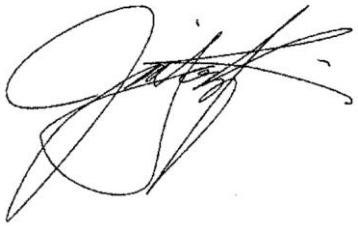
Development Research

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."*



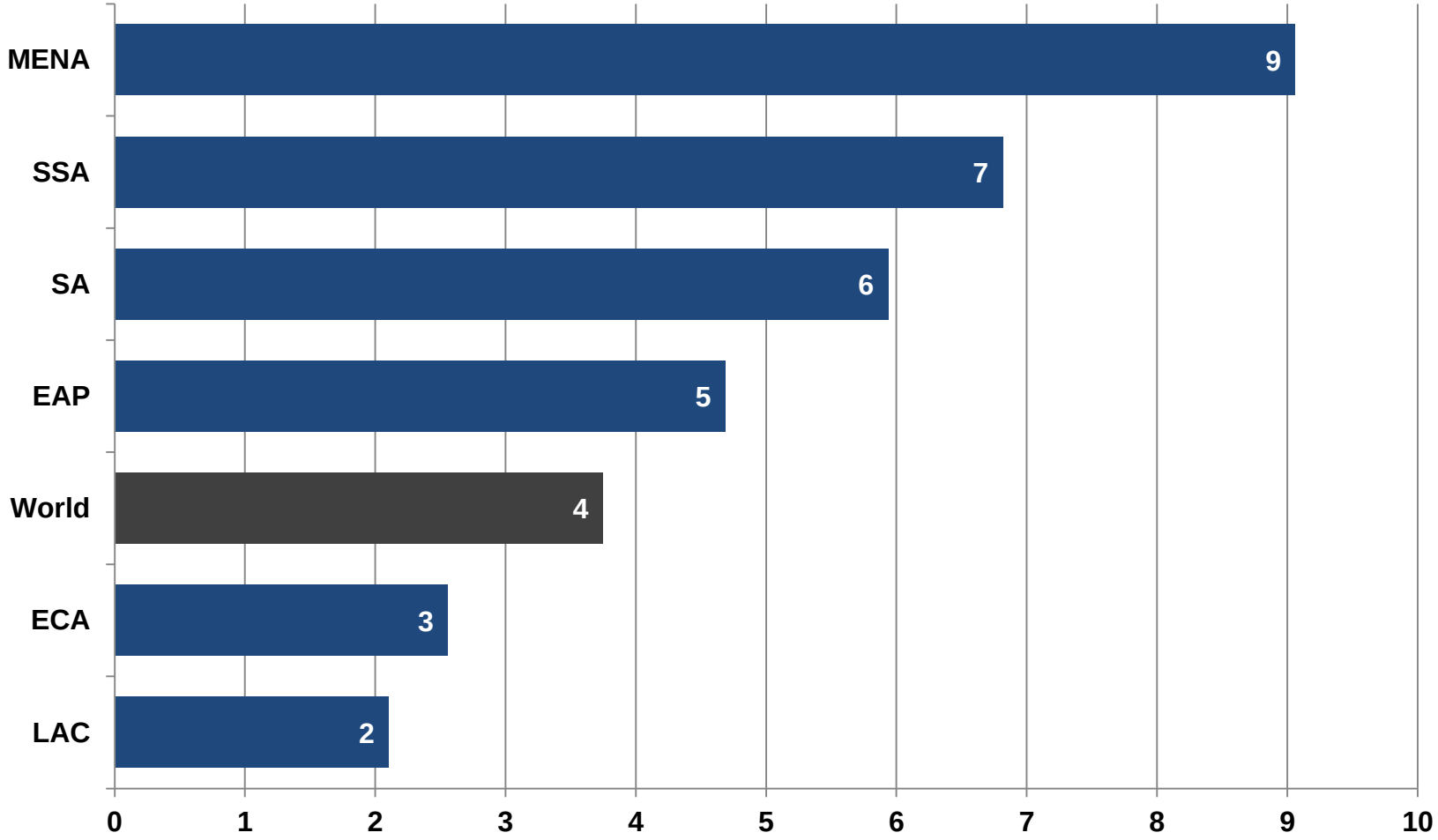
The critical component of improving service delivery is high quality, high frequency data

