FREQUENTLY ASKED QUESTIONS:
Using Mobile Data Collection in the LAUNCH Project

The USAID-funded Liberian Agricultural Upgrading, Nutrition & Child Health (LAUNCH) project, initiated in June 2010, aims to reduce food insecurity and chronic malnutrition of vulnerable women and children. LAUNCH's strategy includes distributing food aid and establishing community care groups to provide health and nutrition education to pregnant women and mothers of children under two. In April 2012, the program started using a mobile data collection system designed to streamline the beneficiary registration and monitoring and evaluation processes. In the year since implementation, the use of mobile phones has dramatically decreased the time between beneficiary registration and the receipt of beneficiaries' first food ration. The project has also used the mobile system to collect monitoring information that provides key data to identify gaps in program implementation. This document summarizes the key questions for programs looking to implement a similar system.

1. What is mobile data collection?

Taking advantage of the increased power and availability of "smart phone" technology, mobile data collection enables a user to collect data via mobile phone or tablet computer - thereby replacing traditional data collection using paper-based forms. Generally associated with a cloud-based platform, a user(s) designs data collection forms using a web-based application and downloads them to (a) compatible device(s). When the forms are filled in, the data is uploaded to a server using mobile phone data networks (i.e. General Packet Radio Service (GPRS)) or Wi-Fi (where available). The data can then be easily accessed online and is immediately available for reporting and analysis. Mobile data collection applications also utilize the advantages of computer programming to include decision support within the forms such as requiring respondents to answer a question before proceeding to the next question, or skipping a section based on responses in a previous question.

While many different mobile data collection tools and applications have been developed (e.g Mapgi Mobile, iFormBuilder, FormHub, ODK Collect, KoBo Toolbox, CommCare etc.), most are specifically designed to allow one to collect and store data offline (i.e. out of mobile network range) and then upload/sync when back in mobile network or Wi-Fi range. This makes it feasible (and easy) for use in low resource settings.

IMPLEMENTATION

2. Why did you choose Magpi for mobile data collection?

Magpi[1] is user friendly, easy to learn, requires no programming experience and is relatively inexpensive. It also has a free trial membership that allows program implementers to learn and practice before committing to the platform. JSI previously used Magpi (formerly known as EpiSurveyor) for mobile data collection around the world.

---

[1] Magpi Mobile is a mobile software application designed by DataDyne.

In Liberia, both the Rebuilding Basic Health Services (RBHS) and the USAID|DELIVER projects used the program for data collection. This built confidence that the application would be appropriate for the type of data collection envisioned by LAUNCH.

3. What kind of data is LAUNCH collecting using mobile data collection?

The LAUNCH project is collecting information to register beneficiaries to receive food rations. LAUNCH is also collecting routine monitoring data, such as data on nutritional practices and market prices, and household data, including the annual monitoring surveys.

4. How many questions can be on a form and how many forms can you create?

A Magpi pro-user (paid) account gives access to an unlimited number of forms, with an unlimited number of questions, and stores an unlimited number of records per year. With a free account on Magpi, one is limited to 20 forms per year, a maximum of 100 questions per form, and can store up to 500 records per form.

5. Who collects the data at LAUNCH?

The project did not hire any extra staff to collect information with mobile devices. The mobile data collection became a routine part of daily work and the mobile phones became a daily work tool for staff based in field offices.

6. How much time does it take to train staff in mobile data collection?

The first training for LAUNCH in mobile data collection was four days: two days in the office ("classroom") and two days in the field. Staff using the phones to collect survey data (as opposed to simply registering food aid beneficiaries) received an additional day of training where they learned to use the mobile application and to make sure they were comfortable working with the phones.

7. How much time does it take to train staff to design and manage Magpi forms online?

From the beginning, LAUNCH had one employee (with previous Magpi/EpiSurveyor experience) dedicated to training other project staff in Magpi online platform and providing ongoing support. Designing and managing forms on Magpi is relatively easy to learn but can require general trouble shooting and an initial learning curve. This is especially true when it comes to creating logic skip patterns in new forms and setting up user rights (i.e. who has access to view download, and/or edit the data).

8. What are the challenges in starting the system?

The baseline levels of phone/computer literacy of staff was varied, but through training everyone involved has been able to learn the technology. This has ensured that they are all entering data consistently.

Another early challenge involved locating "hotspots," network areas with strong network signal (i.e. two bars or more) so data could be transmitted.

An additional challenge for any program which requires staff to use project phones is asset management. Protecting the phones from weather damage, loss, or theft requires forethought and problem solving. LAUNCH instituted strict policies of who can check out the phones and when they are allowed to do so, and provided plastic bags and backpacks to staff so that they could protect the devices with no excuses.

9. How has mobile data collection improved the LAUNCH program?

Mobile data collection has rapidly improved the use of information by project managers, by accelerating the transfer of information from the field up to the central level, and by relieving previous challenges caused by a lack of computers, slow internet, lost paper forms and slow data entry, It has also allowed central level staff

to monitor and supervise performance of field staff as they submit data. On the whole, staff report that they enjoy using mobile phones for data collection and that learning a new skill provides new motivation to better perform their reporting tasks. Many field staff using the phones had minimal previous experience with computers and/or email, and they are happy to have this opportunity to become more familiar with technology.

