

Messaging Apps for International Development

Project Catalog

May 2018

dial Digital
Impact
Alliance



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About DIAL

The Digital Impact Alliance (DIAL) aims to realize a more inclusive digital society in emerging markets, in which all women, men and children benefit from life-enhancing, mobile-based digital services. A partnership among USAID, the Bill & Melinda Gates Foundation, the Swedish Government and the United Nations Foundation, DIAL's efforts help accelerate the collective efforts of government, industry and development organizations to realize this vision. <http://www.digitalimpactalliance.org>.

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About Echo Mobile

Echo Mobile is a Kenyan technology and service provider that helps organizations succeed by engaging, influencing, and understanding their target audiences. Echo provides organizations across Africa with a powerful software-as-a-service platform for communications and information management, as well as strategic consulting and implementation services. www.echomobile.org

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Foreword

This Project Catalog is part of a publication series produced by DIAL and Echo Mobile in May 2018, by which point 3.6 billion people were using mobile messaging applications—nearly half of humanity. DIAL commissioned Echo Mobile to research how and to what effect international development organizations have used these applications, with findings presented in three publications:

1. This Project Catalog, which briefly summarizes fourteen development initiatives that have deployed messaging apps for development;
2. six [case studies](#), which provide focused analyses of organizations that have deployed messaging apps for development; and
3. an in-depth [white paper](#), which synthesizes lessons from across the case studies and project catalog. The paper outlines common use cases for messaging apps in development while identifying key considerations for successful project design and messaging app selection.

These publications are based on over 50 interviews with development practitioners, digital development experts, technology providers, and entrepreneurs. They are free for download and discussion at www.messengers.digitalimpactalliance.org. This website is designed to help both the development practitioners and entrepreneurs who use messaging apps and the technologists who develop them understand the following:


1. how and to what effect messaging apps have been used for development;
2. the circumstances and use cases where messaging apps have been most effective for development across different sectors, regions, and organizations; and
3. how messaging apps can be improved and made more effective for development.

The publications cover a diverse range of initiatives implemented by advocacy groups in Latin America and South Asia, social enterprises in Africa, private development firms in Central Asia, global multilaterals, and more. While the results of each case vary, they make clear that messaging apps have the potential to help development organizations inform, influence, support, and understand their audiences in new and powerful ways.

However, as outlined in the white paper and exemplified in this catalog, realizing this potential depends not on the apps themselves, but on adaptive, user-centric project design and dedicated human, financial, and technical resources. In determining whether and how to use messaging apps, organizations must consider their audience, goals, and capacity, and select the channels or app that is most appropriate, rather than what is easiest or cheapest to implement.

Agricultural Value Chain (AVC) Uzbekistan, USAID

Project Stage	Late
Sector	Agriculture
Countries	Uzbekistan
Apps	Telegram
Functionality	Broadcast channels and group chats
Goals	Enable sharing of technical and commercial information between producers, processors, transporters and marketers.



Telegram's group promotion features help increase participation

Telegram's use of phone numbers allows AVC to verify subscriber location

Background

USAID's Agricultural Value Chain (AVC) project in Uzbekistan, implemented by DAI, began in 2008 in partnership with commercial horticulture producers, processors, traders and exporters to increase technical expertise within the sector. AVC first published manuals for partners, but they were costly and cumbersome. Seeing that 78 percent of Uzbeks are expected to be online via mobile by 2020, the team developed the MEVA ("fruit" in Uzbek) mobile app in 2012. MEVA improved information distribution but still could not facilitate two-way engagement and primarily benefited producers. To facilitate two-way information exchange along the full value chain, AVC began creating multimedia social content in 2015, then turned to Telegram in 2017.

Why messaging apps?

AVC does not host its own Facebook group, but works with a local horticulturalist who manages a longstanding horticulture Facebook group. AVC monitors the group for frequent questions, then creates and shares [YouTube](#) and [Mover](#)¹ video responses and other technical content. The group has grown from 3,000 to 14,000 members and receives 7,000 monthly comments. However, with such high traffic, 25 percent of which is from outside Uzbekistan, AVC struggles to ensure its content reaches relevant audiences. Therefore, in 2017, AVC decided to shift to Telegram, the most popular messaging app in Uzbekistan. AVC believed that smaller, private, special interest groups would enable more efficient peer-to-peer information exchange, while a one-way broadcast channel would enable better distribution of technical content to farmers. Telegram's use of user phone numbers would also allow AVC to monitor users by country.

