label')"/>
```

Collect: Display prompts for data collection and delivery



Collect: Render prompts for data collection and delivery





Collect: Extensible architecture built on Android

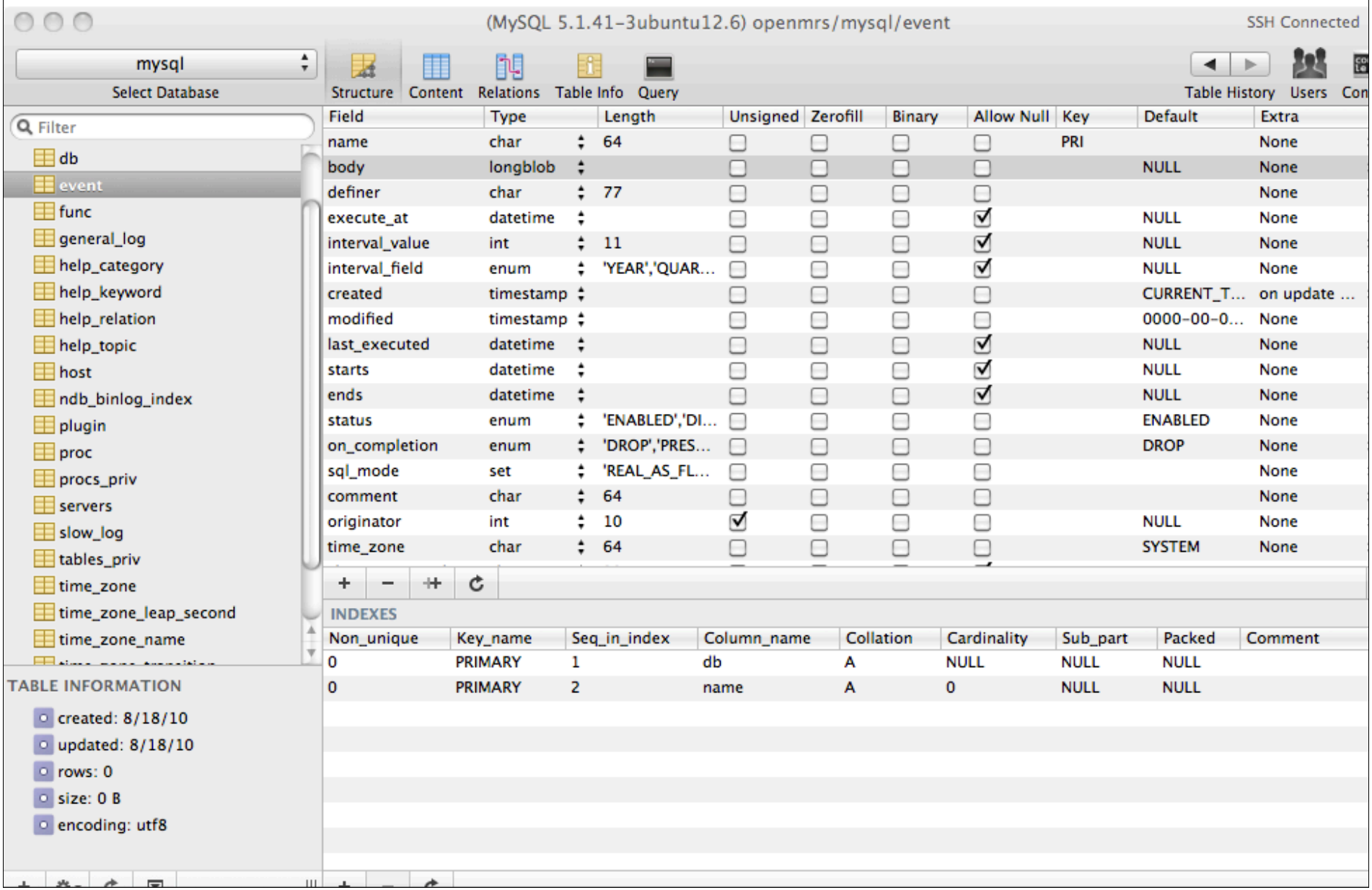
Aggregate: Host data and provide extraction interfaces

ation-Latitude	Location-Longitude	Location-Altitude	Location-Accuracy	Des
374240020636755	151.1692304632708	28.0	5.0	End other side
37486958941743	151.1690486118154	29.0	5.0	Willow
37504302300135	151.16903599729017	29.0	5.0	Cigarette dump
375864156698455	151.16889189846407	28.0	5.0	Wite flowers
37685209640148	151.1684238513032	28.0	10.0	Trees
37923633851942	151.16784138112294	40.0	5.0	Start white creek
9163298333333	-105.22232958333333	1633.1	12.0	Eddy at dog park
26413130760193	-80.32614648342133	1.0	4.0	Baseball fieldin trop
37890696525574	151.16791605949402	28.0	6.0	Whites creek algae
4937171666667	-121.93441071666666	27.4	3.0	Bob at Santa Clara U
378719210624695	151.1679643392563	21.0	3.0	White creek running
37857973575592	151.16811990737915	25.0	3.0	Rubbish
37859582901001	151.16813600063324	28.0	3.0	Blue tongue lizard
4937171666667	-121.93441071666666	27.4	3.0	Bob at Santa Clara U