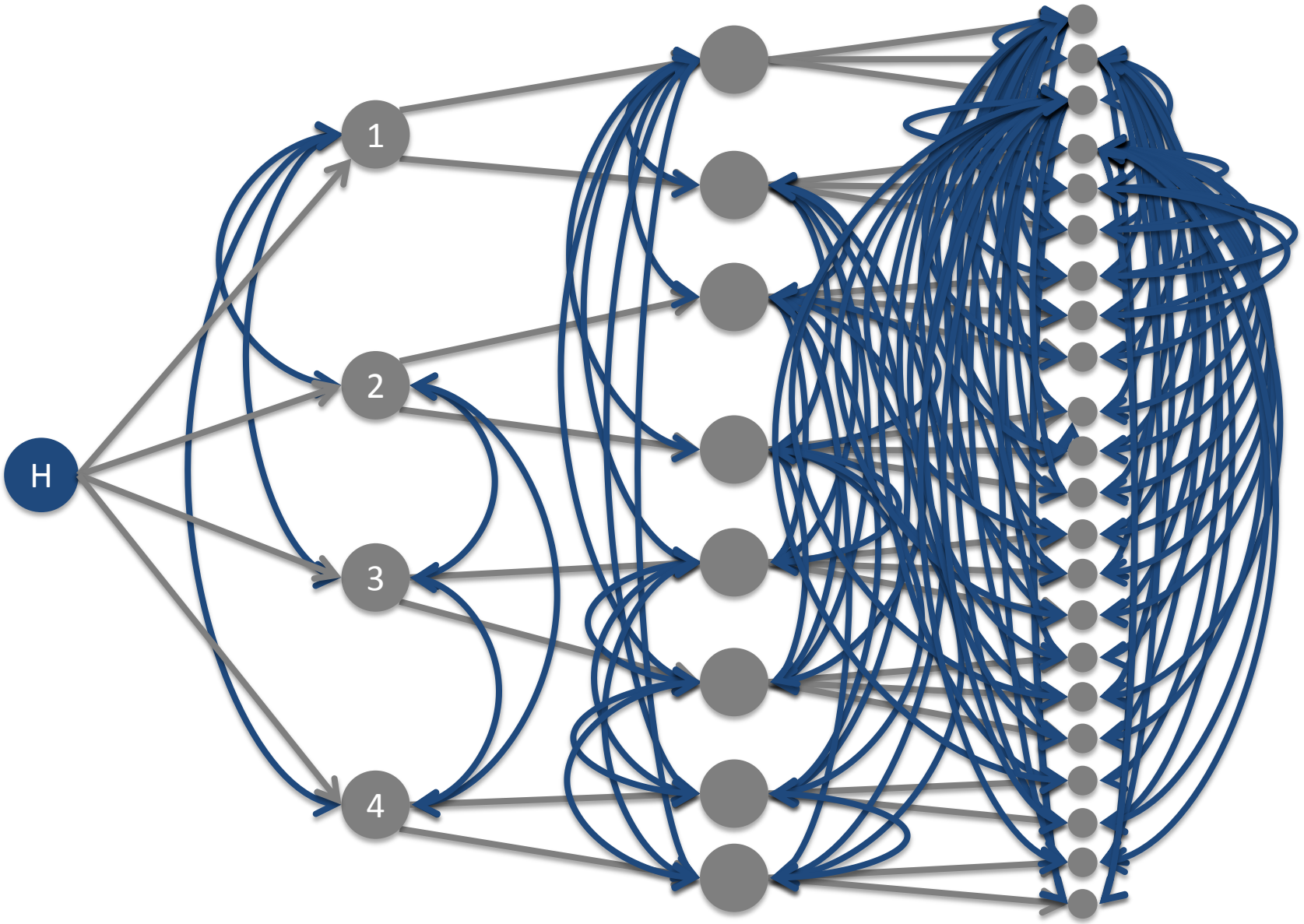
Challenges:

