

# COMPARISON OF SMS PLATFORMS



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**Purpose:** Text messages (SMS) are an efficient and cheap way to quickly reach large groups of people and to receive information from them. This document discusses scenarios in which SMS platforms can support humanitarian programs. It compares eight SMS platforms with an international reach.

*This publication has been produced with the assistance of the Office of the United Nations High Commissioner for Refugees (UNHCR). The contents of this publication are the sole responsibility of CARTONG and can in no way be taken to reflect the views of UNHCR.*

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# COMPARISON OF SMS PLATFORMS

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## Glossary

Aggregator	A company that provides services to connect applications with mobile phone networks. These services include assigning telephone numbers, forwarding calls and/or SMS to an application etc.
Contact	A person who receives messages from an SMS platform or sends messages to an SMS platform, but who does not have access to the SMS platform itself.
Gateway	The technical channel through which SMS are sent and received.
IVR	Interactive Voice Response Systems. A technology best known from customer service hotlines where callers are asked to press different numbers for different options. (E.g.: "Please press 1 for English. Para español pulse 2").
MNO	Mobile Network Operator
SIM	Subscriber identification module. A chip that authorizes a device to access a mobile phone network with a unique telephone number.
SMS	Short Message Service. Used synonymous with "text message"
SMS platform	A system that allows registered users to send and receive text messages, manage contacts etc.
User	Any person who has access to an SMS platform through a named account.

## 1. Introduction

Text messages (SMS) are an efficient and cheap way to quickly reach large groups of people and to receive information from them. This document discusses scenarios in which SMS platforms can support humanitarian programs. It compares eight SMS platforms with an international reach.

The document is primarily aimed at humanitarian programme officers, information management officers and communication (with communities) officers.

## 2. Methodology and product selection

The market for SMS platforms is sizable and humanitarian agencies can find platforms that are tailor-made for national markets in many countries. For the purpose of this document CartONG has focused on eight platform providers<sup>1</sup> that are active internationally. The platforms were selected based on internet searches, previous experience with individual platforms within the team, as well as recommendations from within the humanitarian and tech community.

To distinguish these platforms from other products that also have SMS capability, and to ensure that these products meet the key requirements of UNHCR, the services reviewed for this report needed to meet all of the following criteria:

- ✓ Must support one-to-many messaging as well as one-to-one messaging
- ✓ Must support two-way-communication
- ✓ Must be able to send text messages in more than one alphabet
- ✓ Must be able to send text messages to at least 40 countries
- ✓ The platform must be a self-managed solution, i.e. program staff can send and receive messages and surveys themselves, without having to go through a service provider
- ✓ No software development skills or similarly advanced IT skills are necessary to use/install the platform.

All platforms reviewed in this report were tested by at least one member of the CartONG team. In addition, the reviewers read user reports and reviews provided by other parties. All vendors were given a copy of the draft review of their platform and provided with an opportunity to comment.

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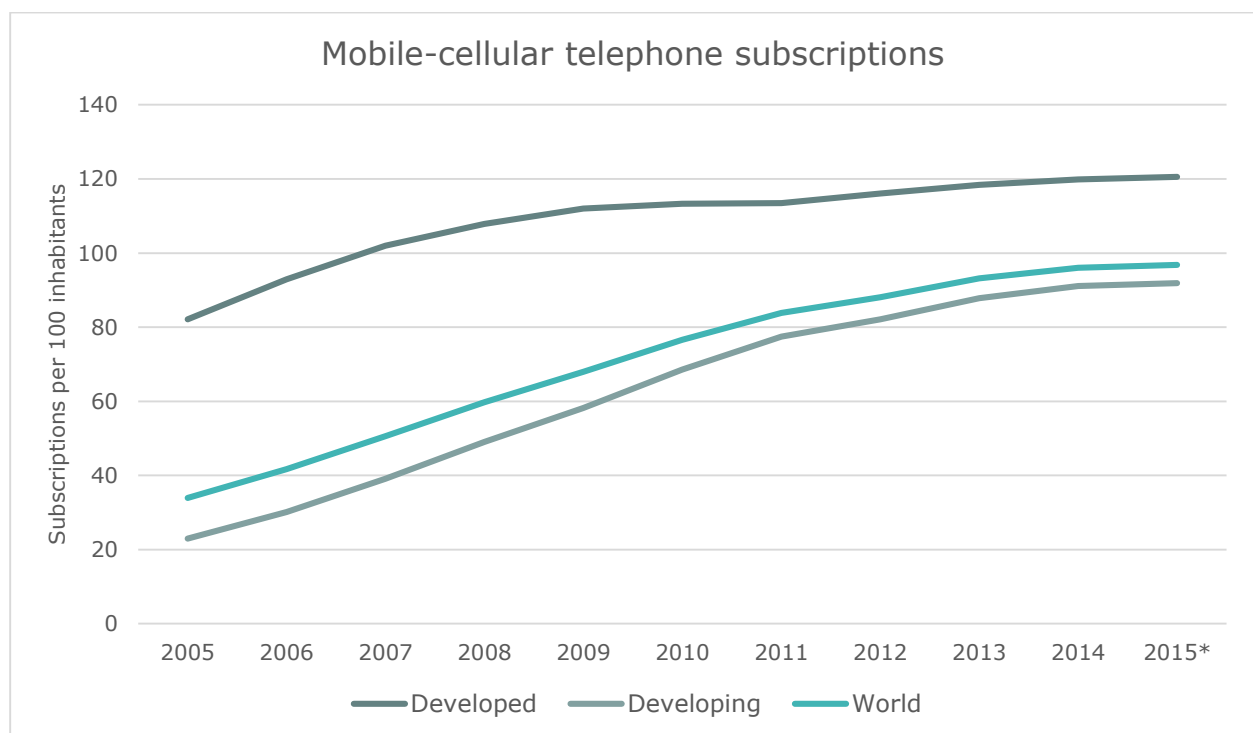
<sup>1</sup> The initial list of platforms was 17. However nine platforms were removed during testing when they significantly failed to address the needs of UNHCR.

### 3. Background

Mobile phones are the most widely distributed pieces of information and communications technology (ICT) worldwide. At the end of 2015, close to 4 billion people own one or more SIM cards, bringing the number of active mobile subscriptions to 7.5 billion.<sup>2 3</sup>

These number are impressive but need to be read with some caution. For example, statistics that suggest that more than 90% of people in developing countries have mobile phones (see Figure 1) normally do not take into account that many people have more than one SIM card. Where in high-income countries people might have a second mobile device (such as a tablet) with a separate SIM card, many people in developing countries own more than one SIM card and switch between them depending on which network is currently working. Dual-SIM phones are not uncommon in some countries, meaning that the number of devices can be significantly lower than the number of mobile phone subscriptions.

Nevertheless, from a programmatic point of view it is fair to assume that in most countries all but the most vulnerable households have access to a mobile phone connection.



**Figure 1** Source: ITU World Telecommunication/ICT Indicators database. (\* = projected)

<sup>2</sup> GSMA Alliance: <https://gsmaintelligence.com/>

<sup>3</sup> In this context the term "subscription" includes prepaid mobile phone contracts.

### 3.1. SMS market penetration

While many messaging services are specific to an operating system, SMS is common to all but a very small number of handsets.<sup>4</sup> This ability to send messages from any phone to any phone has made SMS extremely popular across the world: in 2013 an estimated 8 trillion SMS were sent worldwide.<sup>5</sup>

SMS technology is also at the core of many electronic cash and mobile money systems. Last but not least, SMS is very profitable for mobile phone providers, generating more than 120 billion USD in revenue in 2013.<sup>6</sup>

All of this means that humanitarian organisations can assume that the technical infrastructure is in place to send and receive text messages almost anywhere in the world and that a significant part of the population is already familiar with the technology (see Figure 2).

### 3.2. SMS versus instant messaging

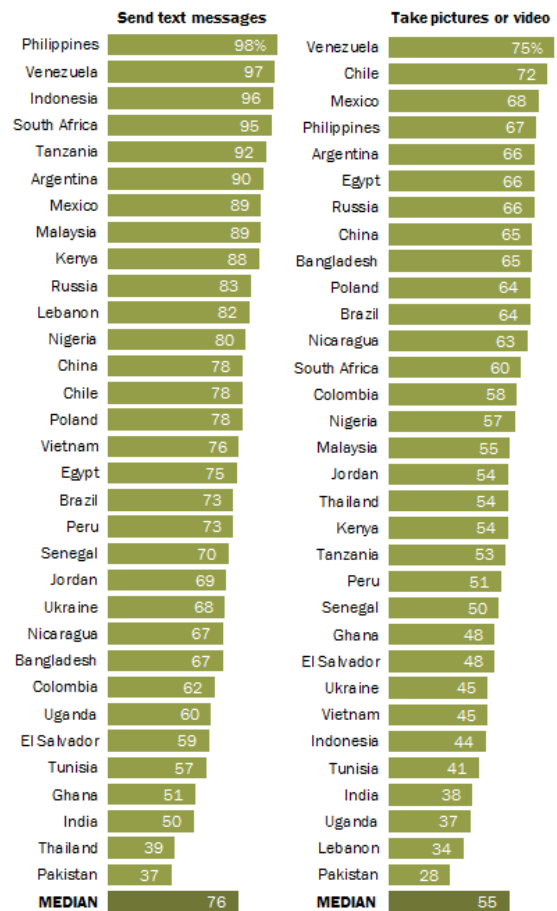
Despite the global market penetration, the number of SMS has been declining globally since 2014 – it is therefore prudent to ask, whether SMS is already an outdated technology and whether other means of communication might be more appropriate.

This is currently not the case: The global decline in SMS can be attributed to the rise of smart phones and instant messaging services like WhatsApp, Facebook Messenger, iMessages etc.. However, these services rely on a functioning mobile internet network and require users to have smartphones – neither of which is a given in many humanitarian contexts. In addition, OTT services are not compatible with each other, meaning that programme officers would need to know, which messaging services to use for each individual recipient.

One of the main advantages of these so called over-the-top (OTT) services is that they are frequently cheaper than SMS. For highly mobile populations, such as refugees travelling through multiple countries, another advantage is that user-IDs are not tied to a phone number

#### Text Messaging More Frequent than Pictures, Video

*Cell phone owners who have used their cell phone in the past 12 months to ...*



Source: Spring 2014 Global Attitudes survey, Q74a-b.  
PEW RESEARCH CENTER

**Figure 2** Most mobile phone owners are familiar with how to send and receive text messages.

<sup>4</sup> 2G CDMA phones do not support SMS (<http://www2.deloitte.com/content/dam/Deloitte/au/Documents/technology-media-telecommunications/deloitte-au-tmt-short-messaging-services-versus-instant-messaging-011014.pdf>)  
<sup>5</sup> Portio Research (Mobile messaging markets January 2014)  
<sup>6</sup> <http://www2.deloitte.com/content/dam/Deloitte/au/Documents/technology-media-telecommunications/deloitte-au-tmt-short-messaging-services-versus-instant-messaging-011014.pdf>

and stay persistent during the whole journey.<sup>7</sup> This makes it easier for them to stay in touch with family members and coordinate their journeys.<sup>8</sup>

From a programmatic point of view, the important thing is that anybody who has a mobile phone subscription is able to send and receive SMS, even if he/she prefers to use OTT services for his/her personal conversation. While OTT services can add significant value in certain contexts (for example, the BBC provided public health information via WhatsApp during the Ebola crisis<sup>9</sup>), this is still the exception, rather than the rule.