How it works

AVC created its first Telegram group with 30 production partners to provide technical information and enable discussion of regional issues. The group was later expanded to more than 600 partners, some of whom now use it as a marketplace. To reduce noise and maintain information, AVC decided to co-create and administer separate groups by function, beginning with a group on cold storage. The project also began helping production partners create, administer and populate crop-specific groups. In July 2017, AVC created its first Telegram channel to share content with the full spectrum of farmers while restricting comments and replies and to preserve content over time. Across groups and channel, AVC uploads and posts its videos for users to forward and/or download to their devices for offline sharing.

¹ Mover is an Uzbek video sharing platform that hosts content on Tas-Ix, a free national network that enables mobile users in Uzbekistan to visit locally hosted sites and upload, download and stream videos for free, without incurring mobile data charges.

Results and reflections

More than 1,600 subscribers joined the AVC Telegram channel in three months, and more than 50 subscribe weekly. Only 21 percent are female, but this rate is higher than in the Uzbek horticulture market generally (3 percent female). AVC attributes the channel's growth to Telegram's forwarding feature, which provides a link to forwarded media through which the recipient can discover the channel or group from which it was forwarded. This has allowed viral growth and for farmers to discover the channel. For AVC's partners, DAI reports that Telegram groups create a feeling of connectivity with the program and help form professional bonds across the country. However, Telegram currently provides few analytics. AVC gained access to a panel of Facebook user analytics when its Facebook group surpassed 10,000 members in 2017 but has not used the Telegram API to mine user data. The team is using the API to internally test a chatbot to provide automated responses to frequent questions.

Amigo Anônimo, Alcoholics Anonymous Brazil

Project Stage	Mid
Sector	Health
Countries	Brazil
Apps	Facebook Messenger
Functionality	Chatbot text dialog
Goals	Improved engagement between AA and youth online and through meeting system



Background

Amigo Anônimo (Anonymous Friend) is a Facebook Messenger chatbot operated by Alcoholics Anonymous (AA) Brazil. It was designed with Facebook in 2017 by the J. Walter Thompson (JWT) agency and developed by Chat Club. JWT conceived the chatbot as part of a campaign to address underage drinking by increasing AA brand awareness and meeting attendance among teens.

Why messaging apps?

AA decided to develop a chatbot to broaden its services and create an accessible entry point for young people to learn about and seek help for alcohol abuse. Rather than replace in-person meetings, AA envisioned a more personal and private first step facilitated through a familiar online platform, and a single resource for alcoholics and their family, friends and partners. JWT chose Facebook Messenger for its high penetration among Brazilian youth and because Facebook provided an integrated channel to drive adoption through viral marketing. Facebook Creative Shop also provided \$10,000 of ads and support analyzing user behavior.

How it works

When users first open a conversation with the bot, they are asked to identify themselves as someone who (1) is in treatment and had a relapse (2) thinks they may be an alcoholic, or (3) has a family member or friend who may be an alcoholic. The chatbot then leads users through a structured conversation based on in-person interviews with real alcoholics. After each message or response, the chatbot provides guidance and a multiple choice question to continue the conversation. All users are ultimately led to a list of tips, some of which are clickable and link to AA resources and email contacts. Others encourage users to attend a meeting and provide the location and email contact for the user's nearest AA meeting location.

In order to protect privacy, Facebook agreed not to share with friends when someone liked or used the AA chatbot. This means that when Facebook promotes the AA Facebook page, it will not tell users which of their friends have visited or liked the page. To avoid the impression that Facebook data was being used for targeting or that certain users were being "accused" of alcoholism, all Facebook ads for the service asked "do you know someone who needs help?" rather than "do you need help?".

Results and reflections

Despite steps to prevent users of the chatbot's individually identifiable data from being publicized to their friends as part of the page's promotion, Facebook's data policy still applies to how users might be targeted with Facebook advertisements from other organizations. The policy states that no user data will ever be made individually identifiable to advertisers, so advertisers will not be able to identify individual users of

the AA chatbot. But the policy also states that it uses “all of the information we have about you to show you relevant ads.” This may mean that aggregate information about those who use or like the AA chatbot, or even the content of their interactions, could be factored into future advertisements shown to them, potentially creating an ethical conflict for AA if the products or services advertised are interpreted as promoting alcohol use.

