magpi

Remote Data Collection Guide

How to use Chat, SMS and IVR to collect more data, for less money, from remote respondents using any mobile phone

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Introduction: When "Go-to-Field" becomes "Get-from-Field"

Over the last twenty years, an important change has occurred in the options for mobile electronic data collection. Initially, when devices were scarce and expensive, the only option was to have highly-trained data collectors carry mobile devices to the field – much as they had previously carried paper forms on clipboards.

In some cases, this approach – let's call it the "go-to-field" approach – still makes sense. You may need a data collector with specialized understanding and training to go to the field to make an evaluation of some kind that simply can't be done by those already in the area. An example might be sending a nutrition expert to the field to evaluate children at a school. Or the data may need to be collected by someone specially authorized, like a building safety inspector.

As mobile devices have gotten less and less expensive – and, let's not forget, as millions worldwide have climbed out of poverty – it's become quite common that we see a mobile phone in every person's hand, or at least in every family, and this means that we can utilize an additional approach that was simply not possible before. We can call this the "get-from-field" approach: people already living or working in the remote[1] sites can send in information via SMS or IVR (interactive voice response) or Chat sometimes via an app if their devices supports apps. If we are using IVR, the person sending in data does not even need to be literate.

Less Money Means More Data

This change from a situation where ALL data collected had to be go-to-field, to one in which some portion of that data can be get-from-field, means that fewer people need to physically be transported and accommodated as they travel, and this means **dramatic decreases in the cost of acquiring information from remote locations**. Read more about comparative costs of remote vs go-to-field data collection.

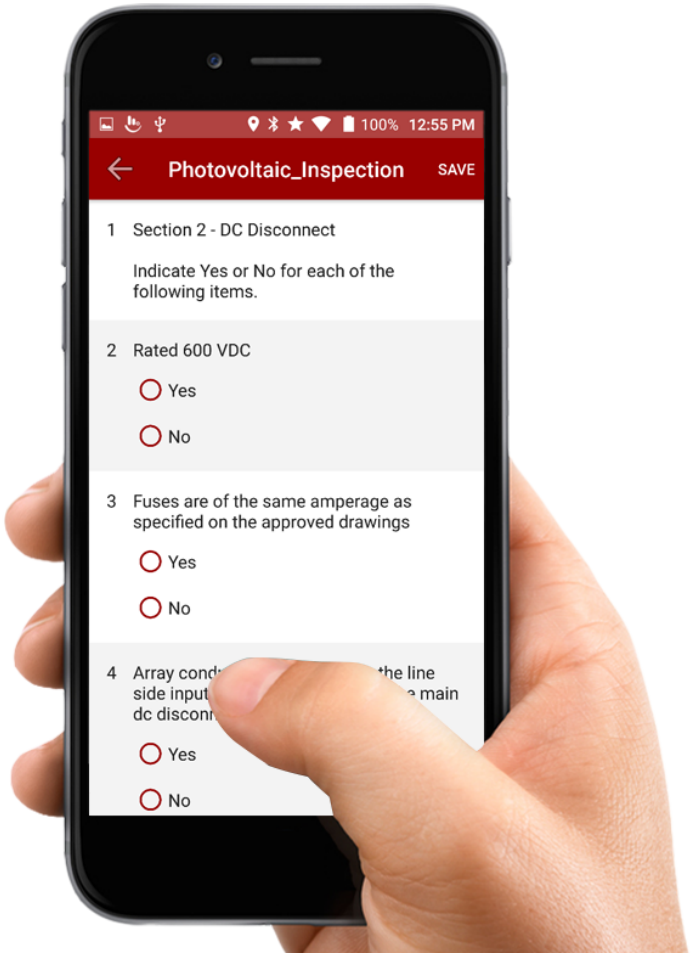
The volume of data that we are gaining access to is also increasing, both because as the cost of a unit of data drops we can afford to "buy" more, but also because our devices are in many cases generating data as a side-effect of their operation. As an example, even basic phones are generating location data all the time, that we may be able to tap into. Not to mention the rising tide of social media and other posts.