While Over-the-Top Services such as WhatsApp are gaining momentum, SMS is still the messaging system of choice when the goal is to reach as many people as possible.

### 3.3. SMS platforms versus mobile data collection tools

The use cases for SMS platforms frequently intersect with those of mobile data collection (MDC) tools that rely on mobile phone applications to record information.<sup>10</sup> In fact, three of the products tested for this report are primarily MDC platforms that have added SMS functionality such as sending broadcast messages. Many other MDC platforms are able to transmit reports by SMS, but don't have some of the features necessary to be included in this report (see 2 Methodology and product selection). Whether an SMS or an MDC platform is the right choice depends on what the program is trying to achieve. The table below shows some of the main advantages and disadvantages of the two types of products.

	<b>Advantages</b>	<b>Disadvantages</b>
Typical MDC tool or platform	<ul style="list-style-type: none"> <li>+ Works offline</li> <li>+ Can store photos</li> <li>+ Can record GPS coordinates</li> <li>+ More sophisticated survey designs possible</li> <li>+ Can be used to record answers from people who do not have access to phones, such as children, or do not know how to use them, such as the elderly in some countries</li> </ul>	<ul style="list-style-type: none"> <li>- Requires more human resources since surveys are conducted by trained enumerators.</li> <li>- Needs to be installed on the enumerators' phones.</li> <li>- Requires enumerators to have a smartphone</li> </ul>
Typical SMS platform	<ul style="list-style-type: none"> <li>+ Enables two-way communication</li> <li>+ Very versatile; can be used for many purposes other than data collection</li> <li>+ Works on any phone</li> <li>+ Removes the need for enumerators since questions can be sent directly to contacts' phone numbers</li> <li>+ Data is captured in real time</li> </ul>	<ul style="list-style-type: none"> <li>- Works only in areas with mobile phone coverage</li> <li>- Cannot include images</li> <li>- Cannot record GPS coordinates</li> <li>- Respondents have to pay to transmit answers</li> <li>- Respondents need to be literate, unless IVR or text-to-voice messages are used</li> </ul>

<sup>7</sup> The assumption is that most refugees will not have access to roaming services but use national, prepaid services.

<sup>8</sup> WhatsApp offers lifeline for Syrian refugees on journey across Europe: <http://mashable.com/2015/07/03/syrians-europe-whatsapp-refugees/>

<sup>9</sup> BBC launches WhatsApp Ebola service: <http://www.bbc.com/news/world-africa-29573964>

<sup>10</sup> For an in-depth look at mobile data collection tools, please see the report "MDC Benchmarking" by CartONG.

	<p>+ Since staff doesn't have to be on-site to ask questions, safer in areas with poor humanitarian access</p>	<p>- Requires respondents to have a phone.</p>
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💡 Three important questions to ask when deciding between SMS and MDC platforms: 1) Do you want two-way-communication? 2) How important is data collection? 3) Who will collect that data for you?

#### 4. Common aspects

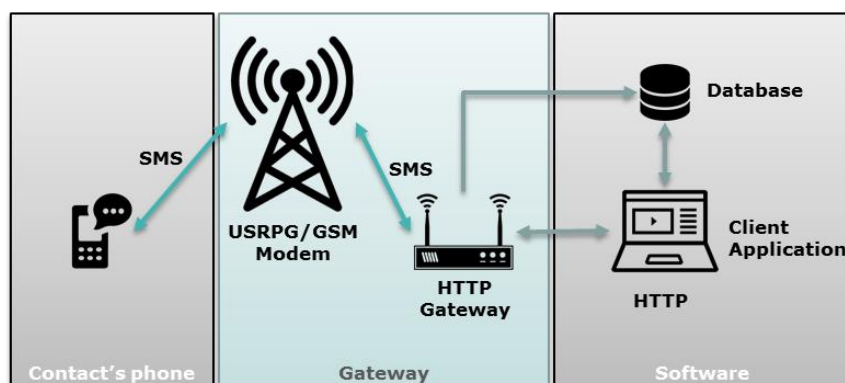
While individual platforms differ in how they approach SMS communication, many aspects are common to all products and it is helpful for program managers to understand their advantages and disadvantages.

##### 4.1. Technical architecture

All SMS platforms rely on a similar technical architecture to send and receive messages. This consists of:

1. A **software platform** used to write and read messages, manage contacts and analyse data. This software can take the form of a website, a server, a desktop application or a small piece of software that is installed on a phone.
2. A **gateway** through which SMS are sent and received. Once a message has been written on the software platform, the message needs to reach the global phone network. The gateway that establishes that connection can either be a SIM card that is physically inserted into a device such as a phone or GSM modem, or a so called *SMS aggregator*. Aggregators are web based services that specialise in sending messages to mobile phones globally. In many countries they also provide their users with virtual local phone numbers to receive messages. Many software platforms ask their users to choose an aggregator depending on the country in which they operate, others have standing agreements with specific aggregators. All platforms can be connected with national mobile network operators in most countries, though that can be more labour intensive.
3. The contact's **mobile phone** through which s/he receives and responds to messages.

**Table 1 Technical architecture common to all SMS platforms.**





## SIM card versus SMS aggregator

Many SMS platforms provide the users with a choice between using an Android phone with a SIM card or an SMS aggregator to send and receive messages. The main advantages and disadvantages are summarized in the following table:

Gateway	Advantages	Disadvantages
SIM card in Android phone	<ul style="list-style-type: none"> <li>+ Slightly cheaper since no overhead for aggregator.</li> <li>+ Slightly easier setup.</li> </ul>	<ul style="list-style-type: none"> <li>- Additional hardware necessary (phone and SIM card).</li> <li>- Large projects might require multiple phones and SIM cards.</li> <li>- Number of SMS/hour frequently limited 100 or less.</li> </ul>
SMS aggregator	<ul style="list-style-type: none"> <li>+ No additional hardware necessary.</li> <li>+ Can send more messages per hour than mobile phones.</li> <li>+ Can easily send SMS to phones in multiple countries. This can be particularly relevant in border areas.</li> <li>+ Multiple phone numbers can be managed through one central platform.</li> <li>+ Can often provide additional services such as toll-free numbers, shortcodes etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Not available in all countries.</li> <li>- Often slightly more expensive since aggregators charge for their services.</li> <li>- Setup often slightly more complicated.</li> </ul>

 You can get a phone number for your SMS program either by getting a number from an aggregator or by using a SIM card in an Android phone.

 The larger your SMS programme, the more sense it makes to use an SMS aggregator.

### 4.2. Shortcodes


Contacts need to know where to send their messages. To make this as easy as possible it can be helpful to use a memorable numeric or alphanumeric shortcode such as "1234" or "REFAID" instead of a long phone number such as +232-123-444 1122.

The process to obtain shortcodes differs from country to country and involves substantial additional cost in the range of hundreds of USD per month. Using a short code also always involves direct negotiations with a mobile network operator, which can delay the start of the program.

The following describes when using a shortcode can be useful.

- **Advantageous:** When asking the general public to send unstructured information, particularly when the number needs to be communicated via radio or tv programs. Examples:
  - Announcer: "Send your name, address and why you need help to 117, if you need immediate assistance."

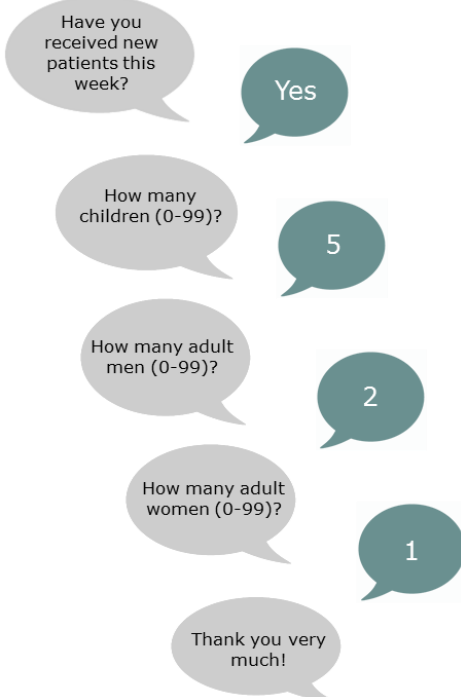
- Poster: "We want to hear from you. Call or text 5544 and tell us if you have questions about the 100 temporary shelters we are building in this community."
- **No significant advantage:** People who respond to SMS from you; staff/partners who communicate with you regularly. Examples:
  - SMS: "Please respond with 'Yes' if you have received your monthly food ration today."
  - A community health worker who submits weekly statistics by SMS.

 In some countries government departments already have SMS-shortcode. It might be possible to use these existing short codes, particularly in large scale emergencies.

### 4.3. Guided and formatted data reporting

SMS is frequently used to collect information in a structured form. The most common ways to do this is either by asking the contact multiple questions (*guided reporting*) or by asking contacts to send messages that follow a precise format that can then be interpreted by the software running the SMS platform (*formatted reporting*).

Guided reporting has the advantage that it feels more natural, while formatted reporting requires that the sender has been trained to report data following a specific format. On the other hand: guided reporting requires considerably more messages to be sent back and forth which has cost implications for all participants.

Example: guided reporting and data collection	Example: formatted data reporting
	<p><b>A: C5,M2,F1</b></p>
<p><b>Sum:</b> 9 text messages</p>	<p><b>Sum:</b> 1 text message</p>
<p><b>Use for:</b> anyone</p>	<p><b>Use for:</b> trained staff/partners</p>

#### 4.4. Costs to the person responding to text messages

Anybody who responds to a text message sent as part of an SMS program will be charged according to his/her individual mobile phone subscriptions. This can be a problem, since individuals might be reluctant to spend money on text messages.

Ways to address this issue include:

- **Conduct simple yes/no queries with missed calls:** Respondents are asked to call different numbers and hang up, depending on the answer they want to give. For example:  
"Leave a missed call at 070-133-444-1 for 'yes' and 070-183-436-2 for 'no'."  
Some SMS systems tested as part of this review can tally missed calls and display them as a poll.
- **Transfer mobile phone credits or money:** In countries where mobile money is common, SMS platforms can sometimes be used to transfer mobile phone credit or money to the recipients, reimbursing them for their participation.
- **Toll free SMS numbers:** Some mobile network operators provide toll free SMS numbers to paying clients, i.e. the organization pays for the incoming text messages, not the sender. This requires a contract with the network operator.

#### 4.5. Setup and resources

The amount of technical expertise necessary to set up an SMS system varies greatly between platforms.

##### Human Resources

Connecting a platform to a gateway can result in a number of unexpected problems. Fortunately, most systems provide good help files and/or technical support. Program officers should secure the services of ICT staff during the setup phase, which should not take longer than a few hours.

