How Mobile Technology helps Humanitarian Operations

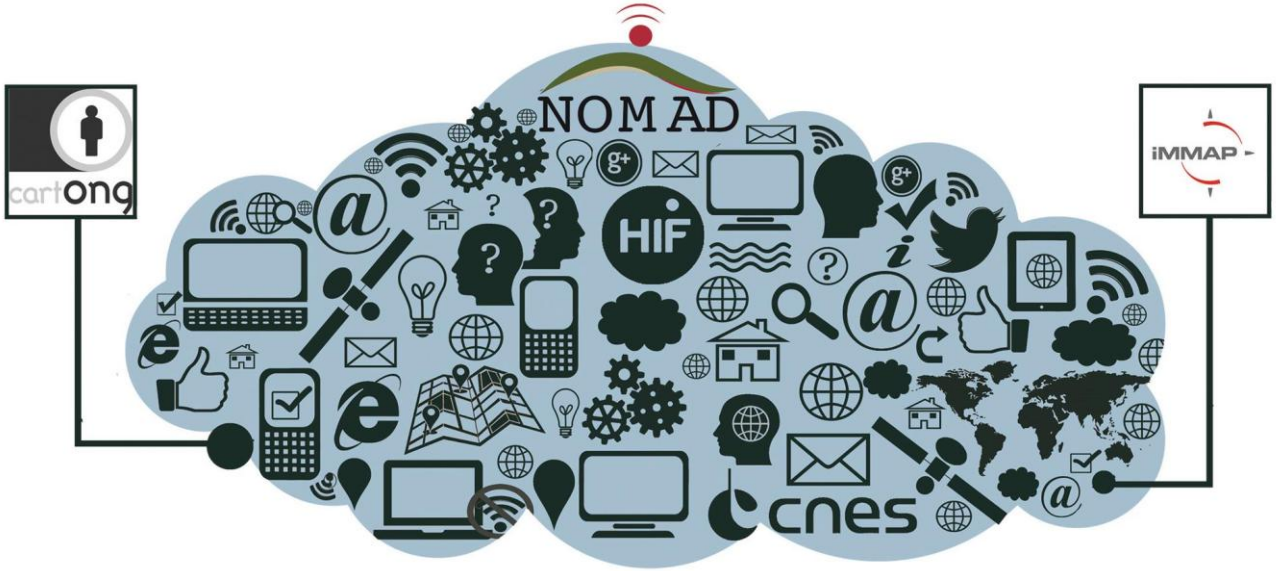
World Disaster Report

Vienna, October 30th, 2013

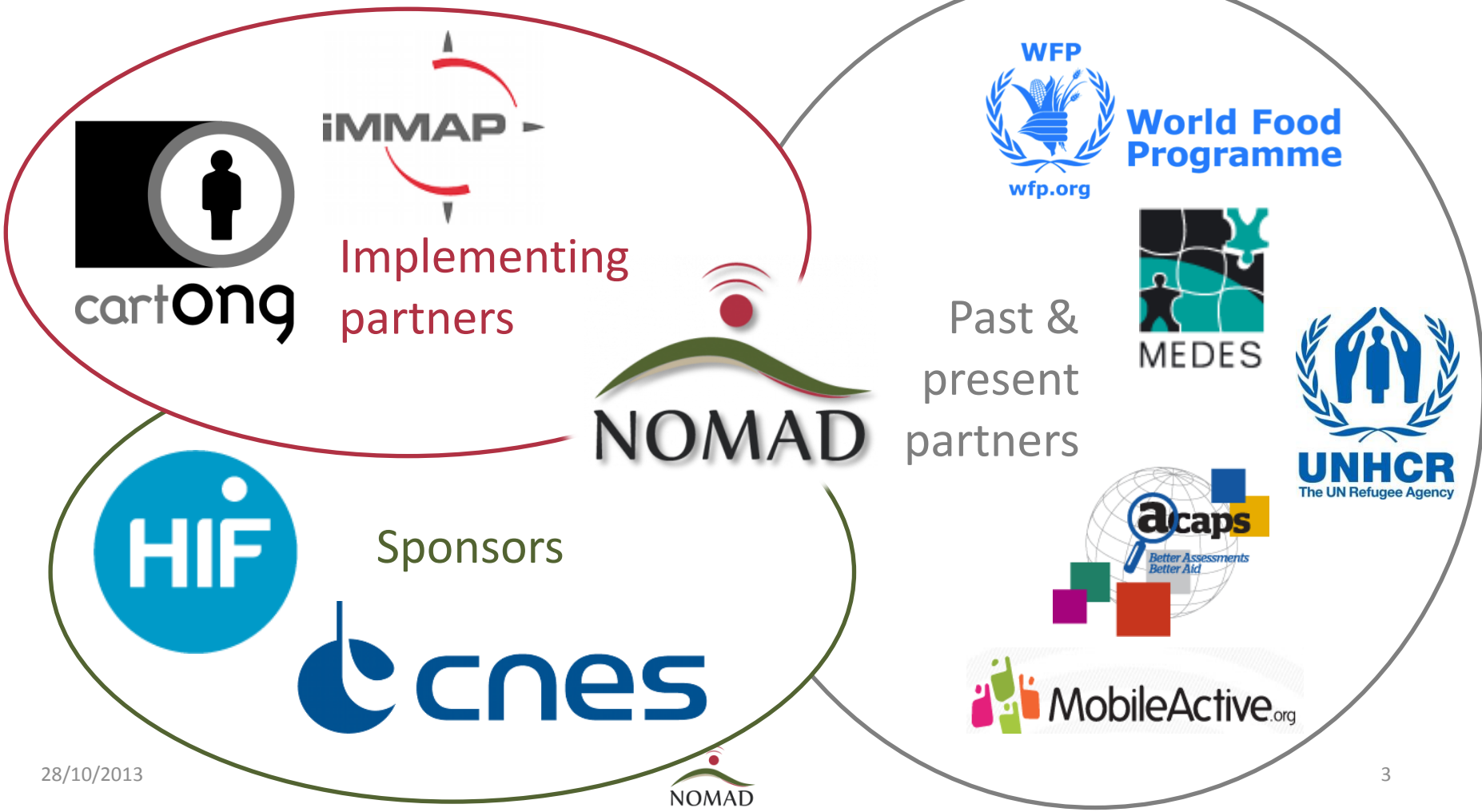
Christophe Bois, iMMAP

NOMAD

