



Expert Meeting: Crowdsource Mapping for Preparedness and Emergency Response



Christophe Bois and Sandra Sudhoff

<http://humanitarian-nomad.org/>



UNITED NATIONS | UNOOSA | UN-SPIDER

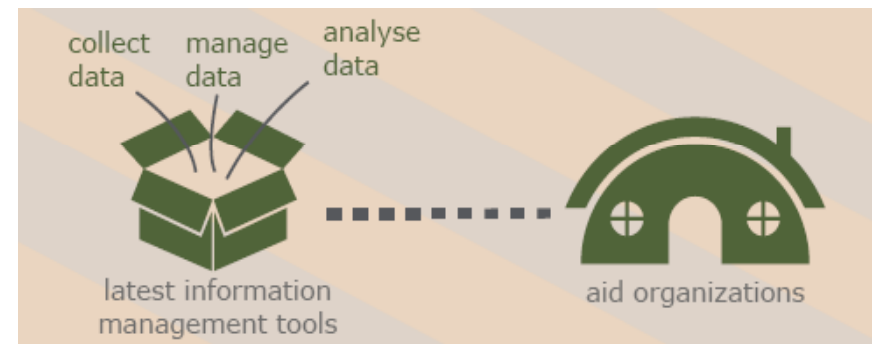
*United Nations Platform for Space-based Information for
Disaster Management and Emergency Response*



What is Nomad?

= humanitarian Operations Mobile Acquisition of Data

- ✓ **improve information management** for humanitarian organizations by linking them with the **latest mobile data collection technology to improve collection, analysis and management of information.**
- ✓ Using mobile phones and other gadgets to collect data helps aid agencies be **more efficient, cost effective, information-secure and reliable.**
- ✓ The team at NOMAD is made up of **humanitarians who are experts in mobile data collection and information management**





Who is Nomad?



<http://humanitarian-nomad.org/>

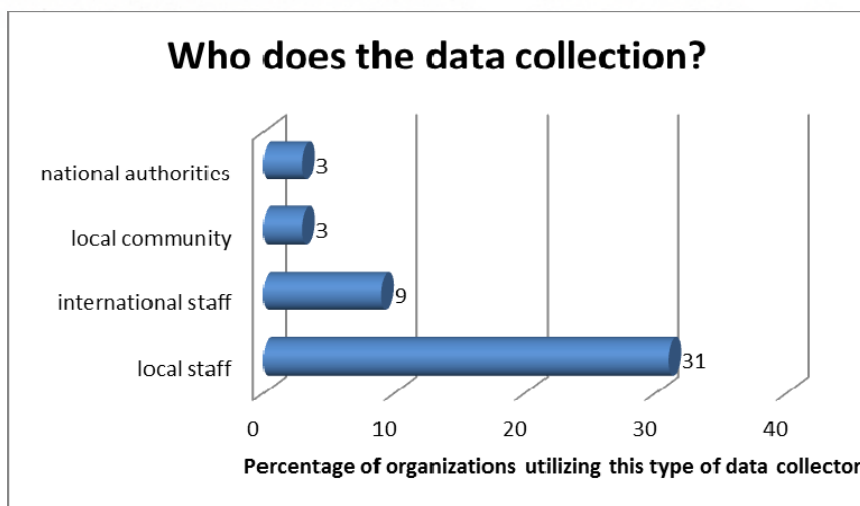




RESEARCH

Reports:

- ✓ NOMAD Use Case Study
- ✓ NOMAD MDC research report
- ✓ NOMAD IOM Pilot 2011 report



“

*...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.*

”



HUMANITARIAN OPERATIONS
MOBILE ACQUISITION OF DATA



MOBILE DATA COLLECTION WORKFLOW

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



symbian

Windows Mobile

iOS

android

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

Multiple OS supported

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.

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.

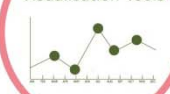
When using a paper and ink approach, provision for manual data entry needs to be made.