Once a system is up and running, the software platforms are very user friendly, at least as long as users are only accessing basic functionality such as sending broadcast messages or scheduling SMS with reminders. More complex tasks, such as surveys with skip logic, will require slightly more expertise, but most information management staff should have the necessary skills.

##### Hardware/software

The hardware requirements to run an SMS programs depend on the gateway(s) a program uses.

- **All platforms** tested for this report require a computer.
- **Web based** systems require an internet connection.
- Programs using **Android phones** as a gateway will require an Android phone.<sup>11</sup> While these phones don't have to be exclusively dedicated to being a gateway, it is recommended for programs with high amounts of traffic.

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<sup>11</sup> Some platforms can send SMS running Symbian or iOS. However, given the availability of Android phones, we are assuming that program staff will use the Android OS.

- **Desktop based** installations do not necessarily need an internet connection, but might require additional hardware such as a GSM modem or an Android phone.

## 5. Platform snapshots

The following section describes the eight platforms that CartONG tested in depth, lists the main strengths and weaknesses and aims to help program managers decide which platform is the most appropriate for their purposes. All vendors received a copy of the draft review of their platform and were given the opportunity to comment.

Based on UNHCR's needs, the snapshots also include a rating against key requirements. These ratings are on a scale of 1-5, based on the criteria listed in the annex, but reviewers could downgrade a rating by one point based on usability. The key requirements are:

- **Sending broadcast messages and receiving unstructured information by SMS:** SMS that are sent to an individual or a group of people. A response to these SMS may or may not be desired. For example: *"Wash your hands thoroughly with soap to protect against cholera – front, back, between fingers and nails for 20 seconds."* This category also covers a platform's ability to handle unstructured incoming information, such as when asking people for feedback during a community radio station's live program.
- **Automatically interpret formatted data/reports received by SMS:** How well a system is able to interpret formatted data/reports that are sent by community health workers or other staff via SMS and that follow a defined format. For example: Is the system able to turn a message such as "C5,M2,F1" into "5 Children, 2 Men, 1 Woman" and display that information in an easily digestible way?
- **Ability to send and receive surveys via SMS:** Surveys require contacts to respond with precise keywords or numbers to survey questions. For example: *"Do you have access to safe drinking water: Please answer 'YES' or 'NO' (without the quotation marks)?"*, *"How many people living in your household (1-99):"* or *"Are you a male or female? Please respond with 1 if you are a man and 2 if you are a woman."* Platforms that support surveys should be able to display that information in a way that is easily digestible.
- **Schedule SMS (absolute and/or relative):** Scheduling can be important for many reasons. For example, a program manager might write public health messages for a whole week in advance and then use the system to send one message per day. However, the main focus of this criterion is whether the system can be used to remind people of appointments on specific days or trigger messages relative to certain conditions.
  - **Absolute dates:** a staff member manually enters a message into the system. Example: *A staff members puts a messages into the system to remind a family of an appointment. She manually sets the message to be sent on 15 November 08:15.*
  - **Relative dates:** messages are automatically sent, relative to other dates stored in the system. Example: *Expecting mothers whose due date is known receive regular invitations to come to prenatal exams. After giving birth, they automatically receive messages for post-natal care as well as invitations to vaccinate the child.*

## Commcare



**URL:** <https://www.commdcarehq.org>

Commcare was developed specifically for the health sector and for scheduling appointments. Commcare focuses primarily on mobile data collection and has recently added some limited SMS functionality. This makes the platform primarily interesting for scenarios where the focus is on case management and mobile data collection through the Commcare platform and where SMS communication only plays a limited role.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

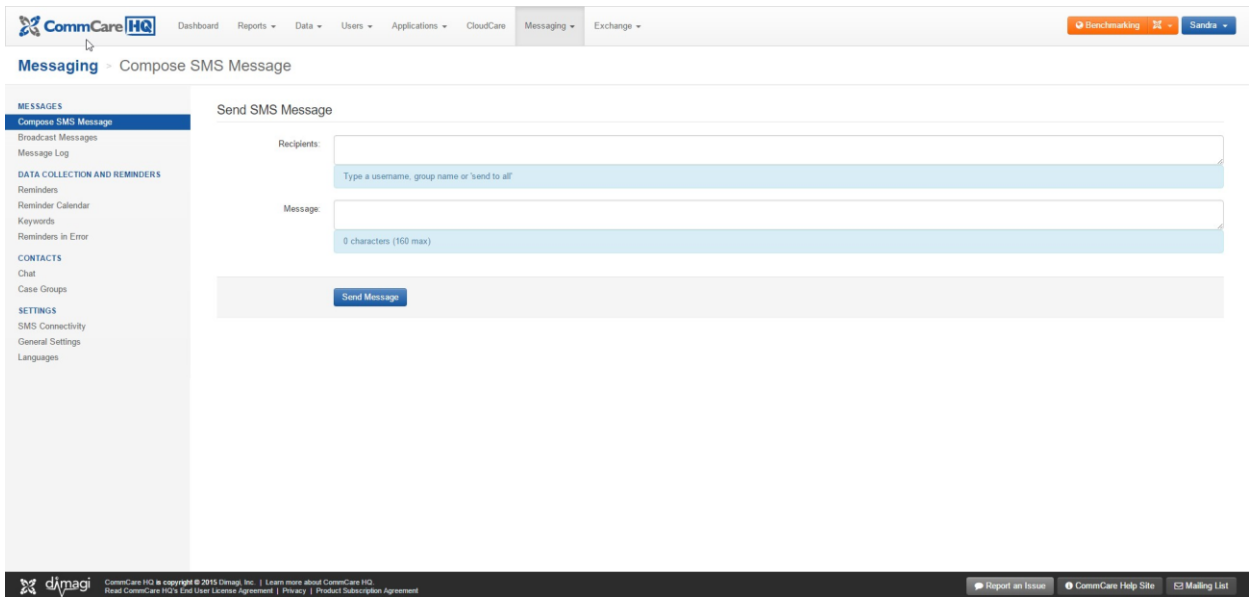
Automatically interpret formatted data/reports received by SMS: ✓✓✓✓

Send and receive surveys via SMS: ✓✓✓

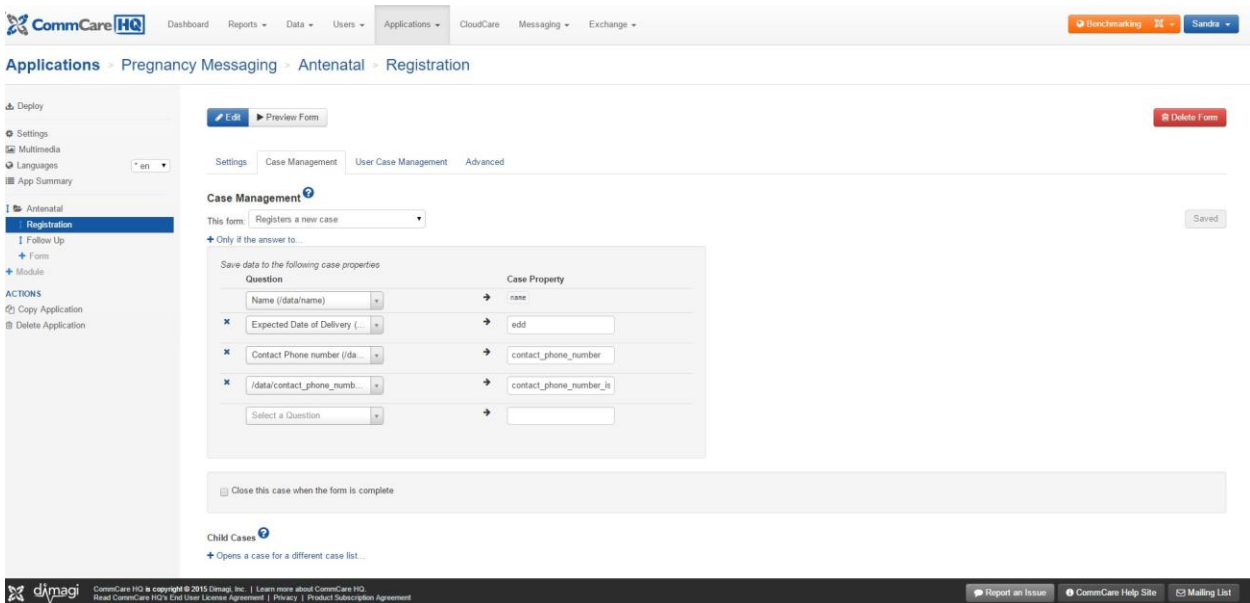
Schedule SMS (absolute and/or relative): ✓✓✓✓✓

Aspect	Comments
Primary use cases	Sending reminders and follow-up information related to specific cases, whose data has been recorded in the Commcare case management platform.
Installation / technical aspects	Initial set-up is comparatively time intensive since the SMS portion of the platform is part of a whole suite of tools.
Main specific strengths	Commcare knows the health sector very well and tries to address health provider's needs by providing dedicated case management tracking as well as targeted messaging.
Main specific weaknesses	Complicated setup; SMS component not user friendly.
Costs	Adding SMS functionality to Commcare comes at a significant cost. One-way SMS-messaging requires a Standard plan (100 USD/mo), two-way messaging a Pro plan (500 USD/mo). This in addition to the costs of the SMS itself.
Backend languages	English. The SMS itself and apps for web or mobile users can be set up in multiple languages.

### Commcare Screenshots:



**Figure 3** Commcare’s SMS module is part of a whole suite of tools that need to be set up together.



**Figure 4** Forms are primarily designed for Commcare’s mobile data application but can also be sent via SMS.

## Echo Mobile

**URL:** <http://www.echomobile.org>



Echo Mobile is solid choice that supports broadcast messages, surveys and IVR. One of its strengths is the easy to use interface, which makes it easy for non-technical staff to send messages or create polls. In the backend, messages and surveys are stored in project folders. This helps with finding all necessary materials in one place; most other platforms sort messages and surveys chronologically. Users can control access levels of staff through a simple permissions system.

Echo Mobile strongly recommends using shortcodes. This will result in extra costs for the SMS program, but means that SMS can be free for contacts (see 4.2 Shortcodes).