Frequent data collection

Ensuring high data quality

Average interval between surveys (years)





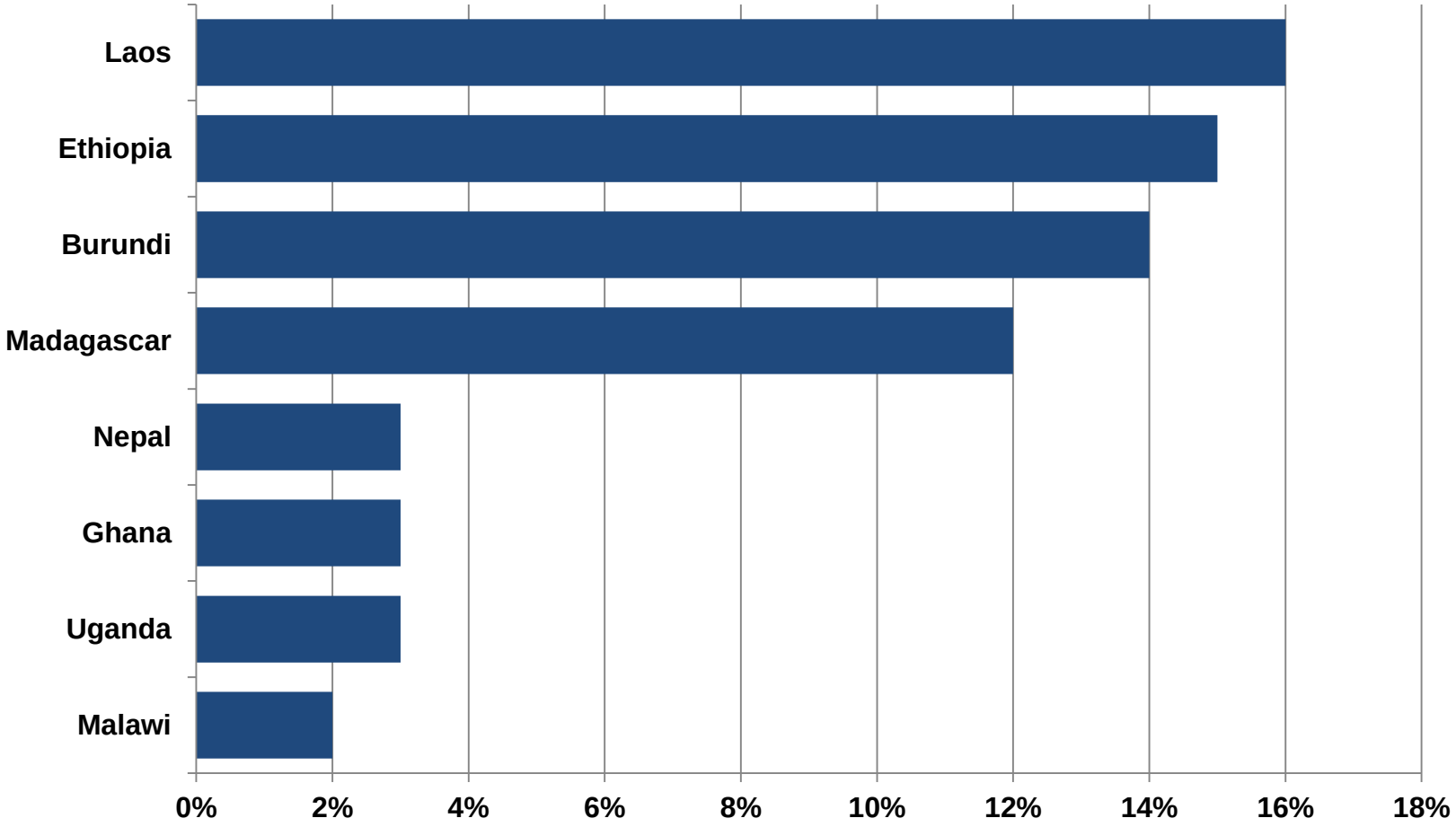
Household

Household members

Plots

Parcels

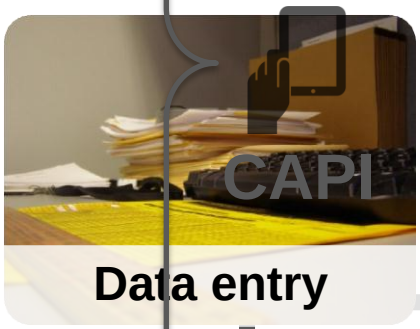
Percentage of missing or invalid answers (questions on learning and literacy)

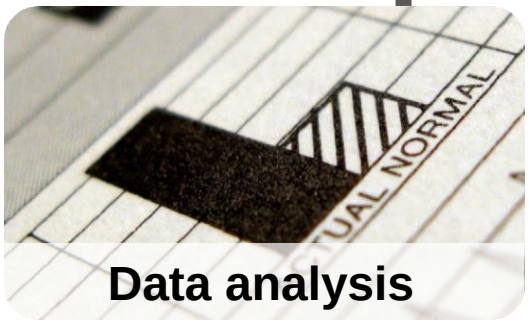


Solution: CAPI

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

Results:

