COMPUTER-ASSISTED PERSONAL INTERVIEWING
Michael Lokshin, DECRG
“...[the World Bank] will closely monitor and observe progress toward these goals of ending poverty and boosting shared prosperity, and will report annually on what has been achieved and where gaps remain.”
Challenges:

- Frequent data collection
- Ensuring high data quality
Average interval between surveys (years)

- MENA: 9 years
- SSA: 7 years
- SA: 6 years
- EAP: 5 years
- World: 4 years
- ECA: 3 years
- LAC: 2 years
Household

Household members

Plots

Parcels
Percentage of missing or invalid answers (questions on learning and literacy)

- Laos: 16%
- Ethiopia: 14%
- Burundi: 12%
- Madagascar: 10%
- Nepal: 8%
- Ghana: 6%
- Uganda: 4%
- Malawi: 2%
- Malawi: 0%
Solution: CAPI

- Data collection using tablet devices
- Data validation at entry
- Real-time availability of results and metadata
- Automated Survey Management
Results:

From data collection to policy: 4-5 months
Researchers design questionnaires using visual tools and upload them to the central server.

HQ distributes the sample lists across teams of enumerators.

Researchers design questionnaires using visual tools and upload them to the central server.

Interviewers visit households and collect data.

Supervisors monitor the submissions.

Supervisors assign households to individual interviewers.

Interviewers synchronize their devices and upload completed questionnaires.

Questionnaires with no errors are uploaded to the central server.

Supervisors assign households to individual interviewers.

Interviewers visit households and collect data.

Researchers design questionnaires using visual tools and upload them to the central server.
Prices of tablets start from $60: cheaper than paper questionnaires.

Changes or corrections at no cost.
Project timeline

- **Early 2012**: Development started
- **Spring 2013**: Pilot project in St Lucia
- **September 2013**: Proposed release date
- **Summer 2013**: Pilot project in Djibouti
### Why World Bank?

<table>
<thead>
<tr>
<th>INCENTIVES</th>
<th>RESEARCH</th>
<th>SUSTAINABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Private companies will not profit from sales to underfunded statistical offices</td>
<td>- Large research component</td>
<td>- The World Bank’s involvement ensures that the system is supported and maintained as public service, also in the long run</td>
</tr>
<tr>
<td>- NGOs cannot afford enterprise-grade development</td>
<td>- Benefiting from the LSMS team’s expertise</td>
<td></td>
</tr>
<tr>
<td>- Universities lack incentives to engage</td>
<td>- Huge potential for harnessing the experience of Bank’s clients/shareholders</td>
<td></td>
</tr>
</tbody>
</table>

**INCENTIVES**
- Private companies will not profit from sales to underfunded statistical offices
- NGOs cannot afford enterprise-grade development
- Universities lack incentives to engage

**RESEARCH**
- Large research component
- Benefiting from the LSMS team’s expertise
- Huge potential for harnessing the experience of Bank’s clients/shareholders

**SUSTAINABILITY**
- The World Bank’s involvement ensures that the system is supported and maintained as public service, also in the long run
CAPI benefits: different types of information

**GPS information:** spatial analysis; identifies households in absence of national ID scheme; helps in monitoring migration or measuring land use.

**Project monitoring:** Imagery from the device’s camera can be attached and automatically processed.

**Additional sensors** connected to the device can automatically collect data on air/water quality and other parameters.
GPS in action

Plots can be easily and precisely measured by simply walking around the area with the device enabled.

Ability to measure distances to banks, schools, roads, wells. Maps used for optimal routing.
Custom sensors

Water quality testing (pH and dissolved oxygen)

Precision gas sensor (air quality/carbon monoxide)

Multi-purpose sensor (light/water/air)
Other applications

Portable wireless scale for child malnourishment research

Vision tests that can be administered directly from the device

Soil quality tested by a custom sensor for plot fertility measurements
Challenges for the next 2-3 years

- Further training will be required for interviewers and supervisors
- New mindset required from survey designers (questionnaires become “multidimensional”)
- New sensor devices, compatible with the software, will have to be produced
- Users will require better questionnaire compilers/live preview functionality
- CAPI should become compatible with a wider range of devices
CAPI reduces the cost to $75M =

Conducting a household survey costs, on average, $1 million.

Household surveys in 100 countries will require a $100 million budget.

Of world’s net ODA
Summary

- WB CAPI is a tablet-based technology that can support service delivery by improving availability and quality of the data.
- The technology dramatically decreases the time required for data collection and analysis.
- Costs are reduced, allowing the surveys to be conducted in more places and more frequently.
- Additional data can be gathered by custom sensors and modules such as camera or GPS.
<table>
<thead>
<tr>
<th>Competitors</th>
<th>WB CAPI</th>
<th>CSPro</th>
<th>Blaise</th>
<th>OpenDataKit</th>
<th>SurveyBee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding</td>
<td>WB</td>
<td>USAID</td>
<td>Statistics Netherlands</td>
<td>University of Washington</td>
<td>Private</td>
</tr>
<tr>
<td>Low-cost Android tablets</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Free to use</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Device redundancy</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Survey Management</td>
<td>+</td>
<td>+/-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Online collaboration</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Intuitive interface</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Handling complex surveys</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>