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

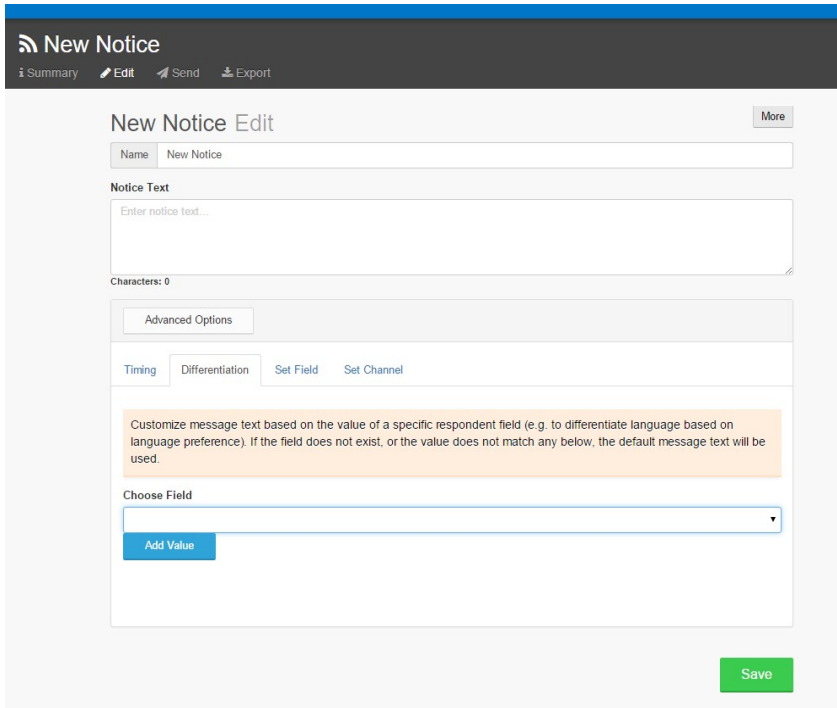
Automatically interpret formatted data/reports received by SMS: ✓✓✓✓✓

Send and receive surveys via SMS: ✓✓✓✓

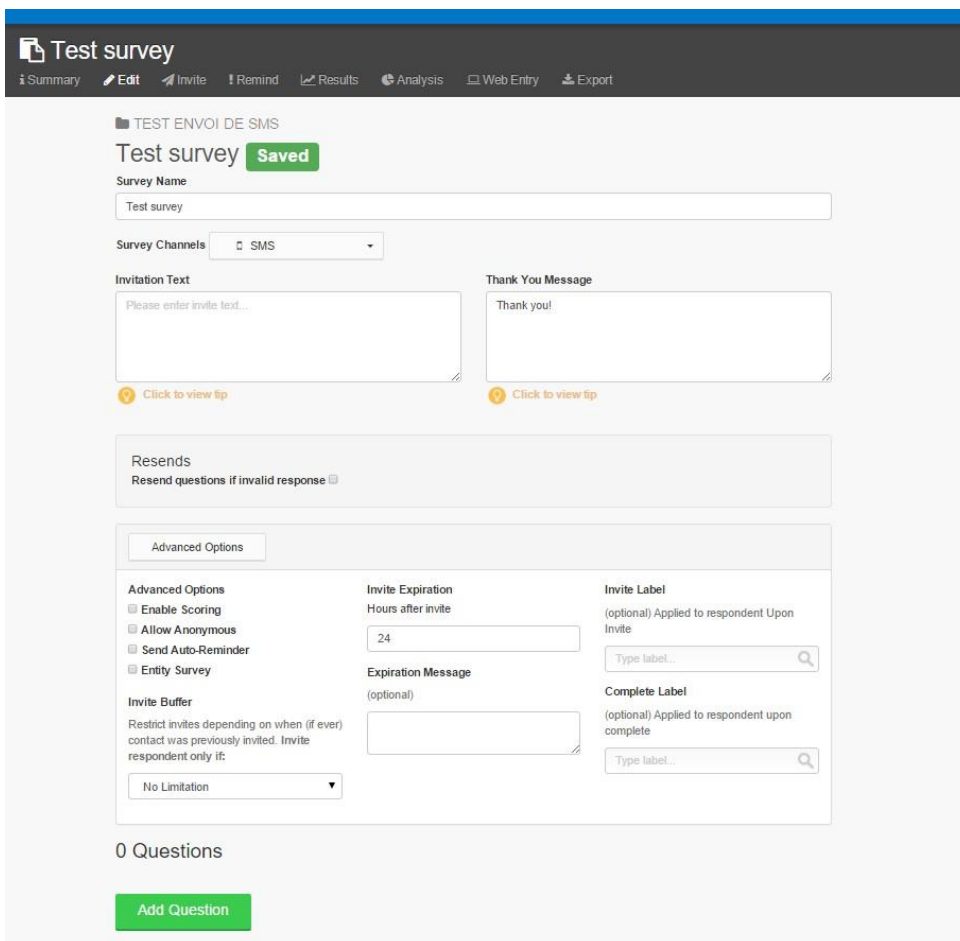
Schedule SMS (absolute and/or relative): ✓✓✓✓✓

Aspect	Comments
Primary use cases	Broadcast messages and surveys.
Installation / technical aspects	Echo mobile requires no installation. The platform supports Twilio as aggregator and Telerivet as Android gateway. It has agreements with shortcode providers in Kenya, Uganda and Rwanda. In addition, an android app for mobile data collection is available as well.
Main specific strengths	Very user friendly interface, very good documentation. Strong emphasis on customizing messages for individual users.
Main specific weaknesses	The platform only accepts unstructured messages from unknown users if they start with a predefined keyword, such followed by text. For example "HELP Please rescue us. We are at 123 street, in ABC town." In stressful situations, such as rapid onset emergencies, people might not remember the keyword, which can lead to data being missed.
Costs	60 USD/month plus SMS costs. Extra costs for shortcodes (optional).
Backend languages	English

### Echo mobile Screenshots:



**Figure 5** Contact-information can be used to easily customize messages, for example to take language preferences into account.



**Figure 6** Echo mobile makes advanced survey options accessible through an easy to use interface.



## FrontlineSMS

**URL:** <http://www.frontlinesms.com/>



There are two main versions of FrontlineSMS: FrontlineSMS v2, which is a desktop application that requires no internet connection, and FrontlineCloud which is the internet based version of the platform. Both versions are almost identical: Frontline provides users with a simple interface, similar to many web based email platforms, through which users send and receive text messages. Keywords in incoming messages can trigger actions such as sending a pre-written message, adding a contact to a group or analysing answers as part of a simple survey. The main functional difference between the desktop version and the web version is that FrontlineCloud can integrate with other web services, which the offline cannot do.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

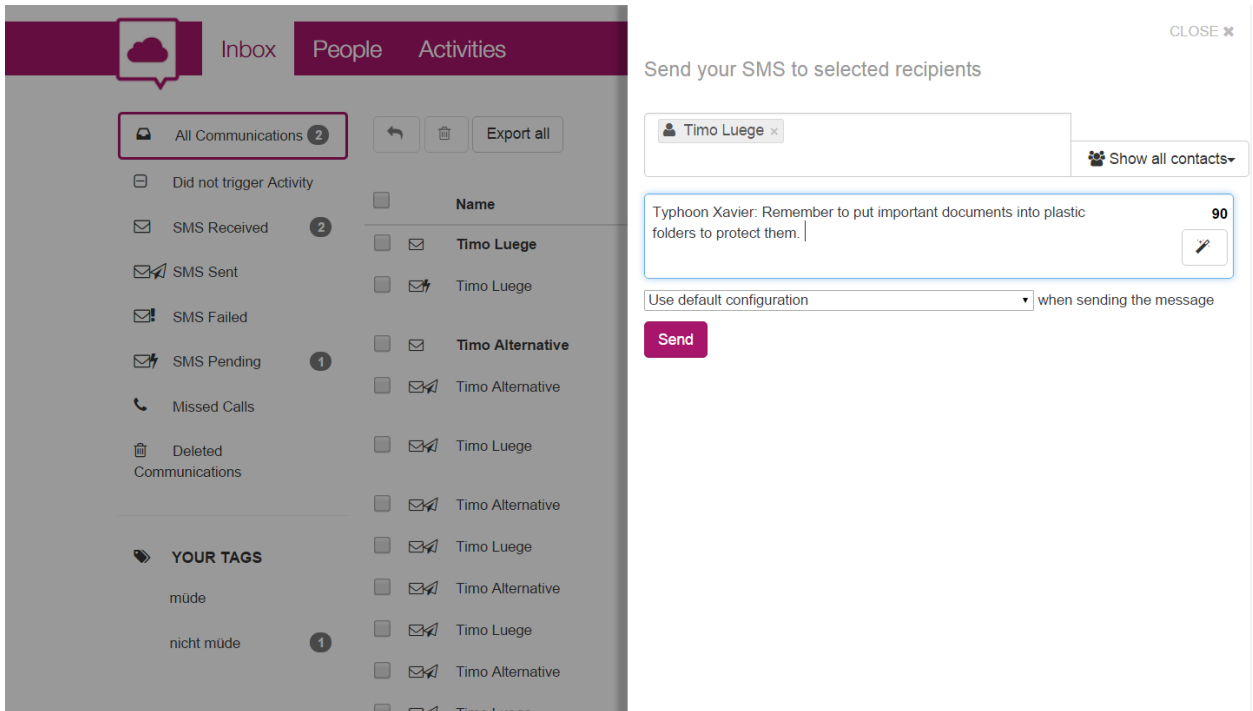
Automatically interpret formatted data/reports received by SMS: ✓

Send and receive surveys via SMS: ✓✓

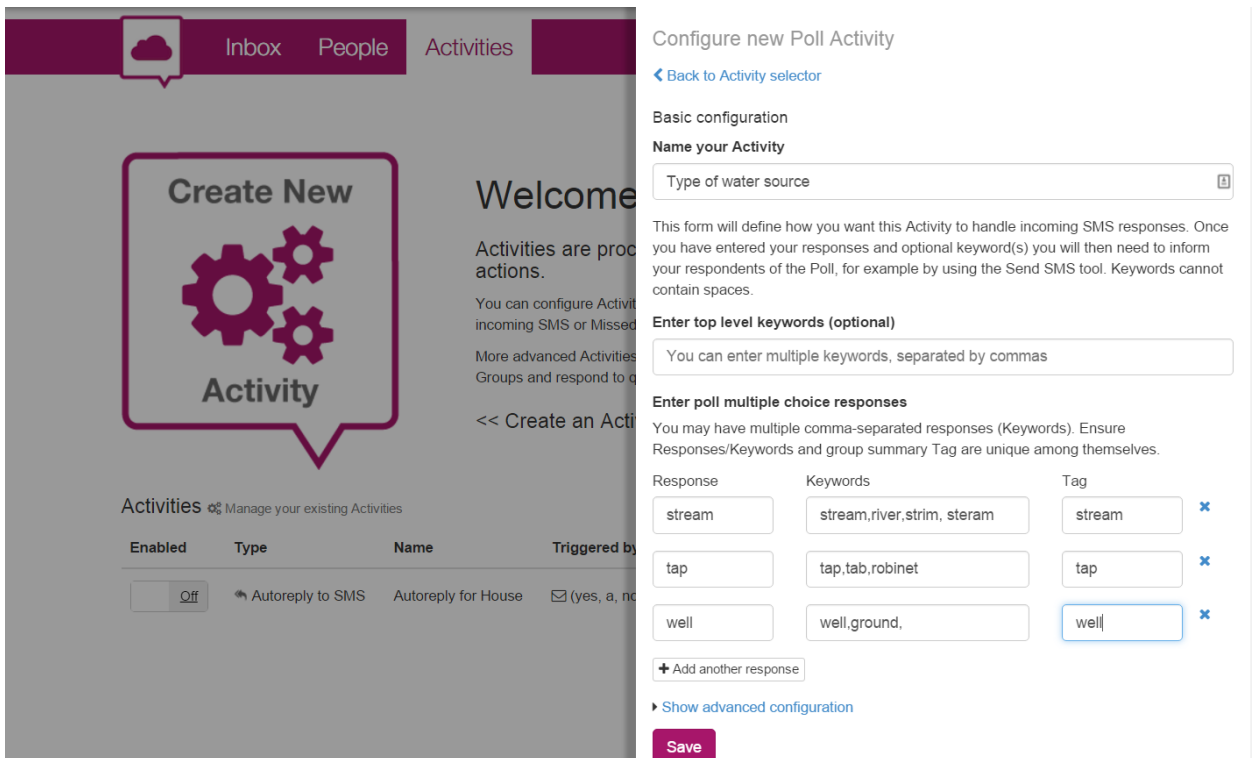
Schedule SMS (absolute and/or relative): ✗