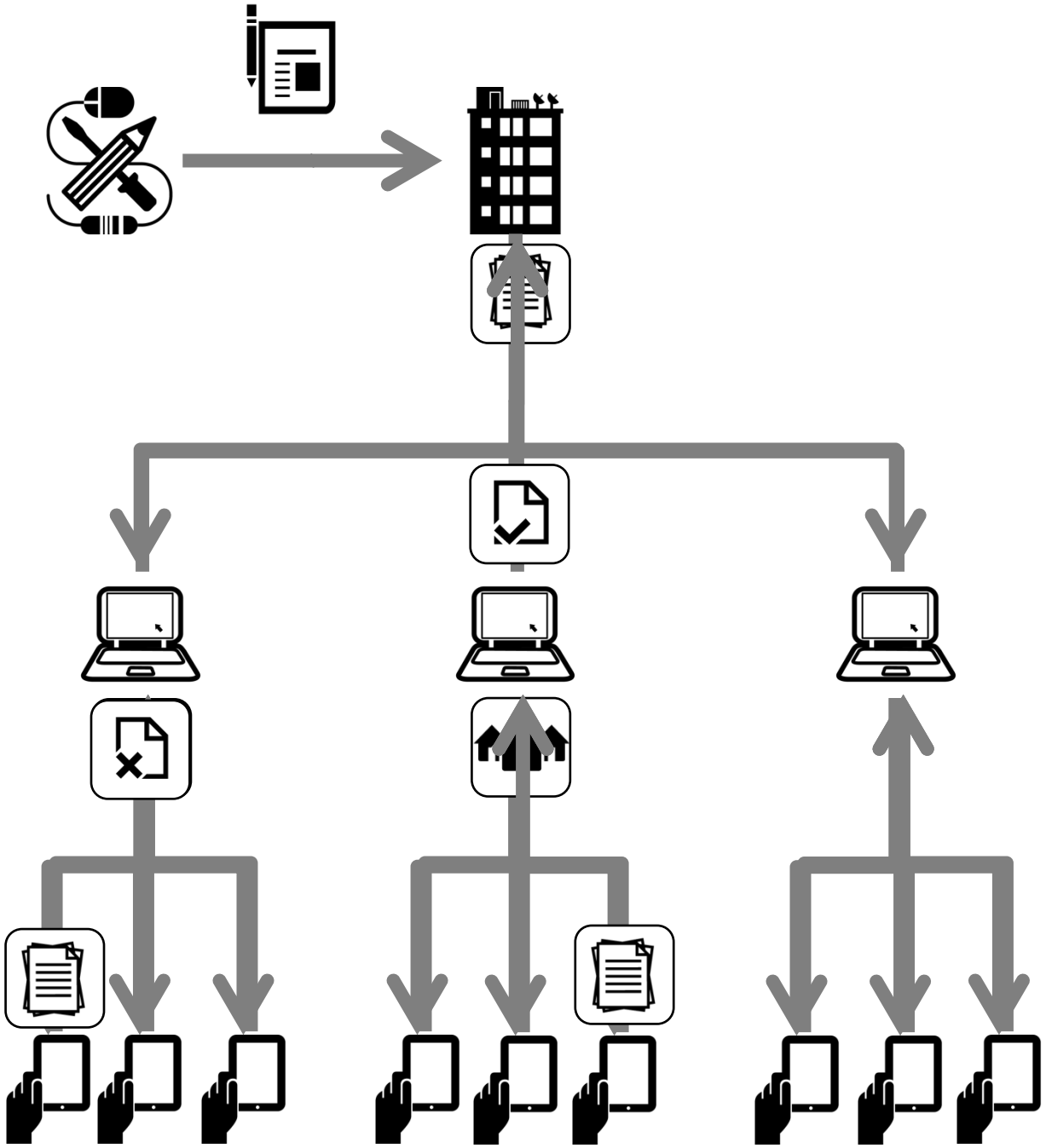




Policy decisions

ADePT

From data collection to policy: 4-5 months



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