9163298333333	-105.22232958333333	1633.1	12.0	Eddy at dog park
26413130760193	-80.32614648342133	1.0	4.0	Baseball fieldin trop

Aggregate: Codebase runs locally and in the cloud

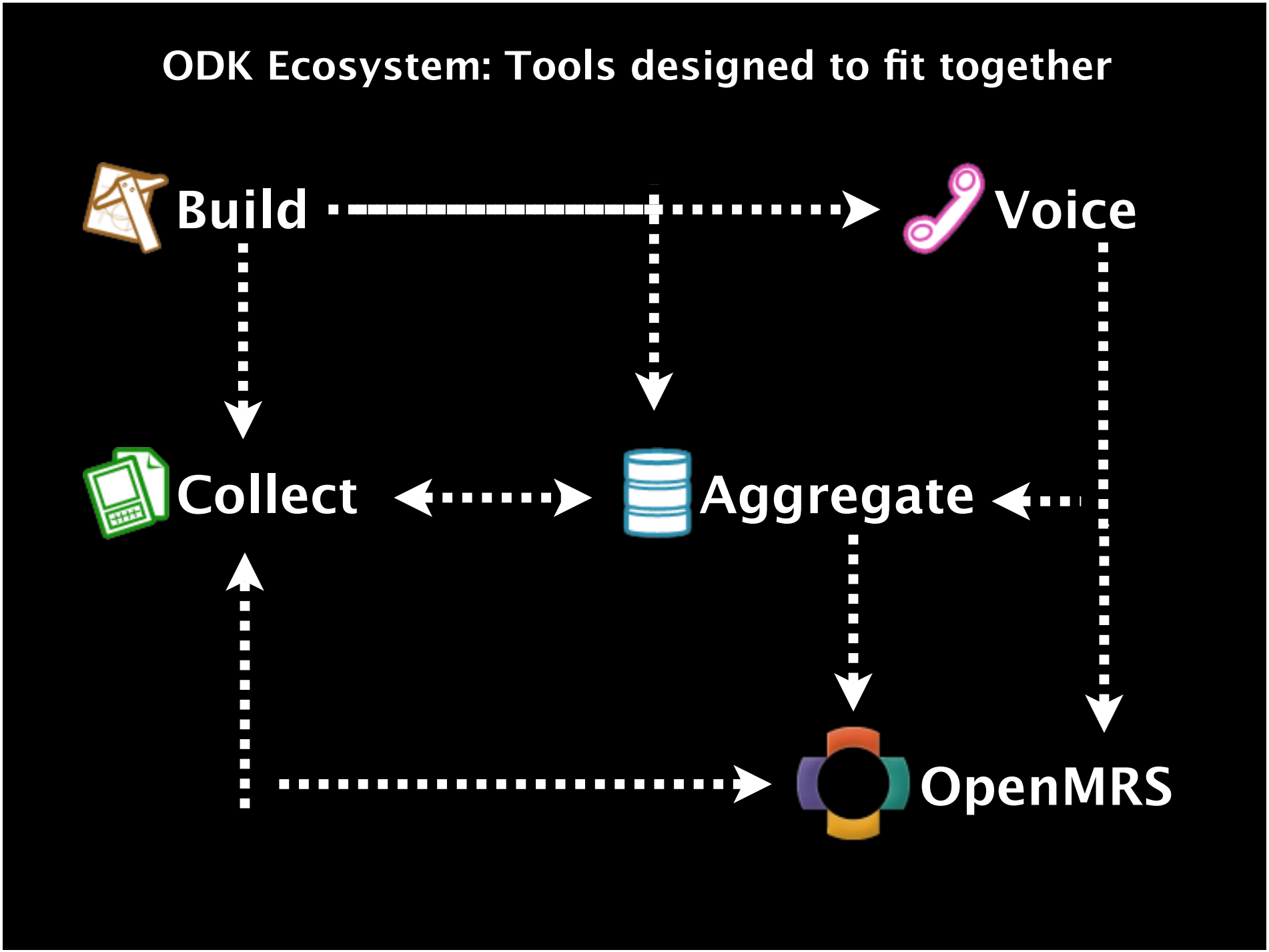
flickr:
theplanetdotcom

Aggregate: Designs database backend using XForm

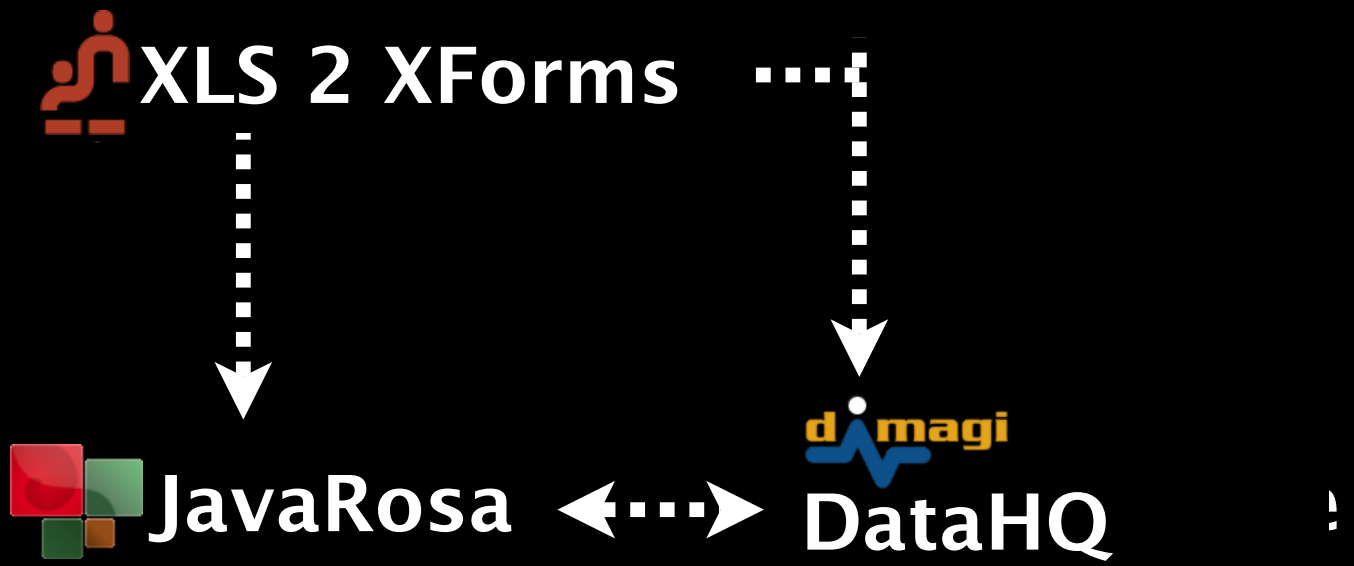


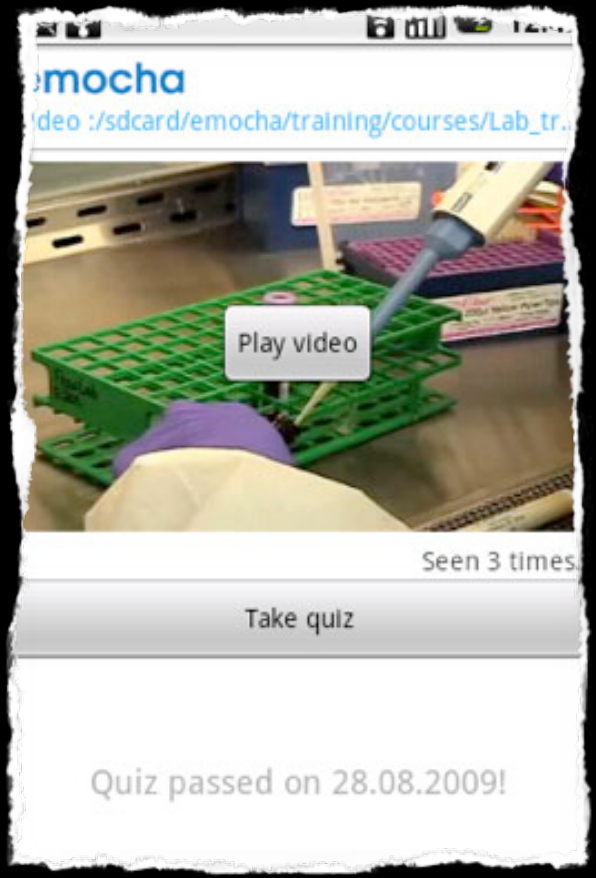
Aggregate: Stores or forwards data to external systems

DeviceId	351676030226627
SurveyorName	Shadrack
TreeLocation-Latitude	-4.9192410707473755
TreeLocation-Longitude	29.60762321949005
TreeDBH	57.0
TreeName	Myombo
TreePicture	View


ODK Ecosystem: Tools designed to fit together
Build
Voice
Collect
Aggregate
OpenMRS

ODK Ecosystem: Design your system in about an hour





"[ODK] is used for patient data gathering, and to give an exam after watching a video course on the phone."

Johns Hopkins Center for CGHE

“Features sometimes trump cost...we needed to get more out of the phone and ODK allowed us to do that.”

D-Tree International

"It is relatively easy to train using ODK...even for people who have little or no computer experience."

