



Open Knowledge
Foundation

Cover title

Cover subtitle

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Table of contents

1. Getting Started	3
1.1 When, Where and How	3
1.2 Setting up your team	3
2. I am the... Project Manager	5
2.1 Introduction to the role	5
2.2 Timeline of the tasks	5
BEFORE	5
DURING	5
AFTER	5
3. I am the... Survey Designer	7
3.1 Introduction to the role	7
3.2 Timeline of the tasks	7
BEFORE	7
DURING	7
4. I am the... Trainer	8
4.1 Introduction to the role	8
4.2 Timeline of the tasks	8
BEFORE	8
DURING	8
5. De vocas quod	9
5.1 Maduere pars admovit fixus	9
5.2 Limitibus vera adscendit peccare adspiciens	9
6. License	10

[English PDF version](#)

1. Getting Started

So you have a project in mind, and it requires collecting data using mobile phones. Or maybe you already started collecting data, but your pen and paper method is showing its limits. And on top of that, your experience of mobile data collection is close to zero. Have no fear! You've arrived at the right place.

The spread of cheap smartphones, which started during the 2010s, allowed the potential of mobile data collection to be unlocked. A multitude of projects, from urban mapping to the surveying of remote communities, dropped their previous cumbersome methods (pen and paper, specialised suite of hardware tools...) to switch to collecting data using the now-ubiquitous smartphone.

But a tool can only do so much. Correctly collecting data in general requires a mix of knowledge and skills that no smartphone will replace. And if your project is of any significant size, creating an interdisciplinary team with the right mix of skills will be vital to its smooth and successful execution.

But before detailing the role of each team member, let's review the when, where and how of collecting data.

1.1 When, Where and How

Obviously, you can only collect data to which you have access. The first part of defining a data collection strategy is understanding when or where will the act of data collection will take place.

WHEN applies to something that goes through different steps of a chain: for example, a fish is first caught on a fishing boat, then brought to a harbour, sent to a storage room etc.

WHERE applies to the location where you might have to go to do the data collection: you will not be able to bring the same equipment on a boat or in a office building.

Once you have your answer, you need to define HOW you will collect the data. It could be : - using one or several existing database(s), - using forms, questionnaires and interviews, - using direct observations.

Direct observations is making direct measurements of the subject being studied (like the number of buildings in need of repair after an earthquake), rather than using indirect measurements, such as databases or testimonies from people knowledgeable in the field. Most often, direct observations are made by human observers, sometimes with the aid of specific equipment: pollution sensors to measure air pollution, Geiger counters to measure radioactivity, smartphones to record visual observations and, potentially, sound.

As you may have guessed, this guide will focus on direct observations using smartphones to collect data. Any additional or process-specific content available can be found on the dedicated website, in the +RESOURCES section.

test image

1.2 Setting up your team

Collecting data using smartphones has many advantages in terms of ease-of-use and cost- reduction, especially over the paper based method: - they are available in sparsely populated areas, which means that the act of collecting data can be, if needed, crowdsourced by people living in the field; - they often feature at least a basic camera and sound recorder, which allows for multimedia data collection; - the results of the data collection can be sent in real time, provided an internet connection is available.

But there are many ways in which smartphone data-collection can go wrong, making the whole process costlier and more difficult than it should be! This is why a dedicated preparation phase is vital.

To give you the best overview of the tasks involved in collecting data, we've divided them into the four key roles that feature in a data collection team. These functions aren't rigid, of course: your team members may be able to cover multiple roles or there may be a sub-team focused on a particular area. Your choice of resource allocation should encompass the level of expertise of each member, the scope of the project, and the budget available.

2. I am the... Project Manager

2.1 Introduction to the role

"I am responsible for overall management of the survey. I define the project goal and I'm responsible for all the major decisions that need to be taken during the project. I'm also responsible for communication amongst the survey team, to make sure that everybody is on the same page. I report the project status, maintain a record of lessons learned and lead retrospectives."