Aspect	Comments
Primary use cases	Broadcast messages, pre-written messages and unstructured two-way communication.
Installation / technical aspects	The cloud version requires no installation. The desktop version requires administrator privileges to be installed. In addition, users might have to make changes to firewalls and anti-virus software.  SMS can be sent through an aggregator or via two Android apps.
Main specific strengths	Very easy to use, particularly if the project is small enough that a programme officer can read all incoming messages. Good choice if the goal of the SMS project is to collect unstructured feedback or information, for example to assess program quality or as part of a crisis mapping project. Frontline has a large user base and many well documented case studies. The backend is available in more languages than any other tested platform.
Main specific weaknesses	Frontline SMS Cloud has severe problems importing contacts with non-Latin characters and has occasional problems sending messages with non-Latin characters. This is particularly unfortunate as the backend is available in many languages.  Each survey can only contains one question. To get multiple answers, multiple surveys need to be created.
Costs	FrontlineSMS v2: free; FrontlineCloud: 25 USD/mo. Both plus SMS costs.
Backend languages	Arabic, Dutch, English, French, German, Indonesian, Japanese, Khmer, Kiswahili, Portuguese, Russian, Spanish

### FrontlineSMS Screenshots



**Figure 7** Sending and receiving messages is very similar to web based email platforms.



**Figure 8** FrontlineSMS can tally incoming keywords and show the data as simple graphs.

## Magpi

**URL:** <http://home.magpi.com/>



Magpi is primarily a mobile data collection platform which has added both broadcast communication and guided SMS surveys to its portfolio. While the SMS features still feel a little unpolished, the strong data collection background make Magpi a good choice for programs that are mainly interested in data collection, but would also like to benefit from basic two-way communication. However, Magpi is not the right choice for programs that have two-way communication at their core. Magpi has very strong roots in the health sector.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓

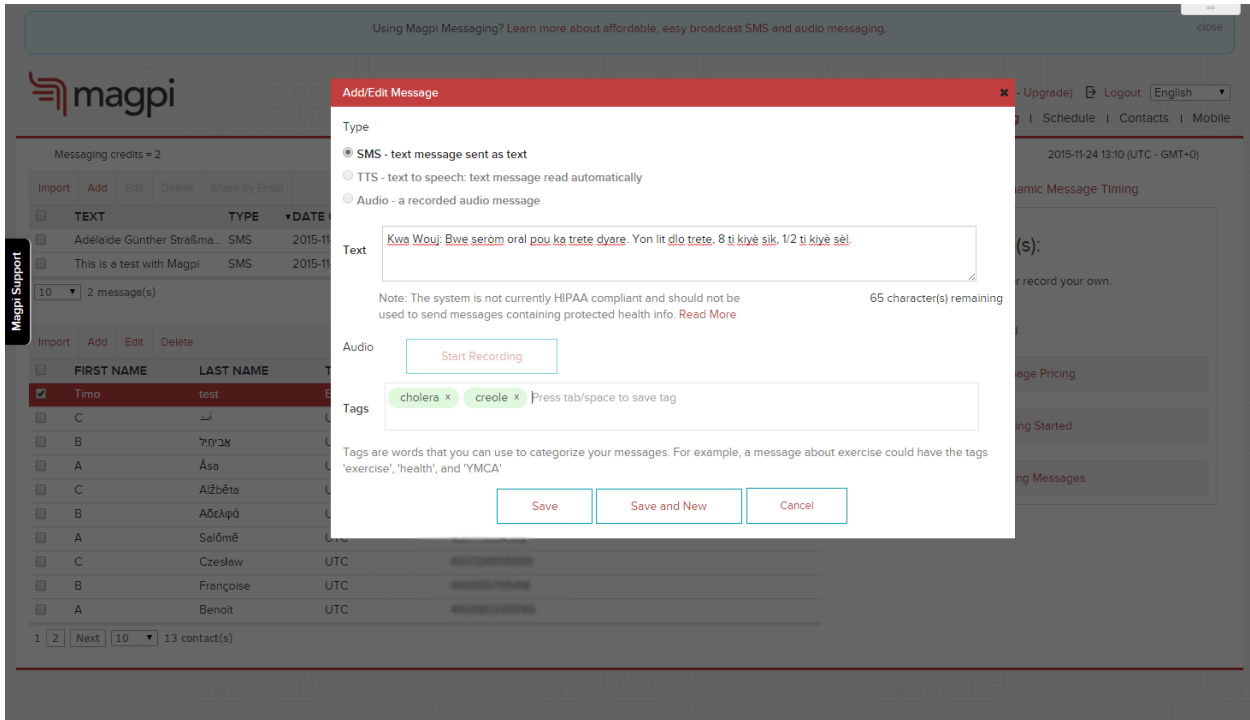
Automatically interpret formatted data/reports received by SMS: ✓✓✓✓✓

Send and receive surveys via SMS: ✓✓✓✓

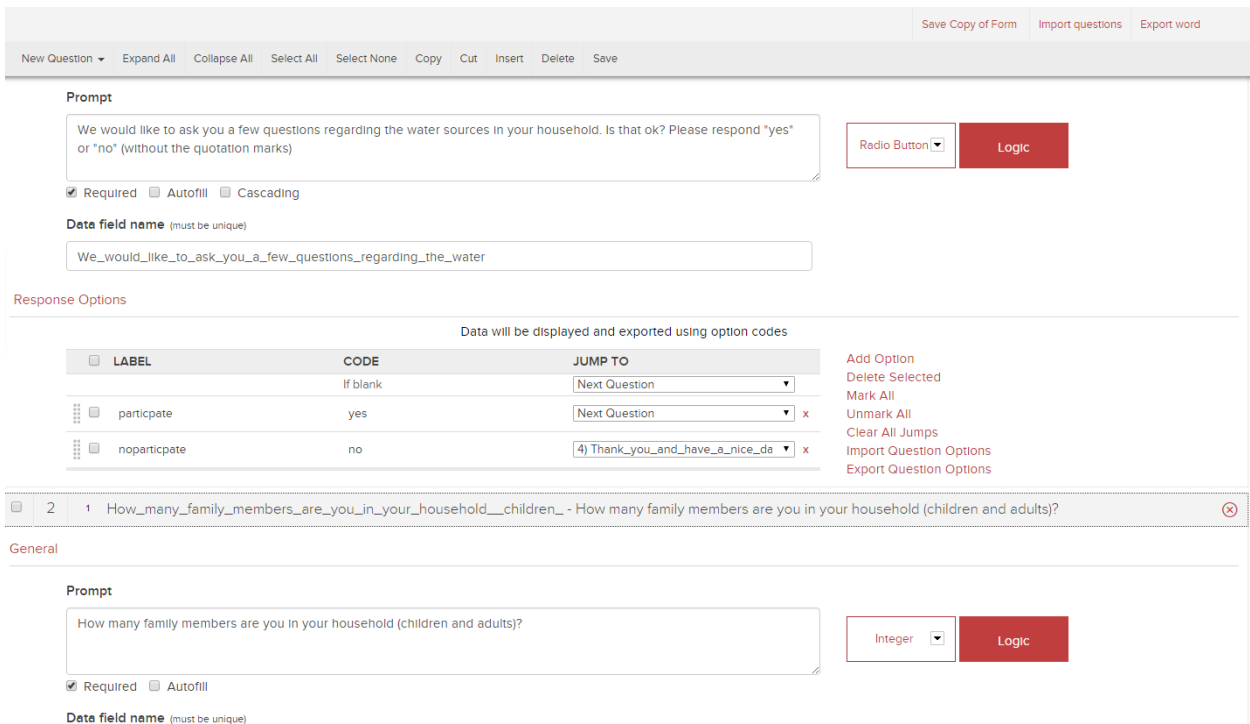
Schedule SMS (absolute and/or relative): ✓✓✓✓✓

Aspect	Comments
Primary use cases	Data collection
Installation / technical aspects	Forms are developed on the Magpi website and then shared through Magpi's electronic forms app or SMS.  All users can use a third party Android app as a gateway. In addition, Enterprise users can connect an SMS aggregator.
Main specific strengths	Data can be analysed and exported in multiple formats. Surveys permit skip logic. Magpi supports guided surveys in addition to being able to interpret formatted messages. Magpi supports text-to-speech and IVR.
Main specific weaknesses	The SMS component, including contact management, is rather basic and less polished than many of the other platforms.
Costs	Magpi offers a free account that also includes 10 free SMS. Pro accounts start at 500 USD/month and enterprise accounts at 10,000 USD/year.
Backend languages	English

## Magpi Screenshots



**Figure 9** Magpi can handle text-to-speech and audio messages in addition to regular SMS.



**Figure 10** Magpi uses the same form builder for SMS data collection and forms-based mobile data collection. SMS is simply an additional method through which the forms can be shared.