Berkeley Human Rights Center

"[Health workers felt] the system facilitated their home visits and allowed them to collect higher quality data. We actualized higher cost savings over our previous PDA-based system."

USAID-AMPATH

- Johns Hopkins: Ease of integration with a larger set of mobile and server tools.
- D-Tree: Impetus is backwards compatibility and added functionality of smartphone.
- HRC: ODK's cost of deployment, ease of training and ability to customize.
- AMPATH: Need to integrate with a medical record system, training and cost-effectiveness.

Deployments: Over a thousand active users of ODK around the

Community: Individuals and organizations are contributing to ODK

User Login

DATADYNE
We get data.

Sustainable information technologies
to benefit the world's most needy populations

LATEST NEWS

November 2010

DataDyne's DatAgro/MIP Wins Latin America's Frida Award

DataDyne.org's Mobile Info Platform (MIP) and the DatAgro Project which it powers won the FRIDA Award for "initiatives that have contributed the most towards the development of the Information Society in Latin America and the

SUPPORT OUR WORK

DataDyne provides free mobile phone data collection and other technologies to hundreds of non-profits and other organizations working in international development and global health worldwide. Please consider joining our mailing list , following us on Twitter, becoming our fan on Facebook, and supporting this important, award-winning work.

FROM THE BLOG

EpiSurveyor passes 100,000 uploads!

JOEL SELANIKIO ON 29 NOVEMBER 2010 - 9:59AM

100k!

I remember a few years ago, when EpiSurveyor was a program that you had to install on your Windows computer, with a mobile platform that used Palm Pilot PDAs instead of mobile phones. Back then, DataDyne staff was involved in training ministry of health users in about 10 sub-Saharan African countries.

READ MORE

DataDyne Dev and QA Team in Austin Texas 360iDev Conferences

ODK tools can be used individually or as an end-to-end system.

ODK works with other systems through simple interfaces.

ODK has a growing community using and adapting the tools.

A group at the University of Washington exploring how technology can improve the lives of underserved populations.

http://change.washington.edu (@uwchange)

http://opendatakit.org (@opendatakit)