The NOMAD project



The NOMAD consortium



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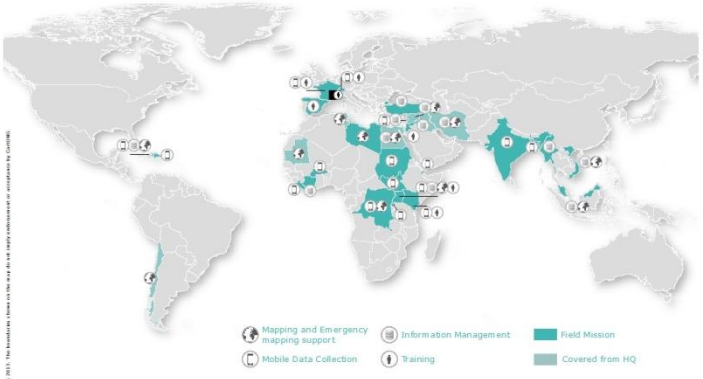
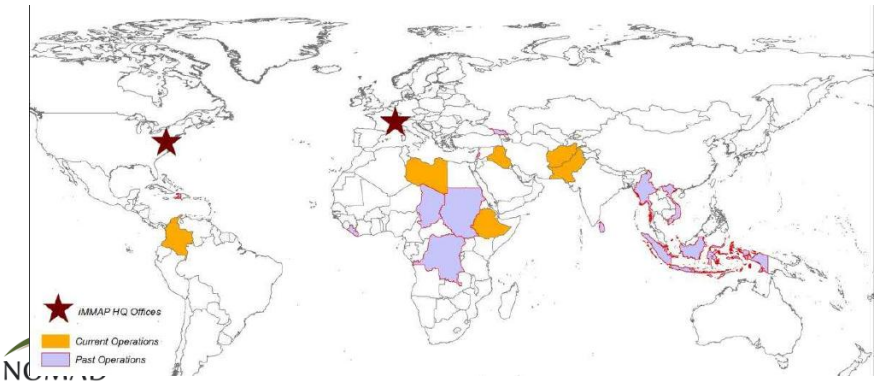
HumanitariaN Operations
Mobile Acquisition Of Data