## TeleRivet



**URL:** <https://telerivet.com>

Telerivet is a well-balanced system that enables users to perform all aspects of an SMS program while having a reasonably intuitive user interface. Telerivet has good data export options, which make it a good choice for anyone who wants to work with survey data in other applications such as Excel. Telerivet just announced support for IVR, but has not rolled out this feature yet.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

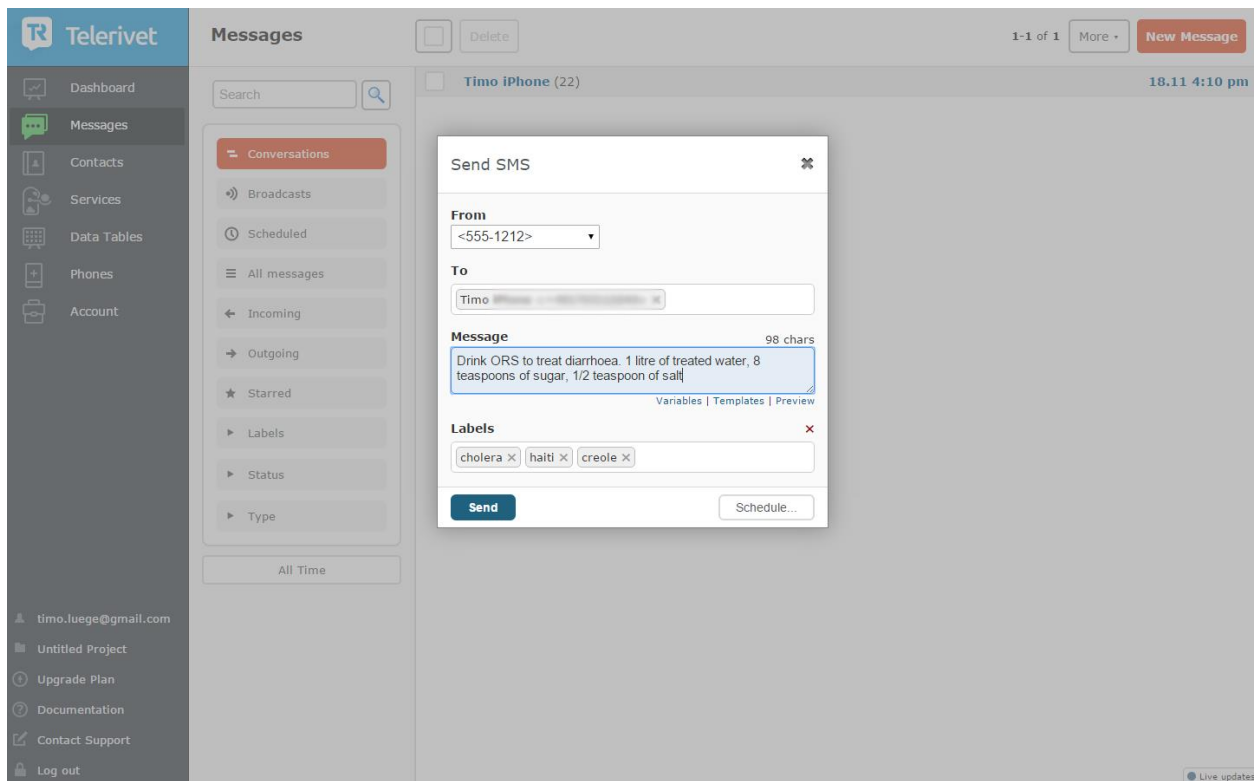
Automatically interpret formatted data/reports received by SMS: ✓✓✓✓✓

Send and receive surveys via SMS: ✓✓✓✓✓

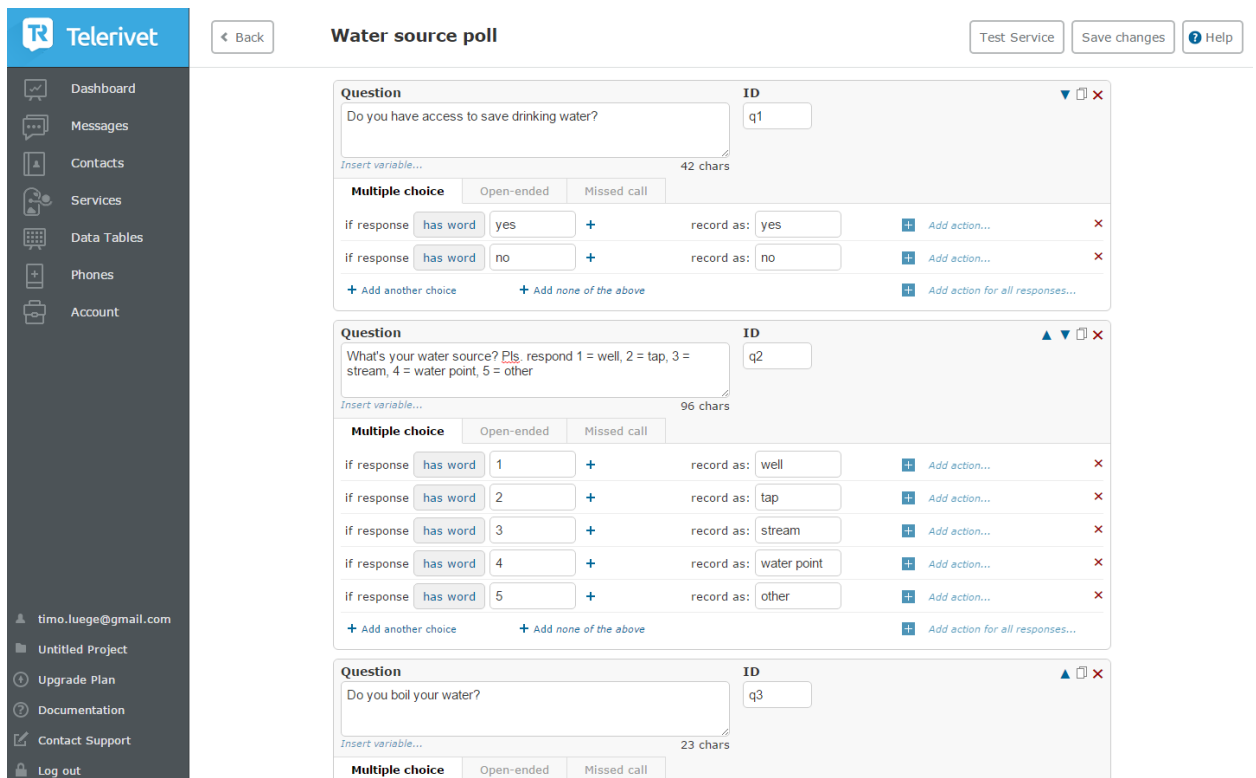
Schedule SMS (absolute and/or relative): ✓✓✓✓✓

Aspect	Comments
Use cases	Broadcast messages as well as surveys with rules-based, pre-written responses.
Installation / technical aspects	Telerivet is a web based system. Either an aggregator or an Android phone need to be synched to the service to send and receive messages. Telerivet provides users with an emulator through which workflows and surveys can be tested. Worth noting: the Telerivet android app is also being used by some other platform as a gateway, which speaks for its quality.
Main specific strengths	Telerivet's strength is not so much that it does one thing exceptionally well, but that it does everything reasonably well. While other systems might be better when it comes to specific functions, Telerivet performs very well across all criteria.
Main specific weaknesses	Creating complex surveys and actions might overwhelm staff with little technical expertise. However, most information managers should be able to use the more advanced aspects of the system without great difficulties.
Costs	Telerivet offers a test account (limited to 50 SMS/day) that is free, except for the costs of the SMS. Standard accounts starts at 30 USD/month (limit: 5,000 SMS/day) plus SMS costs.
Backend languages	English, Kiswahili, French

## Telerivet Screenshots



**Figure 11** Telerivet's messaging interface allows you to easily switch between numbers that you want to send messages from. This can be helpful if you have numbers with more than one mobile phone provider.



**Figure 12** The interface through which surveys can be conducted is comparatively easy to use and includes skip logic and other advanced features.

## TERA

**URL:** <http://www.ifrc.org/en/what-we-do/beneficiary-communications/tera/>



TERA is the only SMS platform in this report that allows users to *send* messages to *unknown contacts* at a *known location*. In other words: a TERA user can send messages to anyone in range of one or many mobile phone towers, no matter whether their phone numbers are known or not. To do this, users select the mobile phone towers on a map (see Figure 13), which requires integration in the MNOs infrastructure. This makes the platform ideal for messages that target a clearly defined geographical area, such as urgent warning messages. On the other hand, the platform lacks a lot of functionality that many other platforms have, such as sophisticated survey or data collection features.

TERA was developed for the International Federation of Red Cross and Red Crescent Societies (IFRC) and has so far only been used by the IFRC. However, the IFRC indicated that they would be open to discussing making the platform available to UNHCR.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