OUTPUTS

Data Reporting Tools



Data Visualisation Tools





Nomad Services

1.

Online Selection
Assistant

2.

Secondment
Service



NOMAD SERVICE

SEKIRTE

sous 1. Ekip Teren / list 2. Manmb Komite 3. Ajans kap jere kan a 4. Moun ki abite sou sit la 5. Lòt

Kiyès kap bay sekirite sou sit la?	1. Organize poukont yo/ komite moun ki abite sou sit la 2. Police/MINUS
Koman prezans sekirite a ye sou sit la?	1. Tout tan (24h) 2. Lajounen sèlman 3. Lannwit sèlman 4. Patwou
Nan Ka ensekirite repete, ak kiyès fanmi ki deplase yo repote sa?	1. Ajans kap jere kan an 2. Komite ki abite sou kan an 3. M

ABRI

sous 1. Ekip Teren / list 2. Manmb Komite 3. Ajans kap jere kan a 4. Moun ki abite sou sit la 5. Lòt

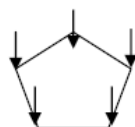
Nak ki tip abri moun sou sit yo ap viv?	1. Abri fortin (fè poukont yo) ↓	2. Ta
Pi bon estimasyon % oswa # de tip abri yo?	% oswa #	% OS
Kantite total abri (tout tip)	#	Eske abri yo vid? 1. Wi 2. No →

KAT ak FOTO

Fè yon desen de zòn kan epi pran kwen pwen GPS yo. Fè desen ah nan yon lòt papyè epi make pwen yo

Pwen 1	lat		lonj		Pwen 2	lat		lonj	
Pwen 3	lat		lonj		Pwen 4	lat		lonj	
Pwen 5	lat		lonj		Pwen 6	lat		lonj	
Pwen 7	lat		lonj		Pwen 8	lat		lonj	
Pwen 9	lat		lonj		Pwen 10	lat		lonj	