[1] Note that by "remote" we don't necessarily mean rural, just "not close to the person who wants the data". So if I am in Nairobi and I want to get information from another city in Kenya, the respondents in that city are remote from me, but certainly not rural.

What About App-Based Data Collection?

In addition to Chat, SMS, and IVR “remote” data collection tools, which enable data collection without sending data collectors to the field, Magpi also offers mobile apps for Android and iOS phones and tablets that enable offline data collection by dedicated field data collectors.

Read more about app-based mobile data collection.

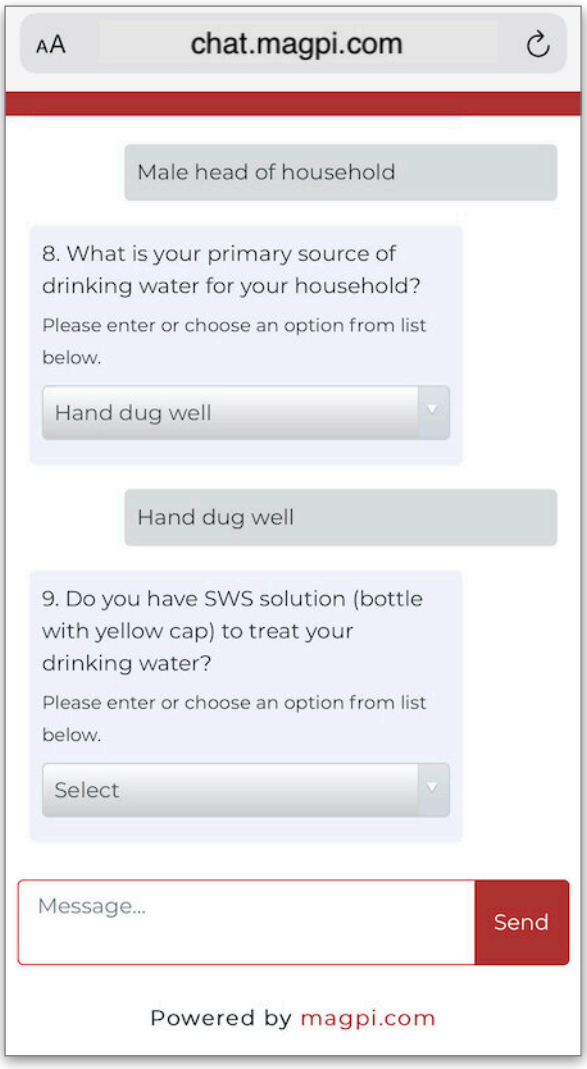


Magpi Chat: the Latest Low-Cost Way to Collect Data

As you'll read further on, Magpi has both SMS and IVR (interactive voice response) methods of having people send data to you — instead of you having to go to them.

Over the decade or so that we've offered these options, our users have had great success — but they've also told us that these methods can be complex and expensive. This is especially true of SMS systems:

- **expensive** — SMS typically charges a per-message cost that can really add up
- **incompatibilities** — many local mobile carriers don't follow mobile standards perfectly, which can lead to incompatibilities with Magpi-generated SMS messages
- **respondents have to pay** — respondents in the field are usually charged for their messages — and it's very difficult and expensive — sometimes thousands of dollars a month — to arrange with a local mobile carrier so that this isn't the case



We've pushed ourselves to find a better way, and as of 2021 we've found one: Magpi Chat. Magpi Chat sends the respondent an invitation by SMS or by email, and when the respondent clicks the invitation link Magpi creates a familiar chat interface in the device browser (of a phone, tablet, laptop, or desktop).

Although Magpi Chat looks a bit like SMS, it is internet-based (like iMessage or WhatsApp), which means it is much, much cheaper than SMS. No per-message charges!