Automatically interpret formatted data/reports received by SMS: ✓

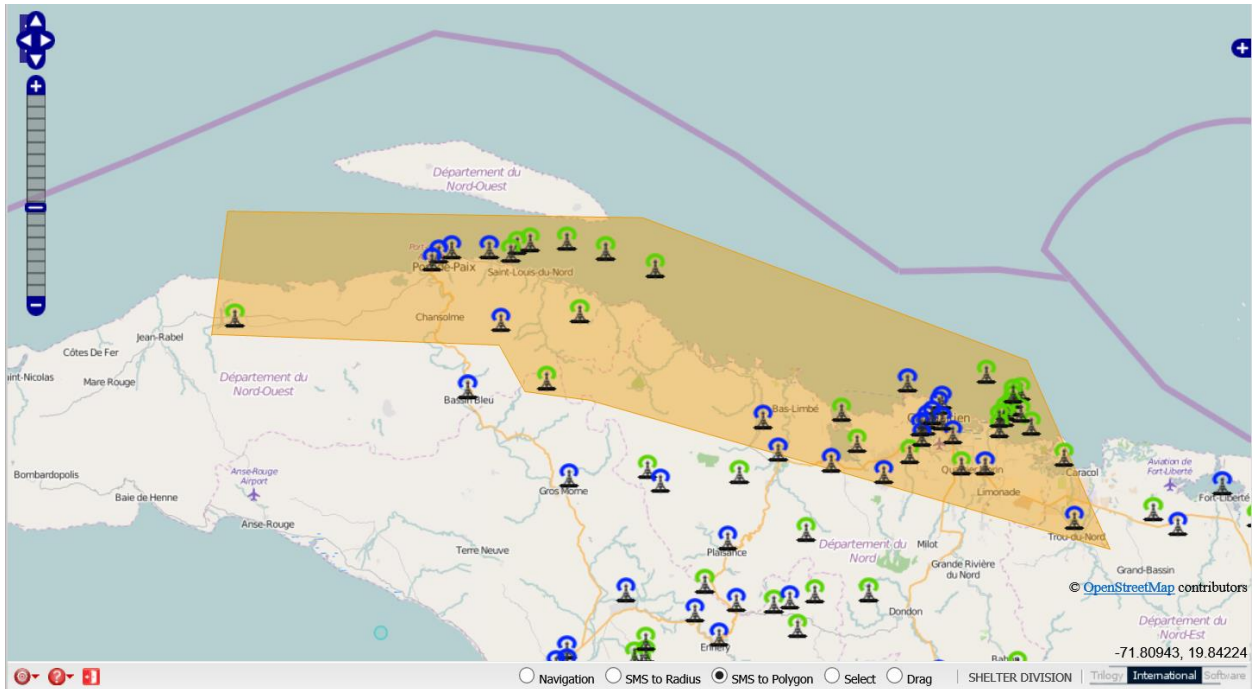
Send and receive surveys via SMS: ✓✓

Schedule SMS (absolute and/or relative): ✓✓

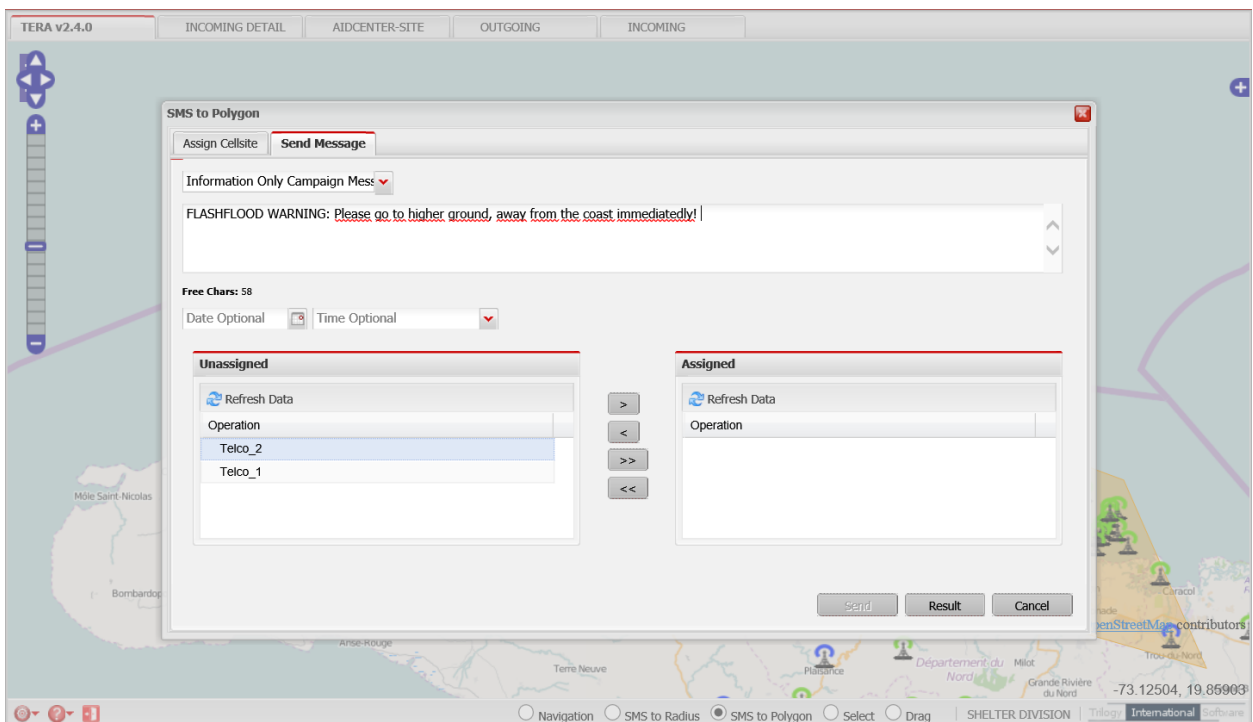
Aspect	Comments
Use cases	Broadcast messages that have the character of public service announcements.
Installation / technical aspects	In addition to installing TERA on a workstation, the software also needs to be integrated into the MNOs architecture.
Main specific strengths	TERA is the only system that can target mobile phone users within range of a mobile phone tower, no matter whether that person's phone number is known or not.
Main specific weaknesses	Lengthy setup-process since an MNO has to be directly involved. <sup>12</sup> Surveys or mobile data collection is barely possible since the system has not been designed for this purpose.
Costs	Depends on agreement with MNO.
Backend languages	English

<sup>12</sup> Because TERA has to be integrated into an MNO's system, not all aspects of the platform could be tested by CartONG. The reviewer had access to a limited test environment and received additional information from the IFRC team.

## TERA Screenshots



**Figure 13** TERA users can choose the recipients of their messages by selecting mobile phone towers on a map.



**Figure 14** Messages can be assigned to individual mobile phone providers and scheduled for later.



## TextIt (RapidPro)

**URL:** <https://textit.in>



TextIt's strength are elaborate, interactive, SMS-driven queries such as guided surveys, registration processes or reminders. TextIt provides users with a very easy to use visual interface through which users can design complex workflows without significant technical expertise.

In 2014 UNICEF licensed TextIt under the name RapidPro and released it as open source software on [GitHub](#) for free. While the functionality is identical, RapidPro requires users to run their own server without support from TextIt.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

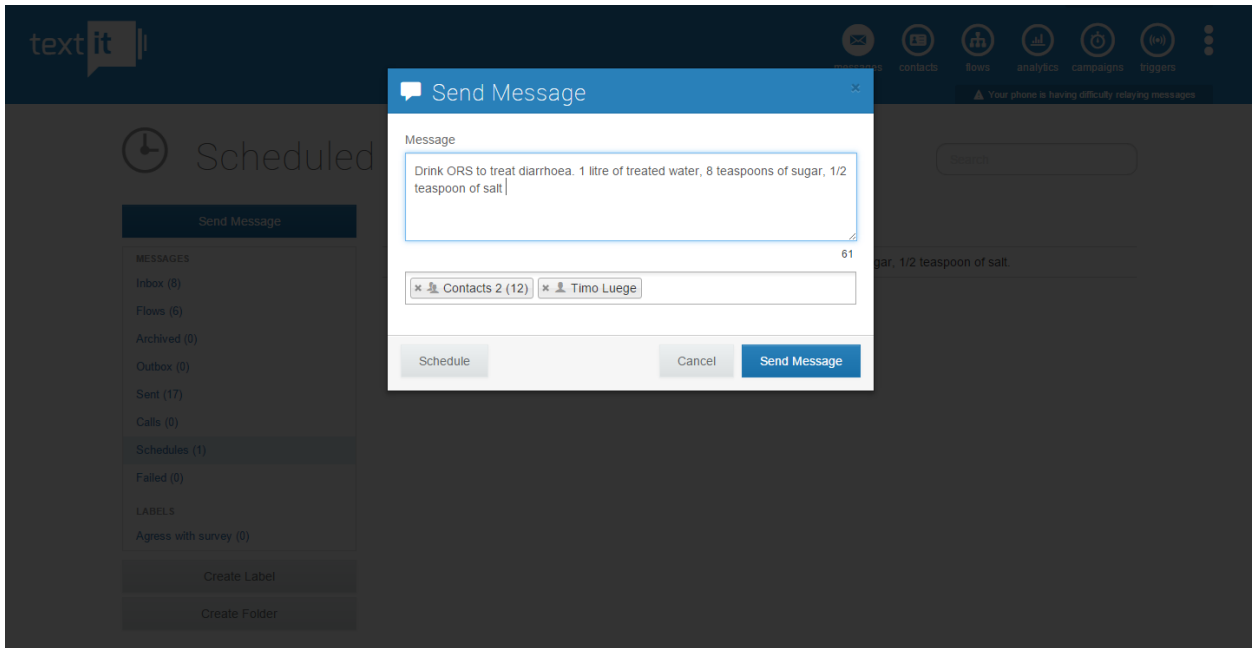
Automatically interpret formatted data/reports received by SMS: ✓✓✓✓✓

Send and receive surveys via SMS: ✓✓✓✓✓

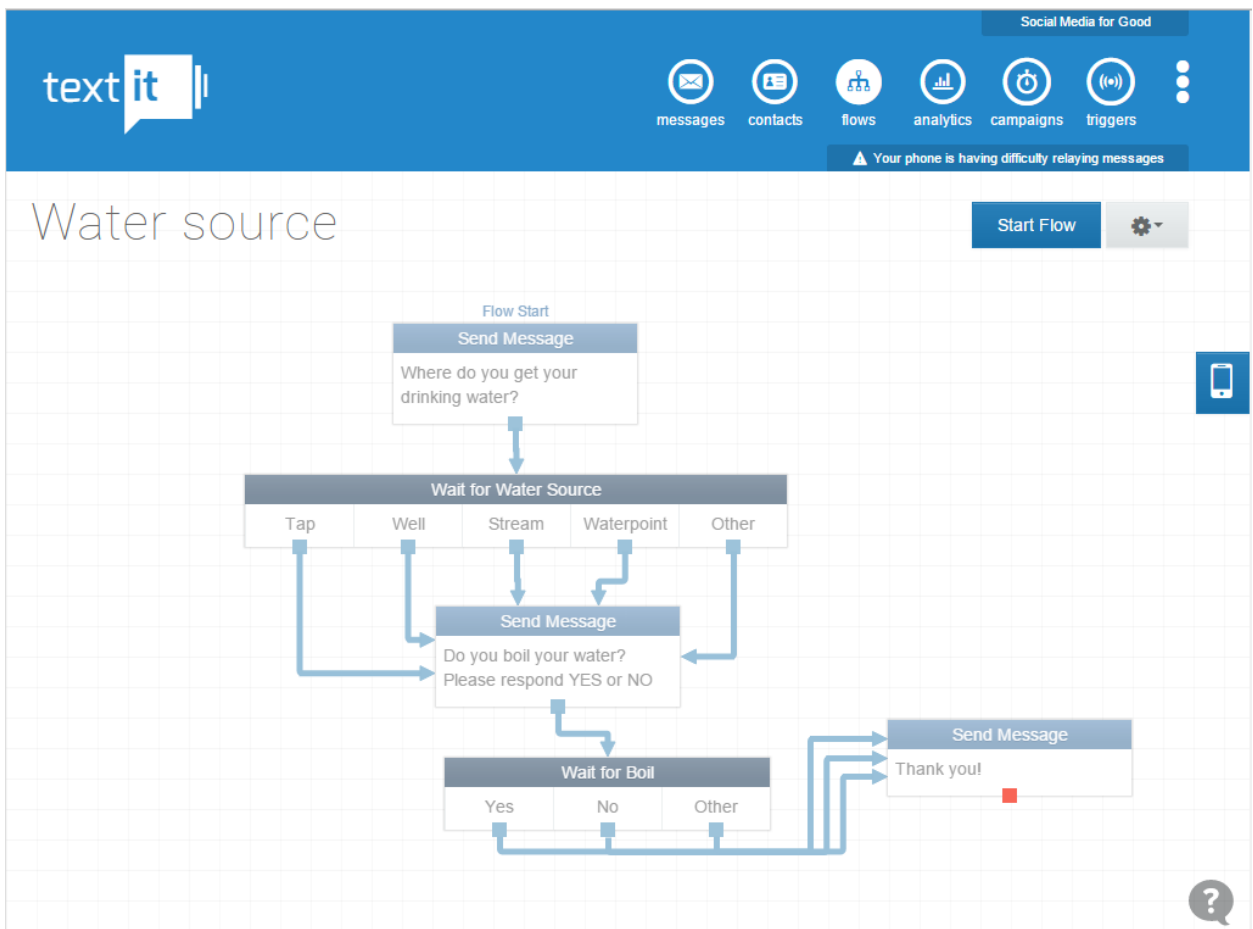
Schedule SMS (absolute and/or relative): ✓✓✓✓✓

Aspect	Comments
Use cases	Guided surveys and complex workflows with rules-based, pre-written responses. SMS programs that can benefit from substantial automation.
Installation / technical aspects	TextIt is managed online and requires no installation. Either an aggregator or an Android phone need to be synched to the service to send and receive messages. An Android app for offline mobile data collection is also available.
Main specific strengths	TextIt's strengths is all aspects that lend themselves to automation: users can easily create SMS based surveys with skip logic or complex workflows. These can segment users into different groups so that SMS can be targeted precisely.  The platform has very strong multilingual features that allows SMS to be sent in different languages depending on contacts' preferences.
Main specific weaknesses	Calculating the exact costs can be a challenge, since TextIt charges a fee per message, rather than a fixed price.
Costs	Between 0.012 USD and 0.02 USD per message plus SMS costs.
Backend languages	English

### TextIt Screenshots



**Figure 15** Textit's messaging interface is clean and without distractions.



**Figure 16** TextIt provides users with a visual interface to design complex workflows and surveys without technical knowledge.