Fè kèk foto kan an



Field data collection form



Paper Survey VS Mobile Data Collection Survey

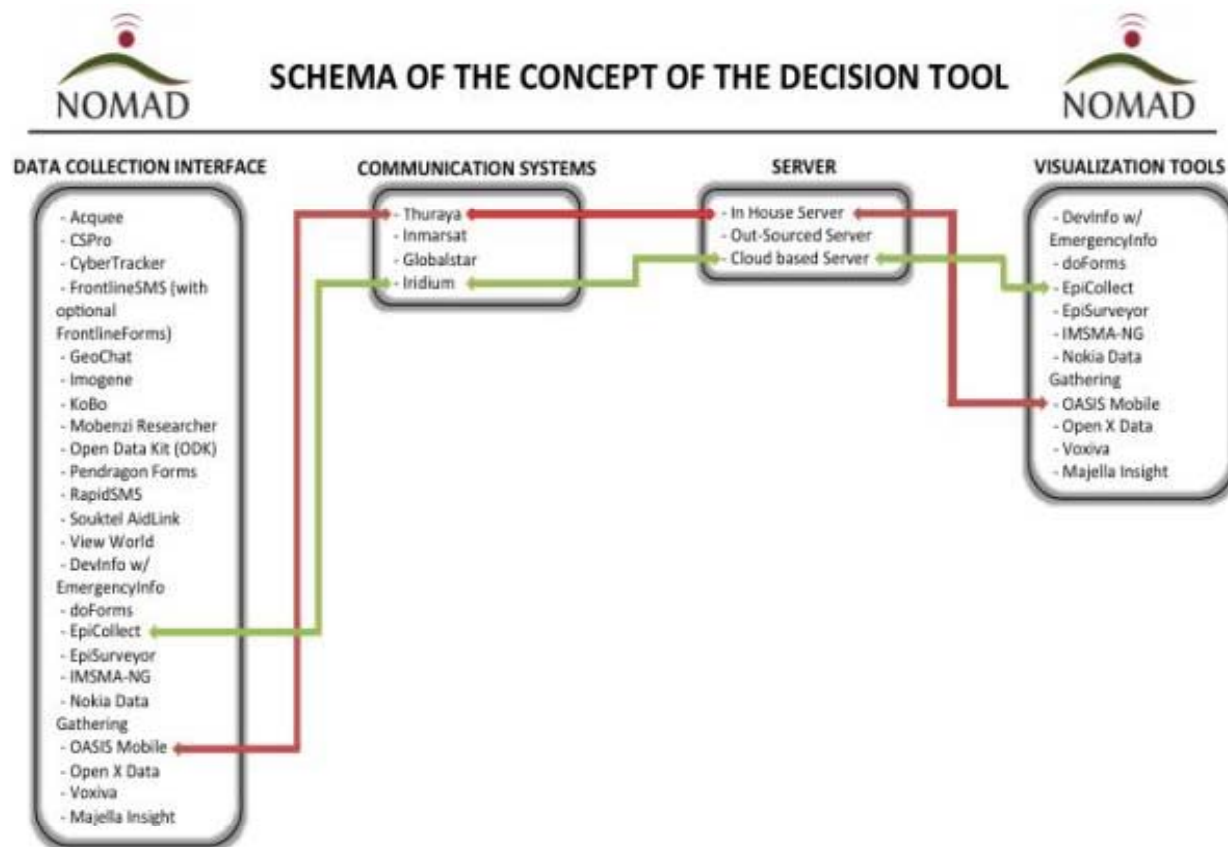
Product Comparison	<u>HTC Dream / G1</u> (not on market anymore)	<u>Motorola Milestone</u>	<u>Samsung I 9000</u> <u>Galaxy S</u>	<u>Sony Ericsson Xperia</u> <u>X10 Pro Mini</u>
	 Approx: € 400 *	 Approx: € 450 *	 Approx: € 440 *	 Approx: € 230 *
Entering data: Typing	++	+	0	++
Reaction of Touchpad	+	++	++	0
Display size	+	++	++	0
Display in sun	-	-	+	0
Camera	++	++	++	+
Offline GPS	++	+	-	++
Battery life	0	0	0	0
Recharging	-	+	+	+
Ruggedness	++	0	+	+
Price	0	0	0	++

Which Data collection interface?

- Apacheta -- <http://www.apacheta.com>
- Canvas Solutions -- <http://www.gocanvas.com>
- Dexterra -- <http://www.dexterra.com>
- Fivespark -- <http://www.fivespark.com>
- Geoage -- <http://www.geoage.com>
- Global Bay -- <http://www.globalbay.com>
- Global Relief Technologies -- <http://www.grt.com>
- inForm - www.skysoftsystems.com
- Mobile Active -- <http://mobileactive.org>
- Mobile Data Technologies -- <http://www.doforms.com>
- Mobile Forms - www.devicemagic.com
- MobileFrame -- <http://www.mobileframe.com>
- Open Data Kit -- <http://opendatakit.org>
- OASIS -- www.immap.org
- OpenROSA -- <http://openrosa.org>
- Open X Data -- <http://www.openxdata.org>
- Paper2Mobile -- <http://www.paper2mobile.com>
- ProntoForms - www.prontoforms.com
- Zerion -- <http://www.iformbuilder.com>
- Imogene <http://code.google.com/p/Imogene>



NOMAD
can help to
know
which one
is the best
for you!