- The implementing partners
  - ✓ CartONG, French NGO (2006) based in Chambéry
  - ✓ iMMAP, US NGO (1998), European branch (2008)
  - ✓ Both specialized GIS/information management
  - ✓ Capacity building, operational support, research
  - ✓ Large field experiences with international and local partners worldwide

cartong

iMMAP





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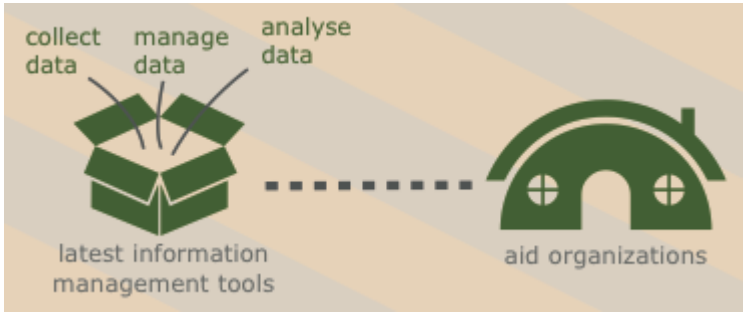
- Goal: inform humanitarian organizations on mobile data collection solutions and help them in the implementation process
- NOMAD services:
  - ✓ Research & testing
  - ✓ Pilot projects
  - ✓ Online selection assistant
  - ✓ Trainings, field or remote support
  - ✓ Community of good practices & workshops organization