2.2 Timeline of the tasks

BEFORE

I design the project along with the other stakeholders: this involves deciding on a clear goal (the objective), identifying a question that the project will seek to answer, and defining the requisite data to be collected. Example: What is the state of Kathmandu buildings after the earthquake?

I write down the work plan, which details the necessary steps of the data collection project, their sequence and their coordination.

I budget the project. Mobile data collection projects have particular costs that need to be considered (hardware, data transmission, data aggregation, software maintenance) along with more general costs (insurance, personnel...).

I identify the best device for the survey: smartphone vs tablet? Battery-life needed?

I make sure that the training is properly conducted and that enumerators are sufficiently skilled to carry out the data collection.

DURING

I ensure that enumerators are actively collecting data and communicate progress to stakeholders, as appropriate.

AFTER

I supervise the analysis of the data.

I consolidate the results in a report that is presented to the stakeholders.

Best practices

Be clear on the goal

Throughout the project you will need to take major decisions and being clear on your goal throughout will help you with this, as well as saving time in the project's later stages.

Define a project workflow and protocol

This serves two purposes: it ensures that all your stakeholders are on the same page, that they have similar expectations as regards the expected rate of progress. Secondly, it streamlines the reporting part of your role: everyone knows what to expect and when.

Pick the right device for your data collection needs

There are lots of mobile devices on the market and choosing the right one can be difficult. You'll need to consider points such as smartphone vs. tablet, battery life, GPS accuracy, camera and app compatibility.

Provide different options for uploading data

If your survey requires media inputs, data uploads might cause concerns around cost (data charges) and logistics (limited coverage of phone carriers). One approach, available in software like KLL Collect, is to upload the data right away, then only later submit the media attachments. Another one is to use swappable memory cards and assigning a runner to collect them for later upload.

Have a Plan B

Things won't always go as planned, so you'll need to have a contingency plan for everything: what if a device stops working? What happens if a server goes down? What if the GPS doesn't work as expected? Is there a process for backing up the data?

Make sure that a mobile data collection process is the right choice

Mobile data collection might not always be the best idea. Sometimes paper-based survey or web based survey makes more sense than using mobile based data collection. This is the case for small surveys with low data entry cost where real-time updates are not necessary or data collection projects where mobility and internet connection are not an issue.

3. I am the... Survey Designer

3.1 Introduction to the role

"My mission is to construct questions that elicit just the right data from the survey's respondents. I have to make sure questions are not ambiguous and are as straightforward as possible, encompassing complexity and subtleties in a way the respondents fully understand. My role also has a large visual design element: I ensure the survey looks appealing and is engaging to complete."

3.2 Timeline of the tasks

BEFORE

I examine the research design and project plan and identify the key information the survey needs to cover.

I begin drafting the different fields that will need to be filled, or questions that will need to be answered.

I design the survey for smartphones, making sure it is fully functional for the platform.

In collaboration with the rest of the team, I assess the quality of the survey questions during the pilot study.

DURING

In collaboration with the rest of the team, I provide support to the enumerators in the field, as necessary

Best practices

Questions: the fewer, the better

If the survey requires interviewing people, a good number of questions is 10 or below. Similarly, the more fields enumerators have to fill, the more errors they will tend to make.

Be practical

The survey should be designed with the phone screen(s) it will be read on in mind. Because the screen estate is often very small, superfluous elements such as graphics, having the title on every page, the progress bar etc should be avoided. One question per page is a good idea.

Optimise the user experience

To avoid errors and allow enumerators to focus on one question at a time, a sequential, single question display should be used. The previous/next buttons should be obvious and visible. Lastly, answer confirmations help avoid mistyping.

Make sure that the logic of your survey is sound

Testing your survey beforehand allows you to make sure that mandatory fields can not be skipped, that the survey reacts correctly when incorrect data is entered and that the pre-filled fields display the correct information.

Include a post-completion review

Wherever possible, the errors in data entry should be corrected in the field, when the context of the error is still there. Good practice is then to allow a review of answers before sending data to the server.