	A	T	U	V	W	X	Y	Z
1	Parameter Category:				Interoperability and connectivity		Hardware featu	
2								
3	Parameter: Legend: BLANK in Green or Blue = No Colors: Green=verified; Blue=from documentation; Yellow=not yet answered; Pink=unknown/contradictory	Bi-directional sync of data	Forms can be downloaded/updated in the field	Sync tracking manages re-synchronization	Server/sync module export formats	Database auto-generated? (list formats)	Device OSES supported	Desktop OS required for tool
4	DCI: Data collection Interface	 DECISION TOOL STRUCTURE OF THE QUESTIONS  <pre> graph TD Q1[Do you already have mobile devices PDAs, smart-phones, etc. which must be used for your surveys?] -- NO --> Q2[Do you need an end-to-end solution? Answer 'NO' if you do not need a recommendation for a data analysis and visualization tool, because you already have one or because you will not be using one.] Q1 -- YES --> Q3[What operating system?] Q2 -- NO --> Q4[What data formats would you need to import into your analysis tool?] Q2 -- YES --> Q3 Q3 --> Q5[What operating system?] Q4 --> Q6[What data formats would you need to import into your analysis tool?] Q5 --> Q7[Do you need the survey data to be stored on your own servers ex. for security reasons?] Q6 --> Q8[Do you need the forms to be in any non-Western Latin character sets? Do you need full UTF-16 compliance?] Q7 -- YES --> Q9[List Server Applications] Q7 -- NO --> Q8 Q8 --> Q10[Does the staff who will create the forms have a basic understanding of databases and data structures?] Q9 --> Q10 Q10 --> End[] </pre>						
5	Acqee							
6	CSPPro							
7	CyberTracker							
8	EMIT							
9	FrontlineSMS FrontlineForms							
10	GeoAge							
11	IMOGENE							
12	KoBo							
13	Mobenzi Researcher							
14	Open Data Kit ODK							
15	Pendragon Forms							
16	RapidSMS							
17	Souktel Aidlink							
18	View World							
19	DCI / GDP							
20	DevInfo w/ EmergencyInfo							
21								