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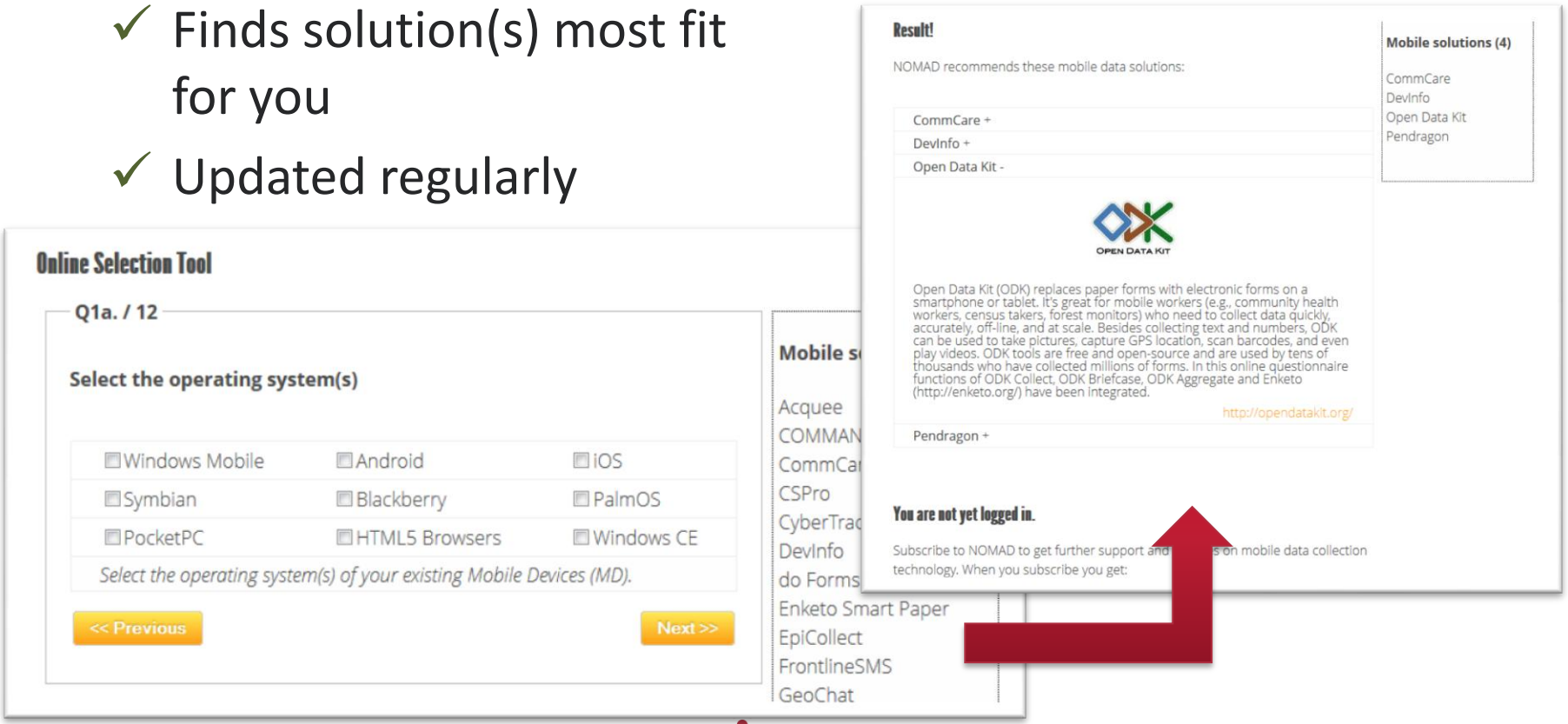
- **Research**
  - ✓ Case studies
  - ✓ Devices benchmarks
- **Pilot projects**
  - ✓ Test several solutions: Imogene, OASIS, ABCs@t
  - ✓ Field pilots: IOM Haiti Displacement tracking Matrix / WFP Ethiopia: Food Delivery Monitoring / UNHCR with CartONG: Nutrition/Rapid Registration/Village Profiles/Shelter Assessment (Kenya, DRC, Rwanda, Dominican Republic and Lebanon).

- **NOMAD online selection tool**
  - ✓ Step-by-step questionnaire to identify your needs
  - ✓ Finds solution(s) most fit for you
  - ✓ Updated regularly



command mobile

CSPro

DevInfo

ENKETO SMART PAPER

EpiCollect

CommCare

CyberTracker

doFORMS

voxiva
better health in your hands

wepi

FRONTLINESMS

geochat

NOMAD

VIEWWORLD

32 SOLUTIONS FEATURED

mo ig he

GeoPoll

RapidSMS

GRT mobile solutions

NOKIA
Connecting People

Data gathering system

LMMS
LAST MILE MOBILE SOLUTIONS

HUMANITARIAN DATA TOOLKIT

سوق تل SoukTel

PSIMOBILE

pendragon
Software Corporation

ODK
OPEN DATA KIT

iMMAP
OASIS

magpi

POIMAPPER

OPENXDATA

And more?