## Voto Mobile



**URL:** <https://www.votomobile.org>

In addition to being a mature SMS platform, Voto Mobile has a strong emphasis on interactive voice response systems (IVR) and audio messages, which can be particularly useful in countries with low literacy rates. In fact, some of Voto's functionality is better developed for voice messaging than for SMS. Voto Mobile focuses mainly on African markets, but can be used worldwide through a third-party Android app or an aggregator.

### Key requirements:

Sending broadcast messages and receiving unstructured information by SMS: ✓✓✓✓

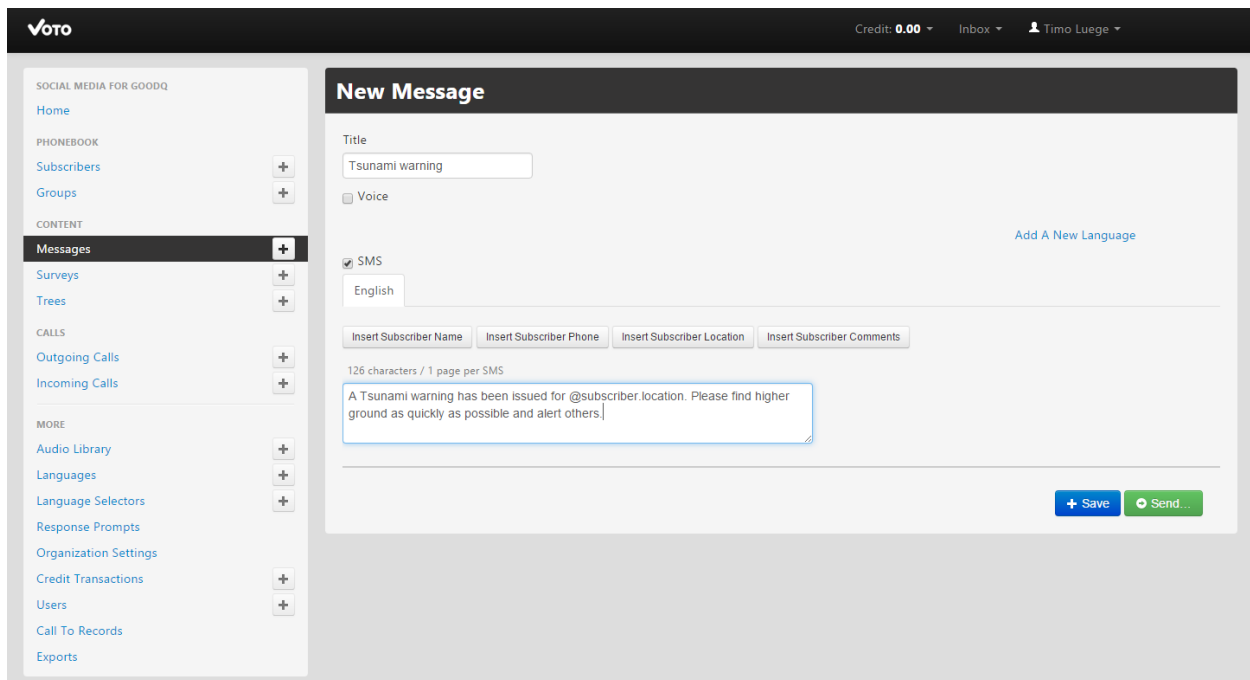
Automatically interpret formatted data/reports received by SMS: ✓

Send and receive surveys via SMS: ✓✓✓✓✓

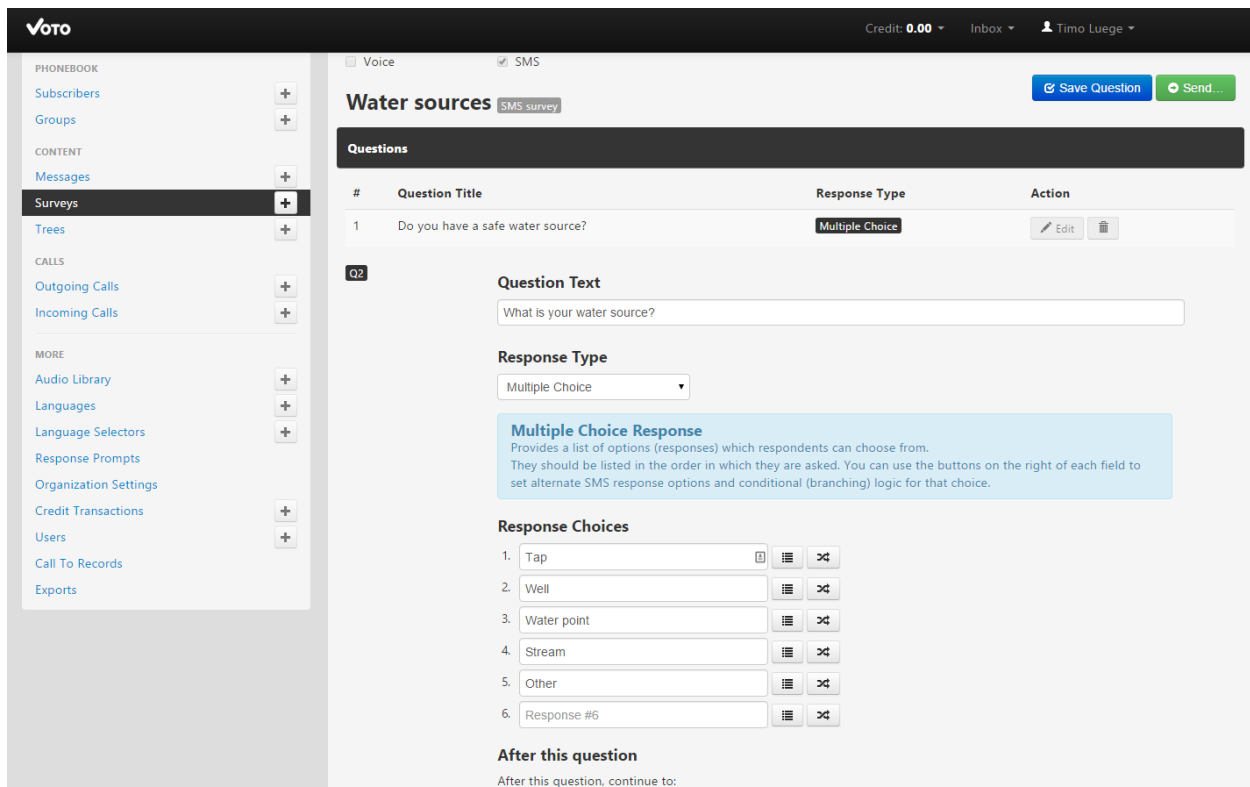
Scheduling SMS (absolute and/or relative): ✓✓✓✓✓

Aspect	Comments
Use cases	Programs where audio messages or interactive voice response systems are a priority in addition to SMS.
Installation / technical aspects	No setup necessary since Voto mobile is an online platform. Connecting an aggregator or the Telerivet app requires limited technical expertise.
Main specific strengths	Easy to use. Very strong IVR component. Users can develop advanced decision trees through different user interfaces, depending on their technical expertise.
Main specific weaknesses	Very weak documentation. Out of the box, 2-way messaging works only in Ghana, Canada and the United States. Additional countries can be added through Twilio or via the Telerivet app. Voto cannot interpret data input via formatted SMS (see 4.3 Guided and formatted data reporting).
Costs	The platform itself is free, users pay only for SMS.
Backend languages	English

## Voto Screenshots



**Figure 17** Common variables are easily accessible through the Voto messaging interface, helping to personalize text messages.



**Figure 18** Voto's survey module is clearly structured and makes it easy to create surveys without technical skills.

## Annex I - Side-by-side comparison

Most platform providers emphasized that some missing features could be added through customization. However, for the purpose of this document only features that are available out of the box were considered. All vendors received a copy of the feature list of their platform and were given the opportunity to comment.

Feature	Commcare	Echo mobile	Frontline	Magpi	Telerivet	TERA	TextIt	Voto mobile
<b>GATEWAY</b>								
Android app to send/receive SMS	Y	Y	Y	Y	Y	N	Y	Y
Third party SMS aggregator	Y	Y	Y	Y	Y	N	Y	Y
Out of the box SMS aggregator	N	N	N	Y	Y	Y	N	Y
<b>SMS SERVICES</b>								
Broadcast messages	Y	Y	Y	Y	Y	Y	Y	Y
Send and receive messages to/from individuals	Y	Y	Y	Y	Y	Y	Y	Y
Triggerable by know or unknown contact	Y	Y	Y	Y	Y	Y	Y	Y
Message templates	Y	Y	Y	Y	Y	Y	Y	Y
Personalisation through variables	Y	Y	Y	N	Y	N	Y	Y
Send SMS based on recipients current location	N	N	N	N	N	Y	N	N
<b>Scheduling</b>								
Specific time	Y	Y	N	Y	Y	Y	Y	Y
Relative time	Y	Y	N	Y	Y	N	Y	Y
Recurring	Y	Y	N	Y	Y	N	Y	Y
<b>Surveys/polls via SMS</b>								
Single question surveys	Y	Y	Y	Y	Y	Y	Y	Y
Multiple questions per survey	Y	Y	N	Y	Y	N	Y	Y

Feature	Commcare	Echo mobile	Frontline	Magpi	Telerivet	TERA	TextIt	Voto mobile
Input via formatted messages	Y	Y	N	Y	Y	N	Y	N
Input via guided questions	Y	Y	N	Y	Y	N	Y	Y
Missed call input	N	Y	Y	N	Y	N	Y	Y
Skip logic	Y	Y	N	Y	Y	N	Y	Y
Emulator	N	N	N	Y	Y	N	Y	Y
Offline mobile data collection app	Y	Y	N	Y	N	N	Y	N
<b>IVR / AUDIO MESSAGES</b>	Y	Y	N	Y	Y	N	Y	Y
<b>CONTACT MANAGEMENT</b>								
Self sign-up/unsubscribe	Y*	Y	Y	Y	Y	Y	Y	Y
Groups	Y	Y	Y	Y	Y	Y	Y	Y
Custom attributes for contacts	Y	Y	Y	Y	Y	N	Y	Y
<b>DATA MANAGEMENT AND ANALYSIS</b>								
Visualization tools	Y	Y	Y	Y	Y	Y	Y	Y
Data export	Y	Y	Y	Y	Y	Y	Y	Y

## Annex II – Related Tools and Documents

The following document can be useful for program officers interested in running an SMS program, independent of the platform they are choosing.

- **Towards a Code of Conduct: Guidelines for the Use of SMS in Natural Disasters**  
<http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/02/Towards-a-Code-of-Conduct-SMS-Guidelines.pdf>
- **Assuring the future of SMS**  
<http://www.gsma.com/membership/wp-content/uploads/2013/03/Haud-Systems-whitepaper-Assuring-future-SMS.pdf>
- **Frontline SMS – Userguide Data Integrity**  
[http://www.frontlinesms.com/wp-content/uploads/2011/08/frontlinesms\\_userguide.pdf](http://www.frontlinesms.com/wp-content/uploads/2011/08/frontlinesms_userguide.pdf)