10. How has mobile data collection affected data quality?

Mobile data collection does not remove the need for training and supervision to ensure quality program data. Data is generally cleaner than when generated by paper-based forms for several reasons:

1. **Computer programming when designing forms** - During the design of the form, program managers can ensure that responses are filled in properly using the basic programming features available as part of the software. It is possible to limit responses options so only numeric answers will be accepted, or only a single option for multiple choice questions. The software can also be used to create question constraints such as, minimum and maximum values for numeric responses, forcing an answer to the question before advancing to the next one, or programming a question to be skipped based on a particular response in a previous question.

2. **Direct data entry** - Since data is entered directly into the mobile phone, mobile data collection removes the need for a separate data entry step. This means that there are fewer people handling the data, no potential for error due to handwriting issues, and no room for further mistakes in the data entry process.

3. **Real time viewing of data collection** - Since data is uploaded to the server generally within hours (or at the highest end, a day) of being collected, supervisors are easily able to monitor and quickly identify errors. With the ability to detect errors immediately supervisors can provide feedback while data collectors are still in the field and can make corrections.

An additional benefit of the data collection software is that administers can specify data access privileges to individual staff. Since only those with access can edit or download the data, the mobile data collection tool reduces opportunities for tampering with data and helps ensure integrity of the data.

11. How does mobile data collection improve analysis?

Mobile data collection does not automatically improve analysis. It allows for quick transfer of data, which facilitates timely analysis and feedback. Magpi's online dashboard provides some basic analysis functions, but it is often more useful to take advantage of the ability to export the dataset into Excel, Access, or any statistical package, such as SPSS, for more advanced analysis and interpretation of results.

LESSONS LEARNED

12. What phones do you recommend?

LAUNCH currently uses the Nokia E-63 and E-6 models. These are the phones which have used most frequently by other JSI projects worldwide. Though these phones were state-of-the-art at the time LAUNCH added the mobile data collection component, the Symbian operating system which these Nokia phones use is currently being phased out. For this reason, JSI and many other organizations are switching over to phones that use an Android based operating system. The cost of Android phones is also dropping to a comparable level to that of the Nokias.

In general, its recommended to use phones that are available on the local market, have a relatively large screen and a long battery life. Examples of phones that currently meet these conditions (in Liberia and many

other African countries) include: the LG Optimus Sol E730/f, Samsung Galaxy Ace S5830, Samsung Galaxy Ace Plus S7500, and Samsung Galaxy Ace 2 I8160.

13. How much does implementing a mobile data collection system cost?

The initial start-up costs for the LAUNCH system was a year subscription to Magpi, which costs $5000 and allows the project to collect 10,000 records. A record is the submission of one form. For example, one interview or registration file is a record. Datadyne also offers a yearly subscription for $10,000 that allows the user to collect up to 20,000 records.

The phones, including the cases and shipping, cost $250-$300 each. Eight phones were originally purchased in the US, and eight more were purchased locally in Liberia. There were small additional costs for phone accessories like car chargers and backpacks to protect the phones.

Additional costs when starting up that should be considered, but cannot easily be quantified, are staff time for training data collectors and providing close supervision during the roll out phase. This cost could also include in-person or remote technical assistance from a home office, in addition to the time dedicated by in-country staff to training. After the initial start-up, on-going costs include staff time routine data collection activities, supervision, trouble shooting and analysis, as well as airtime for the phones. LAUNCH had a consultant dedicated to this for over one year and two visits by headquarter technical advisors.

14. What service provider do you recommend?

In Liberia, LAUNCH uses LoneStar cell provider because the mobile network coverage is best in the project's operational counties. It takes about $5.00 USD of phone credit per month to send all the data on a given phone.

As mentioned earlier, data can be sent at any point there is mobile network connectivity. Records collected in Magpi are relatively small (~1kb) Most mobile providers automatically provide a data plan with 3G(eneration) or 4G network connectivity, although some configuration of the phone might be needed to access the data portion. It is important to consult the national mobile network providers in the country of operation to check on rates and coverage.

15. What band-width is required for using Magpi website?

Program managers/supervisors require a computer with an internet connection when they are creating and managing forms or accessing data on the Magpi website. It is hard to say exactly how much band-width is required to use the Magpi website since internet speed can vary by provider, modem size and other users' activities. The program (both the mobile application and website) is designed to be used in low resource settings, however internet speeds vary country to country. In Liberia, it is able to function, however at times the speed is too slow to load the program, especially outside of the capital.

In general, it takes about 240 kb to load the main Magpi homepage. Subsequent pages can take between 5-35 kb to load depending on the amount of data that it already contains. For example, viewing the data tab (with 5 or 4000+ records) takes ~15kb while creating a new form (or viewing questions in the design tab) takes ~33kb. Adding new questions to a form takes ~1kb of data.

LAUNCH is managed by ACDI/VOCA in collaboration with Project Concern International (PCI), John Snow, Inc. (JSI) and Making Cents International (MCI).