Tools & systems

decision to

```

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Start NOMAD MDC ongoing

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      </li>
    </ul>
  </div>
  <div class="menu">
    <ul>
      <li class="page_item">
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      </li>
    </ul>
  </div>
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    <ul>
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        <a title="Technical Components" href="?page_id=236">Components</a>
      </li>
    </ul>
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```



Interface

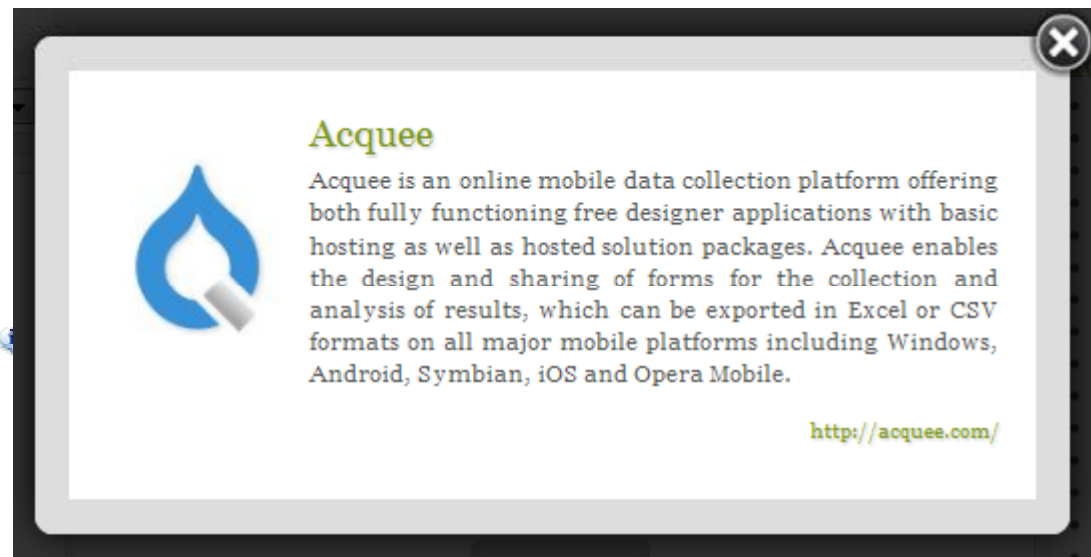
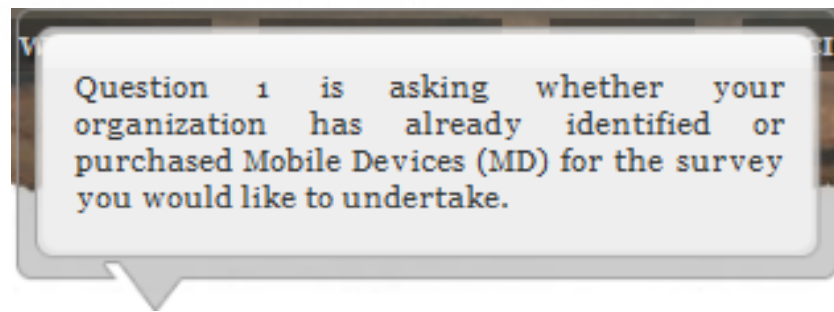
- Interactive forms including sub-list and navigation

The screenshot displays the NOMAD interface. On the left is a vertical navigation menu with a list of questions: Question 1, Question 1a, Question 2, Question 2a, Question 3, Question 4, Question 5, Question 5a, Question 6, Question 6a, Question 7, Question 7a, Question 8, Question 8a, Question 9, Question 10, Question 11, and Question 12. The main area shows "Q1a. Select the operating system(s)..." with a list of operating systems: Android (checked), Apple iOS, Blackberry OS (checked and highlighted with a dashed border), Symbian OS, Windows OS, and Other: (with an empty text input field). A "Continue" button is at the bottom. On the right is a "Mobile Solutions (15)" list containing: Acquee, do Forms, EpiCollect, EpiSurveyor, Global Relief, Imogene, Kobo, Majella, Nokia, Oasis, Open Data Kit, OpenX, Pendragon, ViewWorld, and Voxia. The NOMAD logo is at the bottom center.



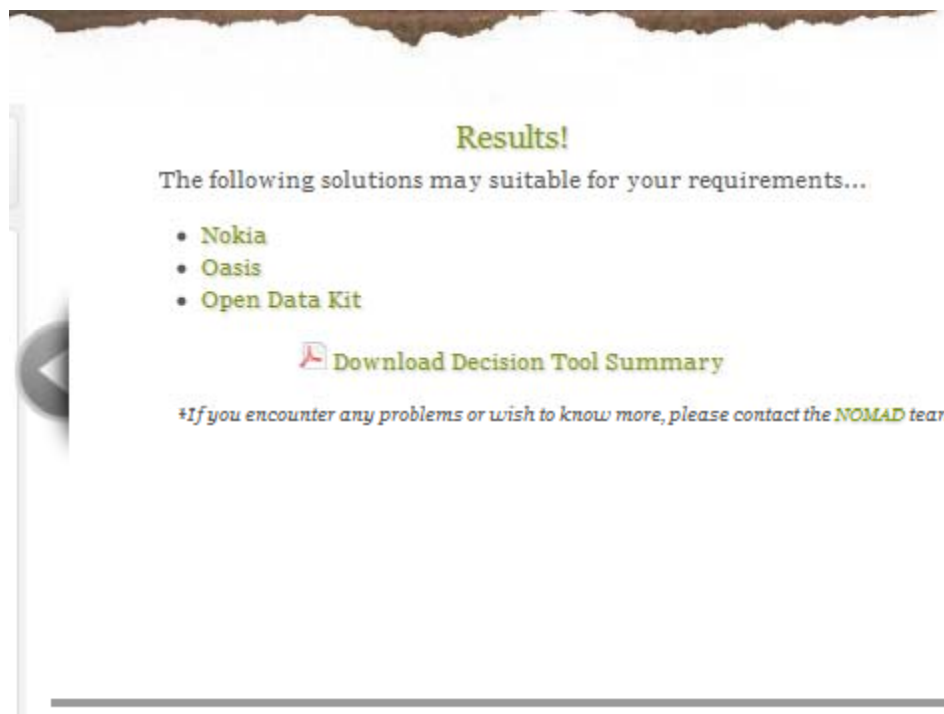
Interface

- Question tool-tips
- Instant access to details on mobile devices





- Summary results via PDF
- Registration for access to PDF