HQ distributes the

Internet

Internet

Supervisors monitor the submissions

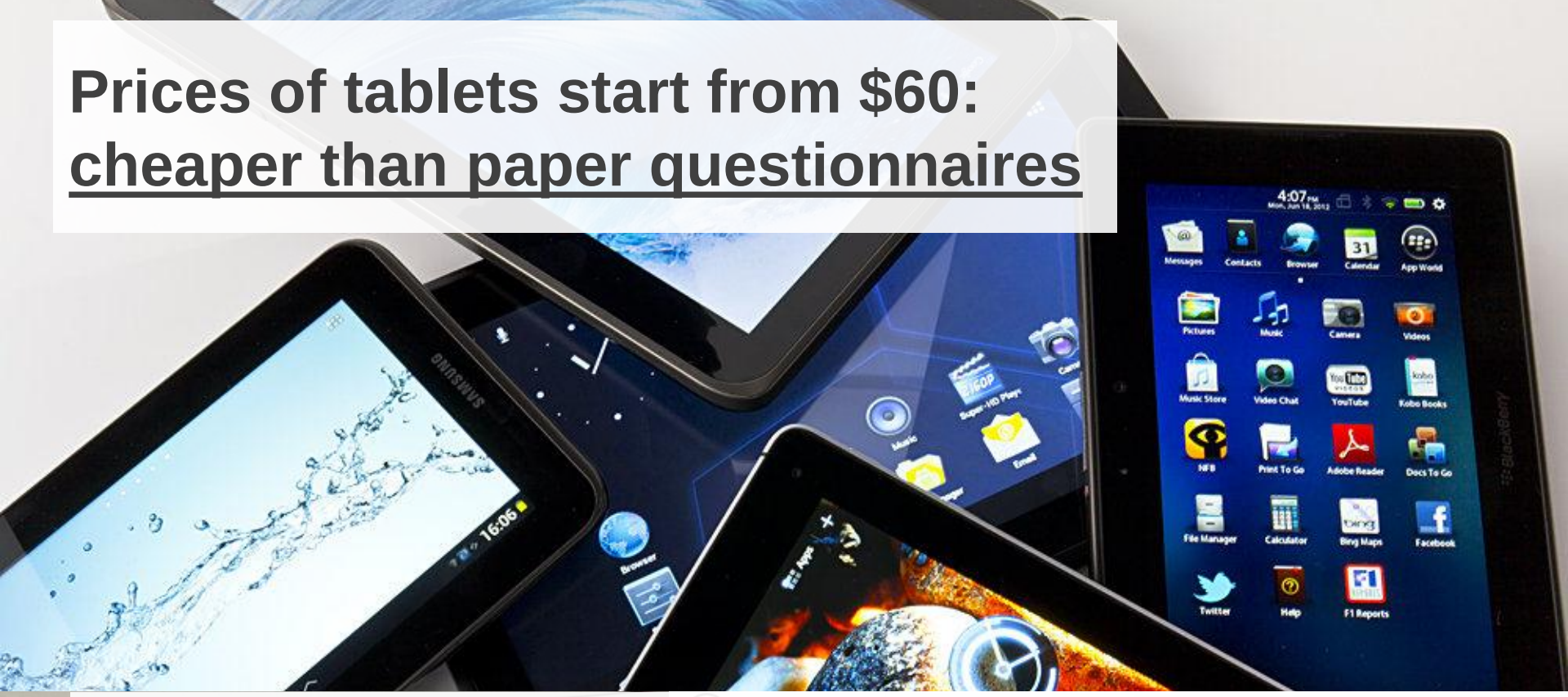
Supervisors assign households to individual interviewers