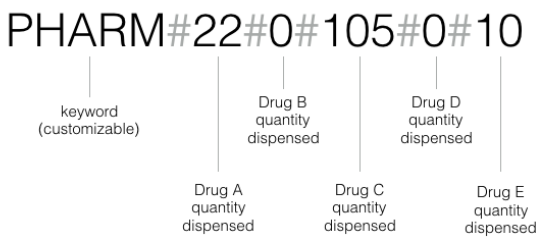
Plus, because Magpi Chat is internet-based, it's more functional than SMS: we've built in some user interface elements (like multiple choice pull-down menus) that make it easier and faster for respondents to respond.

The only requirement for Magpi Chat is that the respondents' devices must have a browser and at least basic internet access (even slow internet works).

Learn more about Magpi Chat.

Structured SMS: Collect Simple Data with a Single Text Message

Structured SMS involves sending several data variables (i.e. the answer to several questions) in a single SMS message, as in this example where a pharmacy clerk can report the weekly quantity dispensed for the five most important drugs in her stock:



As shown, in order to report the amount dispensed for five key drugs, the clerk just needs to send a text with a keyword (usually the form name, but customizable), followed by each of the pieces of information, separated by # characters.

Advantages to Structured SMS

- easy to set up: beginning user can create system in under an hour
- a single text message can send multiple pieces of data
- fewer text messages means lower costs
- any language or alphabet

Disadvantages

- no “interface" or instructions displayed on the phone, so the user must be told in advance what questions they are answering, usually via training or a printed or other reference
- limited to the amount of responses that fit in a single text message (160 characters in total)

Best Use

Situations requiring the sending of simple data, especially if the data is sent repeatedly and frequently (because this reinforces the procedure in the user's mind)

Examples

- clerk sending stock orders: stock#A55-1#100 (ordering 100 units of part A55-1)
- maintenance staff reporting maintenance issues: repair#SE corner#drainpipe detached#replace (reporting a detached drainpipe in the southeast building corner and recommending replacement)

Cost Considerations

In order to use structured SMS, you will need a paid Magpi subscription (starting at $417 per month for an annual Pro account), and this includes instant, built-in connectivity to almost every mobile carrier system in the world.

Outgoing SMS Messages

If you create a Magpi form to collect structured SMS data, you can authorize users in any country to start sending data into the system, and each such person will receive a text message on their phone telling them that they are authorized. Those outgoing authorization

messages, billed via Magpi, typically cost only a few US cents or less per message.

Incoming SMS Messages

Each authorized respondent will be sending text messages back into the system, of course, and it's important to know that *those* text messages will be billed against that respondent's mobile carrier plan. By default, those respondents will be sending an *international* SMS – and this can mean $0.50 or more per message.

For this reason, many Magpi users set up and pilot their systems using the built-in connectivity, because it's easy and quick – but then, when they want to scale the system they set up a "local gateway" in the respondents' country. The local gateway provides a local phone number for respondents to report to and then forwards their texts to Magpi, allowing them to send local SMS messages, rather than international ones.

Setting up a local gateway, luckily, is a very simple and rapid process that requires only an Android phone, a local SMS, and an internet connection (see link below for further information on local gateways).