A screenshot of a "Sign in" modal window. The modal has a grey border and a close button (X) in the top right corner. It is divided into two columns. The left column is titled "Sign in" and "With an existing account". It contains fields for "Username:" and "Password:", a link "I forgot my Username or Password", and a "Login" button. The right column is titled "With a new account" and contains fields for "Username:", "Email:", "Password:", and "Confirm password:". All input fields are empty.



Interface

- PDF download

Technical Details Comparison Matrix (Continued)			
Feature	Frontline SMS	RapidSMS	Souktel
In what formats is data available for extraction?	CSV	CSV and Excel	CSV, JSON and XML
Does the solution auto-generate the database?	Yes (SQLite)	No	Yes (MySQL)
What is the Mobile Device (MD) operating system of the solution?	Any for SMS, Java for Frontline Forms	Any	Any
What is the desktop operating system of the solution?	Win, Linux and Mac	Linux	Any (web client)
What is the server/database platform of the solution?	Win, Linux and Mac	Not defined	LAMP stack (Linux, Apache, MySQL, PHP)





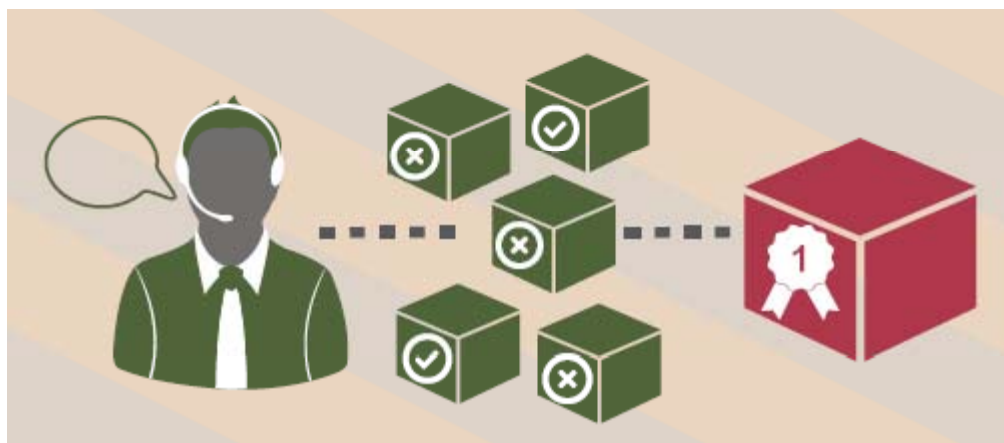
NOMAD SERVICE:

- 1. To help Humanitarian organizations on having a global understanding on what a Mobile Data Collection Solution (MDCS) could do for them.**
- 2. To advise about solutions and cost fitting with their objectives and technical requirements.**
- 3. To help them to implement a MDCS.**



GOING BEYOND: HANDS-ON SUPPORT FROM NOMAD

Once you know what mobile data tools to use, NOMAD team members **can train your organisation's staff** how to use the tools and analyse the data. If suitable, NOMAD can also **join your operation** to help with the data collection process. NOMAD's experts are not just information management specialists; they're also humanitarians with real, hands-on experience implementing mobile data solutions in the field.





Next Steps:

- ✓ Remodel webpage, including easy form update of the solutions features
- ✓ Update all featured tools and add a few new tools
- ✓ Organise NOMAD “Tool fair” to bring solutions providers and end users together



THANK YOU

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<http://humanitarian-nomad.org>



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