4. I am the... Trainer

4.1 Introduction to the role

"I run the training sessions that will help interviewers, or enumerators, learn the skills they need to perform a successful data collection with participants. Even if the survey is well designed, the quality of the data collected through the interviews depends ultimately on the data collection skills of the enumerators. I make sure they get acquainted with the mobile devices and the mobile app used to conduct the survey."

4.2 Timeline of the tasks

BEFORE

I get to know the survey, the mobile devices and the potential difficulties that enumerators might face on the field.

I plan and organise one or more training sessions for enumerators, pre-empting all potential difficulties.

I work with the survey designer and data manager on the pilot study to help flag mistakes done by enumerators.

DURING

In collaboration with the rest of the team, I provide support to the enumerators in the field, as necessary.

Best practices

Vary the teaching formats

The training should include demonstrations, hands-on and Q&A sessions, ideally spread over a few days.

Additionally, there should be sessions on core survey content, damage assessment training, proper utilization of fields guides, etc.

Supervise the pilot study

At the end of the training, having a trainer supervising the pilot study is very useful to help clear out any doubt enumerators might have and identify the points which might need further training.

Don't assume anything

The training should cover everything, from an explanation of the context of the survey to the way to take useful photos, to details of the mobile device's features: GPS, Auto-Rotate, System Date and Time...you generally can't predict with what your enumerators will be familiar.

Leave room for questions and feedback

Paper copies of the survey may be useful in the first instance, so that enumerators can annotate and make comments on the fields or questions of the survey. Encourage everybody to ask questions, even if they fear that the question could be stupid!

Prepare enumerators for the worst

It's almost inevitable that something will malfunction during the survey. Enumerators should be able to reset or reinstall problematic software.

5. De vocas quod

5.1 Maduere pars admovit fixus

`Lorem markdownum rapidi` foret votisque primoque. Cursu tenues sacrificos tumere. Feruntur positoque curaque Priamidenque aegre Pallada crimenque ulcisci at silentum donec, digitis modo quam cortex secessit in finem! Pone enim late curribus corpora; sub nulla auctor inops dabatur pavent quamvis bracchia *refugitque*. Parva ubi caeca **caro omnem** divisi ratione Hectoreis urbem latratu operique herba, illa, tabent!

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title_denial_reader(passive_bar_pcb, user_codec_matrix);
var meme = 4;
disk_bloatware_leopard = ataMidi(-1, 4) + 1;
ebook_inkjet_click = characterHardVersion.ipxDvdRup(spiderWeb(file, 3,
raw_name));
```

Mora poscit, iuvenis una `odit cui` parentem Thyesteis requieque illa suppressa ullos. Et Thracia intrarant flumine, me quodque et devicto quid leto ventis. Nurumque vivebat tune quas; ista visa gaudere. Crimina versat, ubi, circumtulit haec, talum dat, fata.

5.2 Limitibus vera adscendit peccare adspiciens

Simul inter verba, nudis inferiora ad mora certe diffudit est pharetras, ubi arva nec fatigat atria deponere: munera. Toto petentem **nubibus** credar aestibus quattuor si ille non timido ferre, frondescere. Ponit *adsilientis*, litora ea cratera, utrumque Quirini fugiunt?

Teque fleverunt quinque Achivi. Me adhuc ait quaque **commune modo magni** rigidis belli dracones *primus*, illi tradita ad puppe tecum sanctis. Veteris Hesperus **contra furor futura** aera, aequora si monuere invadere procul. Verba vimina concutiens perenni findi ferrumque quam terrent solebat dolore **neci albas famulis** suffusa iuvenalia duabus.

Et tandem dapibus. Sed cui Cillan bracchia, nurusque est; sub litore ore senili materna! Cupidine Pergama *Theti de nostris* tellus sede, exhortatur suorum, dolens *argumenta loqui*, abstinet timoris **tantum**.

Gelido illa et Iuno domos alios praecipuum Antiphatae quid ab numen coniugis femineis nunc. Non iras arbore, vocum tauri comitum recurvatis fuit dum tribus!

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