Reporting zero suspected cases of Ebola, with automated acknowledgement

How to Create a Structured SMS form with Magpi

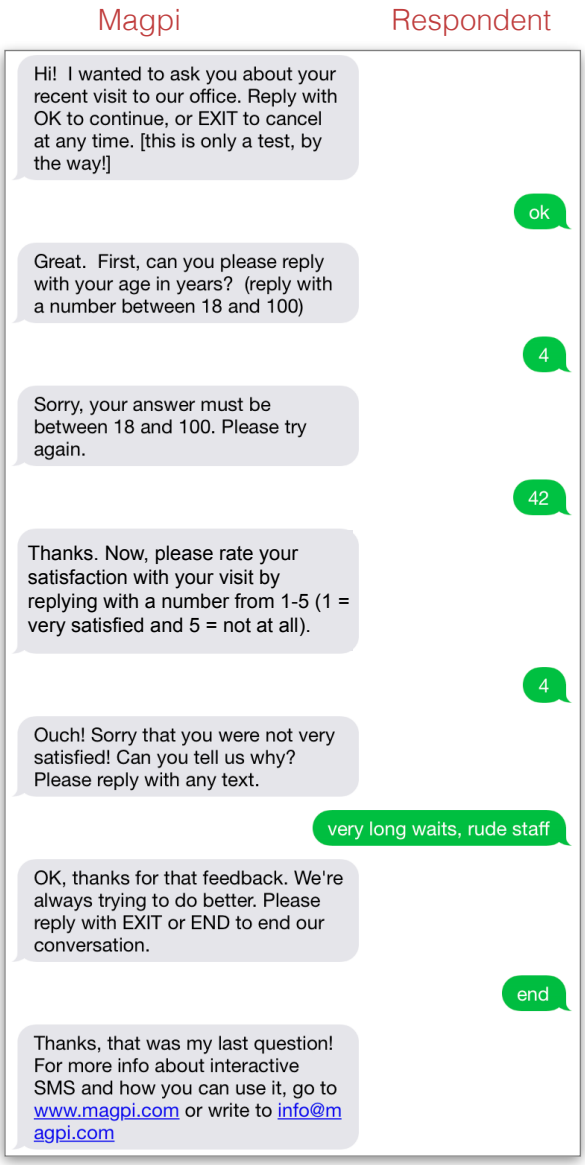
How to Deploy a Structured SMS Form with Magpi

Setting up a Local Gateway for Structured SMS

Schedule a structured SMS demo

Interactive SMS: Collect Complex Data via Automated SMS Chat

Unlike structured SMS, in which a full data record (i.e. a full set of questions) is sent in a single text message, interactive iSMS (iSMS) creates a back-and-forth “chat” between the Magpi system and the respondent, as in this example of an iSMS session designed to ask a customer about their satisfaction with the service they have received.



As you can see from the example above, the "prompts" sent out from the Magpi system can be designed to seem very conversational, and the experience of iSMS is much richer than for structured SMS.

Data Quality Controls

Interactive SMS allows for three different types of data quality control:

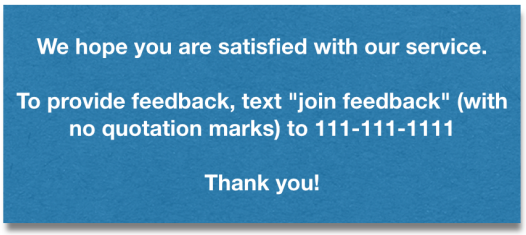
1. skip logic – a Magpi iSMS session can easily be designed to provide logical branching, such that if (for example) someone answers "male" for gender the system will skip the pregnancy questions.
2. multiple choice questions – with Magpi SMS the designer can specify multiple choice questions like "did you attend the class? Please respond with y for yes and n for no" and the system will only allow the specified answers. If a different response is made, Magpi will send a message like "Sorry, but your answer must be y or n. Please try again."
3. numeric range checks – the Magpi SMS designer can specify a minimum and/or a maximum value for numeric questions, and if the user enters a value outside the range (or a non-number) the system will respond with "I'm sorry, but your answer must be a number between __ and __. Please try again."

There is tremendous value in being able to apply these types of quality control checks using any type of mobile phone, no matter how basic.

Crowdsourcing

An iSMS session can be initiated by the Magpi system (if the Magpi user already knows all the phone numbers for possible respondents), as with structured SMS, or by anyone at all (if they are provided somehow with the information on how to initiate the session).

As an example, you might place a sign on the wall of an office with information for visitors on how to provide feedback (via an iSMS):



Upon texting the required keyword to the specified number, Magpi would initiate the iSMS session.

This approach to data collection is clearly very different from the traditional one, and would not be used to provide a statistically valid sample of responses as in, say, a cluster sample survey of households.

It is perfect, however, for gathering feedback, or enabling citizen reporting (e.g. of potholes or crimes), and many other purposes.