Mobenzi RESEARCHER

MI

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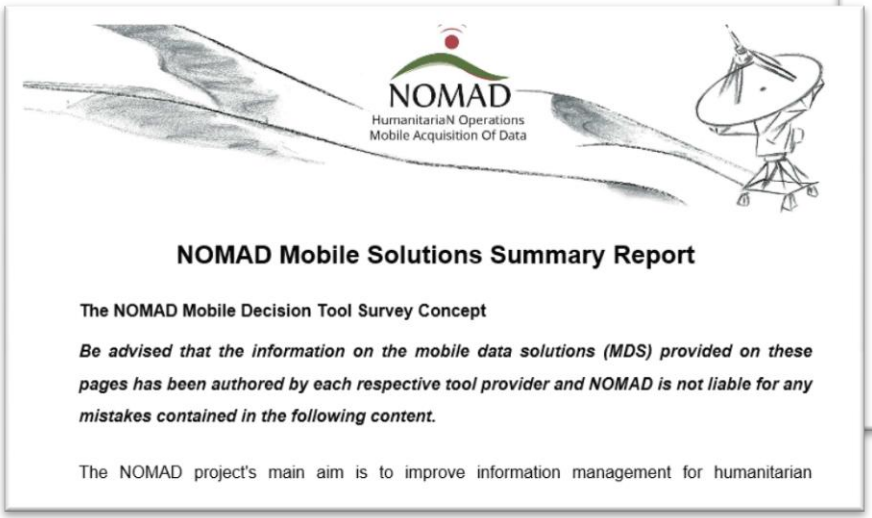
- ✓ Free registration to get detailed PDF report
- ✓ Includes: explanations, comparison matrix, description of solutions



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NOMAD Mobile Solutions Summary Report

The NOMAD Mobile Decision Tool Survey Concept

Be advised that the information on the mobile data solutions (MDS) provided on these pages has been authored by each respective tool provider and NOMAD is not liable for any mistakes contained in the following content.

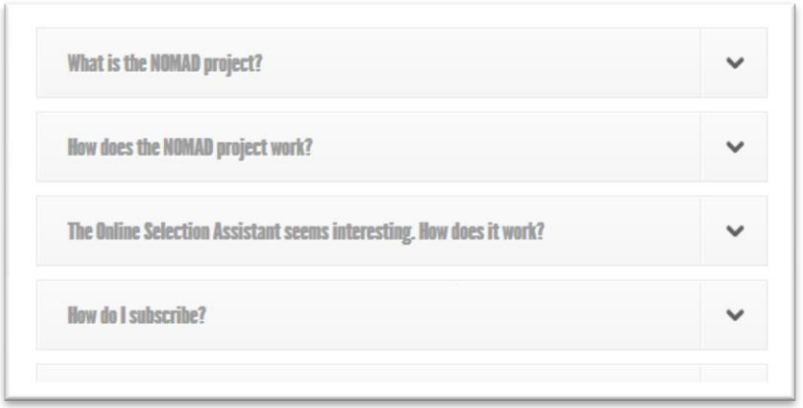
The NOMAD project's main aim is to improve information management for humanitarian

Technical Details Comparison Matrix

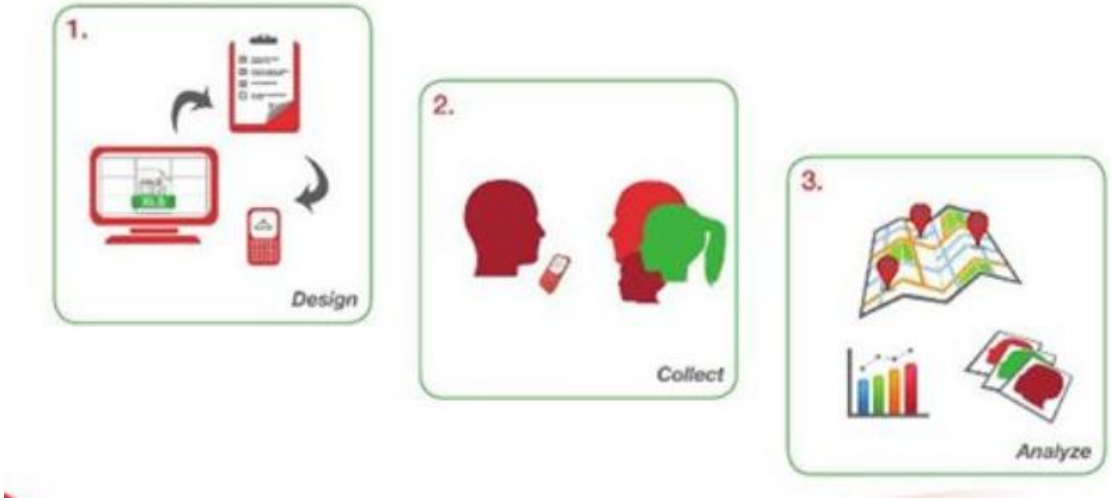
Hardware requirements and features supported