WiFi/USB

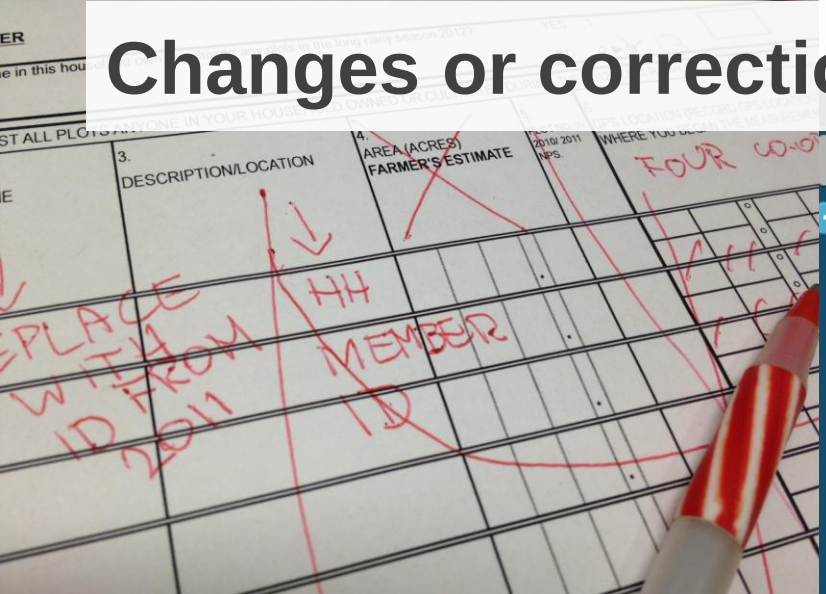
WiFi/USB

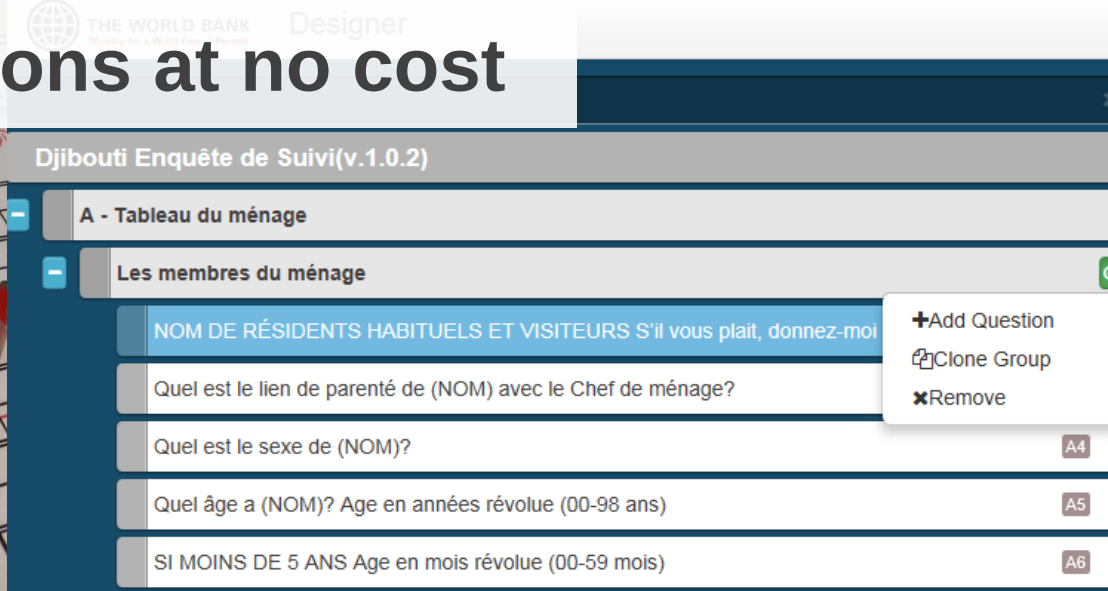
Interviewers visit households and collect data