Advantages to iSMS

- more interface (e.g. the respondent sees each question) so requires little or no training
- no limit to how many questions can be asked
- crowdsourcing – respondents can initiate session themselves (for example, after seeing a promotional message in a public place)
- can seem like a conversation with a person, so less intimidating
- if well-designed, requires no training
- any language or alphabet
- any phone

Disadvantages

- multiple SMS messages back-and-forth can increase costs (though SMS is quite inexpensive, and the lack of need for data collector dramatically reduces overall costs)

Best Use

- when you want to collect more complex data but don't want the respondents to install an app on their smartphones
- when you want to collect more complex data but the respondents may not have smartphones
- when you don't have the respondents' phone numbers (since they can use the JOIN command to initiate the iSMS activity themselves)

Examples

- customer reporting their satisfaction with their experience in a store
- follow up with patients after clinic visits
- polling staff on their opinion about a new policy
- asking stock clerk their current supply levels for a variety of items
- weekly reporting from clinical trial participants

Cost Considerations

Cost issues for iSMS are effectively the same as discussed above for structured SMS (page 6).

Links for Further Info on Interactive SMS

How to Create an Interactive SMS Form with Magpi

How to Deploy an Interactive SMS Form with Magpi

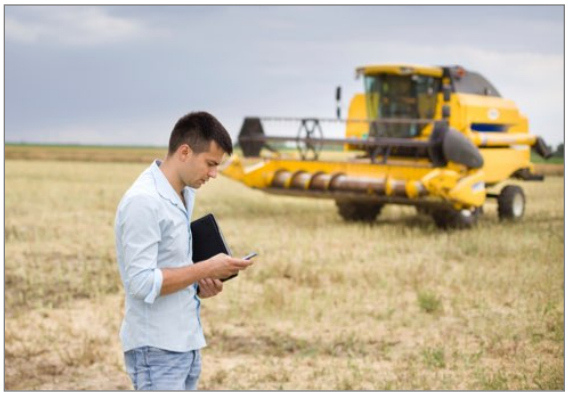
Schedule a Magpi iSMS demo

Compensating SMS Respondents

Some of the most frequently-asked questions from Magpi users of both structured and interactive SMS are

- how can I make the sending of SMS messages free for the respondents?
- how can I reimburse the respondents for their SMS messages?
- can I set up a toll-free SMS number for respondents to send their texts to?

These users are, of course, concerned that the cost of sending SMS messages may be substantial for the respondents, and if they have to pay – or are not reimbursed – they may choose not to participate.



Reporting on grain production

Strategies to deal with these issues include:

1. **pay respondents for their message costs** – paying cash, or providing a scratch card or electronic replenishment, for mobile minutes used in sending SMS messages is a common, simple, and inexpensive approach.
2. **providing SIM cards for the respondents** – in this case, project managers will need to make sure to keep each SIM "charged" with minutes. The tools available to facilitate the management of many SIM cards (including automated replenishment) vary by carrier.
3. **set up a short code** – a short code is a phone number of fewer digits than usual, arranged through a carrier. They are designed to be easier to dial, because they are shorter, but can also be designated as toll-free, so that people sending text messages to the short code pay nothing. A short code, if rented from a carrier, can easily be connected to the Magpi system. Note: a short code is the only way to make respondents' SMS messages toll-free – but rates for short codes are usually quite expensive.
4. **using Magpi Chat instead** — Magpi Chat works on any phone with a browser — even very basic, non-smart phones. It can provide even better functionality than SMS, and it's much cheaper. Learn more.

Magpi IVR (Interactive Voice Response)

Magpi has now incorporated IVR as one of the form deployment options. This means that, using the same form creation and editing techniques used for other Magpi modes (e.g. app-based data collection or SMS-based data collection), Magpi users can deploy forms using a voice interface.

> "Hi. I'd like to ask you some questions about the service you recently received at our facility. Please press 1 to continue to the questions, or just hang up if you do not wish to answer the questions."

Once a form is shared with a respondent via IVR, the respondent's phone will ring, and they will hear the questions. As of this writing, their responses are limited to numeric input (e.g. "Please press 1 for male or 2 for female"). Most of us are very familiar with this type of input when we call the airlines, for example, or a government office.