Feature	CommCare	DevInfo	Open Data Kit	Pendragon
Device OS supported	Android, Blackberry	Windows Mobile, Windows CE	Android, HTML5 Browsers	Android, iOS, HTML5 Browsers
Desktop OS required for tool	Windows, Mac, Linux	Windows	Windows, Mac, Linux, Any - Java required	MS Access for Windows
Server/Database Platform	Apache, Black Box, PostgreSQL, Debian, Ubuntu, Red Hat, Enterprise Linux	Apache, IIS, Tomcat	Tomcat, Amazon, Google App Engine, Black Box, Windows, MySQL, PostgreSQL, Any - Java required, Debian, Ubuntu, Fedora, Red Hat, CentOS, Enterprise Linux	Apache, MySQL, PHP
GPS	Yes	Yes	Yes	Yes
Picture	Yes	No	Yes	No
Video	Yes	No	Yes	No

- **The NOMAD community:**
  - ✓ Website FAQ & forum
  - ✓ NOMAD staffs for questions
  - ✓ Workshops, 2013 Paris: 70+ participants, 10 providers at tool fair!



What to know before starting a mobile data collection process



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MOBILE DATA COLLECTION WORKFLOW

The process

DATA HANDLING

Client/Desktop application is used to generate digital version of paper form

The Mobile Data Collection Solution

Client/Desktop application is used for cleaning and sometimes editing of the data on the server.

DATA COLLECTION

Multiple OS supported

ENUMERATORS USE MOBILE DEVICES WITH THE DIGITAL VERSION OF THE PAPER FORM.

SYNCHRONISATION PROCESS

Satellite Connection, GSM Network and WiFi

THE COLLECTED DATA IS SYNCHRONISED TO THE SERVER AND SOMETIMES BACK TO THE MOBILES, DEPENDING ON THE APPLICATION.

DATA PROCESSING & DATA WAREHOUSING

THE DATA IS SAVED OR EXPORTED INTO A DATABASE, READY FOR ANALYSIS.

IMPORT THE DATA INTO YOUR FAVOURITE VISUALISATION AND REPORTING TOOL OR CHOOSE A SOLUTION WHICH ALREADY COMES WITH THE REPORTING FEATURES YOU WANT.

OUTPUTS

Data Reporting Tools

Data Visualisation Tools

PAPER FORMS

The Survey Manager translates the paper form into an electronic form which is uploaded to the server or transferred manually on the Mobile device

THE SURVEY MANAGER TRANSLATES THE PAPER FORM INTO AN ELECTRONIC FORM WHICH IS UPLOADED TO THE SERVER OR TRANSFERRED MANUALLY ON THE MOBILE DEVICE.