Prices of tablets start from $60: cheaper than paper questionnaires

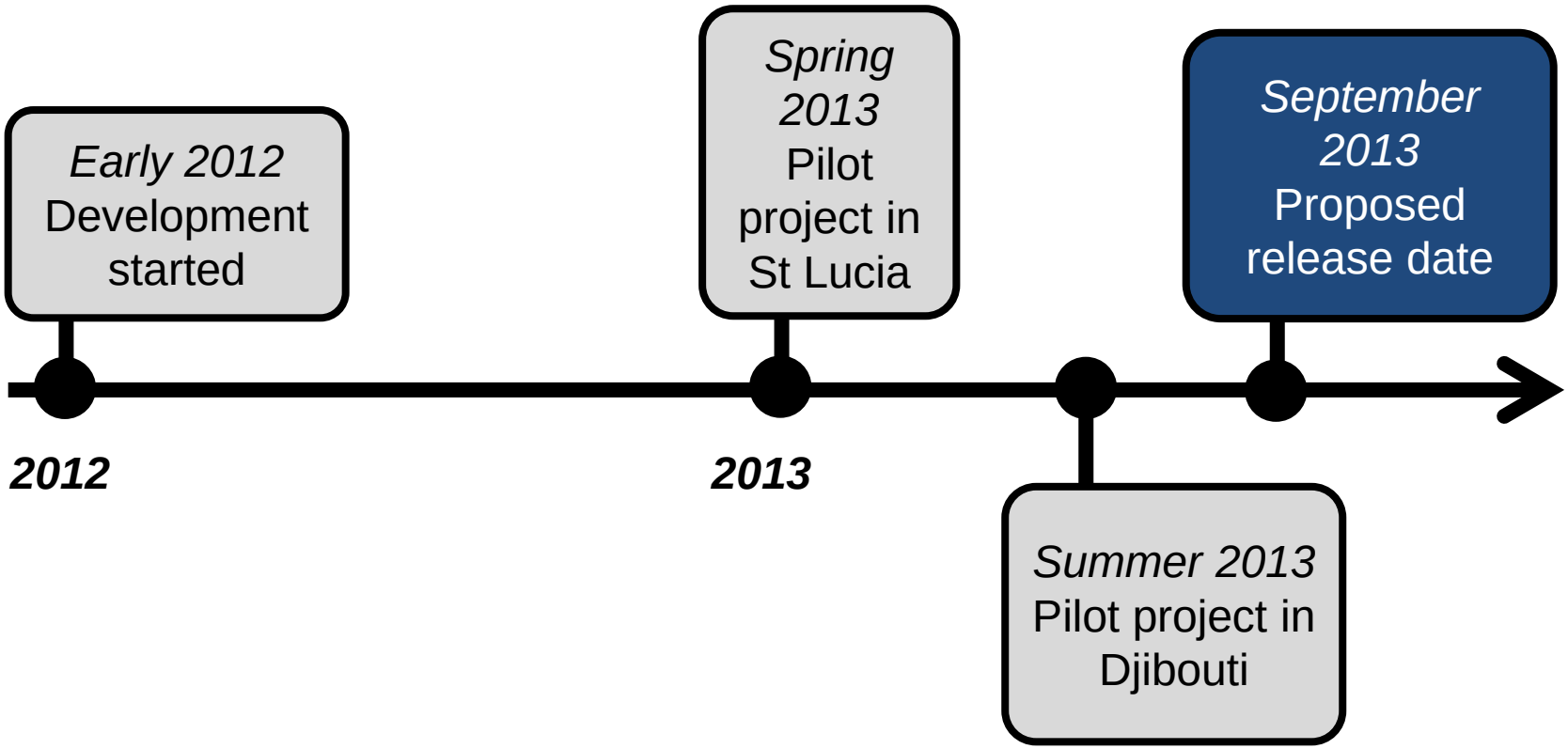


Changes or corrections at no cost





Project timeline



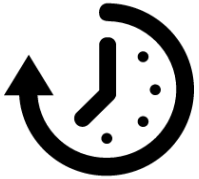
Why World Bank?

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



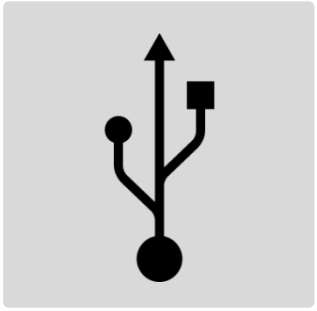
SUSTAINABILITY

- 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

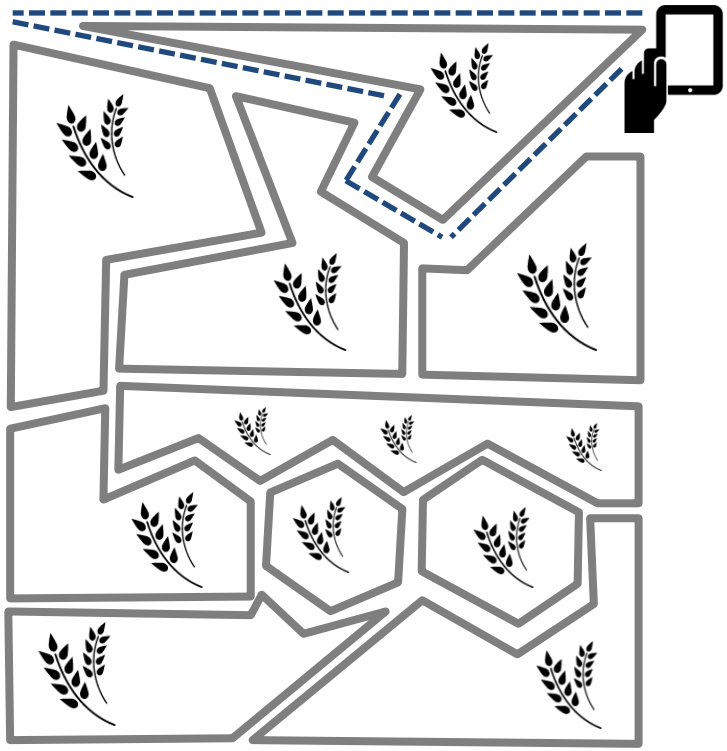
GPS information: spatial analysis; identifies households in absence of national ID scheme; helps in monitoring migration or measuring land use.

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

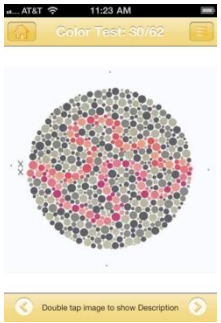
Water quality testing (pH and dissolved oxygen)

Multi-purpose sensor (light/water/air)

Precision gas sensor (air quality/carbon monoxide)

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 be 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**

econ.worldbank.org/research/computationaltools

Competitors

	WB CAPI	CSPro	Blaise	OpenDataKit	SurveyBee
Funding	WB	USAID	Statistics Netherlands	University of Washington	Private
Low-cost Android tablets	+	-	-	+	-
Free to use	+	+	-	+	-
Device redundancy	+	-	-	-	-
Survey Management	+	+/-	-	-	-
Online collaboration	+	-	-	-	-
Intuitive interface	+	-	-	+	+
Handling complex surveys	+	+	+	-	+