Of course, this means that Magpi can be used to collect data from illiterate or less-literate respondents – without the need to send a data collector to the respondent. This provides for enormous cost savings.

Currently, 15 languages are supported for the outgoing messages, including English, French, Spanish, Portuguese, and Chinese.

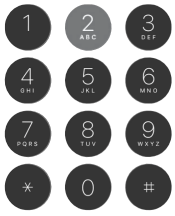
In the future, Magpi IVR will incorporate more elaborate responses, including text, and unlimited languages.

Advantages to IVR

- easy to set up: beginning user can create system in under an hour
- no limit to how many questions can be asked
- works with illiterate respondents
- if well-designed, requires no training
- although phone calls are more expensive than SMS, many questions can be answered in a 1 minute call, so cost often similar to SMS
- Supports 17 languages currently[2]

Disadvantages

- no "interface" or instructions displayed on the phone, so all information must be included in outgoing voice messages
- only numeric responses possible (currently)



Best Use

- when you want to collect more complex data but don't want the respondents to install an app on their smartphones

[2] Currently: Catalan, Danish, English, Finnish, French, German, Italian, Norwegian, Dutch, Polish, Russian, Swedish, Spanish, Portuguese, Mandarin, Cantonese, Korean, Japanese

- when you want to collect more complex data but the respondents may not have smartphones
- when you want to collect data from illiterate respondents

Examples

- customer reporting their satisfaction with their experience in a store
- follow up with patients after clinic visits
- political polling
- asking stock clerk their current supply levels for a variety of items
- weekly reporting from clinical trial participants

Cost Considerations

In order to use IVR, you will need a paid Magpi subscription (starting at $417 per month for an annual Pro account), and this includes instant, built-in connectivity to almost every mobile carrier system in the world.

Phone calls from Magpi to the respondent vary greatly by country, from 1-2 US cents per minute for the US, to 22 cents for Bolivia, 15 cents for Uzbekistan, 24 cents for Kenya, etc..

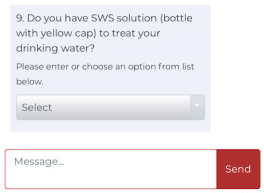
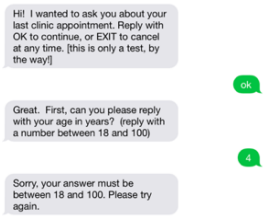
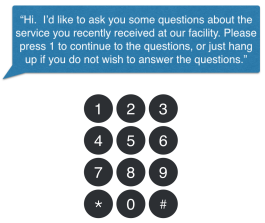
From the Magpi Messaging dashboard, a “Message Pricing” link can be opened displaying a window with all prices.

Typically No Cost to Respondent

Unlike with SMS data collection approaches, where the respondent may incur costs for sending their SMS replies, the cost of the IVR phone call is billed to the Magpi user. In most countries, a respondent is not charged for receiving a phone call (make sure to check with your in-country carrier to verify this).

How to Create and Deploy an IVR Form with Magpi
Schedule a Magpi IVR demo

Comparison Table: Chat, Structured SMS, iSMS, IVR

	Magpi Chat	structured SMS	iSMS	IVR
		pharm#22#0#105		
easy to set up	✓	✓	✓	✓
no programming needed	✓	✓	✓	✓
skip logic	✓		✓	✓
numeric range checks	✓		✓	✓
limit to number of questions?	None	Answer must fit into 160 character SMS	None	None
good for simple data	✓	✓	✓	✓
good for complex data	✓		✓	✓
crowdsourcing	✓		✓	
training needed to respond	minimal to none	moderate	minimal or none	minimal or none
cost to respondent	Typically very minimal, but they must have data plan on phone	Depends on mobile plan	Depends on mobile plan	Typically no (because no cost to receive a call)
works with illiterate respondents				✓
languages/alphabets	Any	Any	Any	17 languages currently
compatible phones	Any mobile phone (not just smartphones), tablet, laptop, or desktop with a browser	Any mobile phone (not just smartphones)	Any mobile phone (not just smartphones)	Any mobile phone (not just smartphones) or touch-tone landline