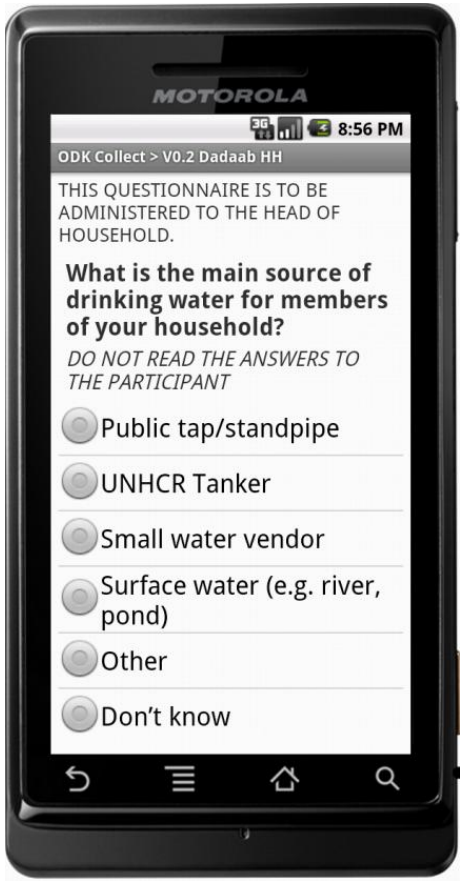
When using a paper and ink approach, provision for manual data entry needs to be made.

- Why use MDC? (1)
  - ✓ Faster to fill (skip patterns) and to compile (rapid or even live)
  - ✓ Data more accurate (no need to re-ente pre-coded ranges and restrictions)
  - ✓ Possibility to collect GPS coordinates, pictures or videos, scan barcodes

> *...the majority of respondents are using paper forms for data collection, yet it is worth mentioning that the data of more than 70% of the paper form surveys is then entered in electronic format. Most of the respondents (69%) record into a local database (Excel or Access); while 18% insert it into an online database.*
>
> (Extract from the NOMAD survey analysis)

- Why use MDC? (2)
  - ✓ Multi-lingual
  - ✓ User friendly; motivating for enumerators
  - ✓ Easy monitoring of team during the survey
  - ✓ If repeated, more cost effective
  - ✓ Environmentally friendly!

- Questions to ask (1):
  - ✓ Type of mobile devices (cost, availability, compatibility)
  - ✓ Link with your existing databases & analysis tools
  - ✓ Data storage & security (cloud, local)
  - ✓ One-time or reoccurring survey



- Questions to ask (2):
  - ✓ Network availability → synchronization type (Internet, SMS, LAN, manual)
  - ✓ Enumerators: own staff or partner
  - ✓ Technical level of staff (survey manager, supervisors), internal capacity building possibilities → time
  - ✓ Budget

- Best solutions depends on all these criteria
- A few examples *(not an endorsement!)*

OpenDataKit

- ✓ Open source solution for Android
- ✓ Widely used and base to many systems, new features are implemented first to it
- ✓ Free support by the community, contributions paid by sponsors are shared
- ✓ Very powerful and flexible
- ✓ Secured storage on your own servers

DoForms, Enketo, Kobo, Magpi, Majella…

- ✓ Commercial integrated solutions based on ODK
- ✓ User friendly, no need to own servers (cloud)
- ✓ Work on several platforms (Android, IOS, Windows M)
- ✓ Include analysis tools

FrontlineSMS

FRONTLINESMS

- ✓ Designed for alert systems and data collection through SMS (FrontlineForm)
- ✓ Open source & multi-platforms
- ✓ Widely used over the world, active community of users

openXdata

OPENXDATA

- ✓ Open source solution designed for low-cost smartphones (Symbian)
- ✓ International community of users (many universities)
- ✓ Flexible but less user-friendly

Humanitarian Data Toolkit

- ✓ Toolkit including hardware (computer, solar panel, scanner, phones…) and software for MDC
- ✓ Offline/online
- ✓ Offers analysis tools

HUMANITARIAN DATA TOOLKIT

- Challenges
  - ✓ Technical (IT) knowledge required and more training needed
  - ✓ Restructuring of the survey; less visual than a paper survey; establish different collection procedures
  - ✓ Electrical power dependant
  - ✓ Higher risk (security?)

Thank you for your attention!

http://humanitarian-nomad.org

humanitarianNOMADproject@gmail.com

@HUMnomad

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