Despite these concerns about data use, in Amigo Anônimo’s first week, more than 100,000 people engaged the bot, 60 percent of whom were teens. AA Brazil’s email traffic increased 1,300 percent (though the baseline is not known), and meeting attendance increased by an estimated 20 percent.² While the majority of users were women, JWT has not analyzed the gender split among those seeking help for themselves and inquiries from loved ones.

Despite the bot’s early success, AA’s limited capacity in Brazil has prevented further development. With no national phone helpline, calls to action are limited to web links, email contacts and meeting locations. While Facebook Messenger provided most of the features JWT envisioned, it could not support voice recording, transcription or audio response without a third-party service. JWT still hopes to facilitate peer-to-peer text and video chat through the bot, but AA Brazil lacks the resources to recruit and manage volunteers. JWT is instead exploring implementation of this next iteration with AA USA.

² As a policy, AA does not track attendance. This was reported as an estimate.

DZCareer, Souktel and World Learning

Project Stage	Early
Sector	Youth Employment
Countries	Algeria
Apps	WhatsApp
Functionality	Automated broadcast lists and groups chats
Goals	To connect unemployed youth to local career centers and a digital jobs platform



Viber does not have flexible pricing or free services for social-sector project integrations, so Souktel used WhatsApp, which required some manual administration

Background

DZCareer is a three-year project funded by the U.S. Department of State to address youth unemployment in Algeria. World Learning began the project in 2015, developing training curriculums for career counselors and youth, which are now implemented through a network of career centers. World Learning also contracted Souktel to develop a free digital job matching platform to complement and network the career centers by automatically and remotely connecting trainees to employers and job listings. Based on market research, Souktel integrated the platform with SMS and WhatsApp to send listings to youth on their mobile phones.

Why messaging apps?

DZCareer's State Department funders conceived the digital platform to overcome distance and access issues for youth. To design for the specific context, World Learning and Souktel conducted surveys and focus groups with youth in the areas where the career centers were being built. In addition to validating the free job matching platform concept, the research showed that Viber was the most popular tool among youth for information exchange, WhatsApp and SMS penetration were high, and these tools would be desirable for job matching. Facebook penetration was also high, but youth indicated that Facebook Messenger would be less preferable for job matching. Souktel therefore sought to integrate with SMS and Viber, but after considerable negotiations with Viber was unable to agree on integration pricing. The project team instead created a technical integration with WhatsApp, carried out through another application that relays content to and from the platform. Souktel's multichannel approach—combining messenger, SMS and web—is designed to test uptake and retention across each and adjust the service accordingly over time.

How it works

When initially registering on the web platform, job seekers select their region, create a professional profile, and select to receive alerts either via SMS notifications or as a subscriber to a relevant WhatsApp broadcast list. Platform algorithms then group users by location, skills and experience. For those who select WhatsApp, their phone number is relayed to the central DZCareer admin interface, where site admins add them to the broadcast list relevant to their grouping on the platform. The platform then automates the alert process, matching and sending job listings to relevant WhatsApp lists and groupings of SMS users. SMS users receive listings via direct one-way SMS, while WhatsApp users receive them as posts to their list. DZCareer's SMS integration is one-way because there is no toll-free or zero-rated option for job seekers to respond to. Souktel found that most youth have access to Wi-Fi, enabling them to use WhatsApp for free. Building on this high level of WhatsApp connectivity, Souktel has also developed


two-way features for WhatsApp, such as polls, and now supports open-ended inquiries from job seekers that are relayed to the central DZCareer interface for admins to reply.

Results and reflections

The DZCareer project was rolled out in September, 2017, and DZCareer has since provided training and career support for more than 2,000 youth. The platform was released in November, and is now being promoted on career center Facebook pages while the project team provides free trainings for youth and employers. The team plans to monitor the WhatsApp integration for a six-month period and evaluate its use. If successful, the team may consider enabling DZCareer to directly connect job seekers with human employers on WhatsApp.

Ebola Broadcast Service, BBC Media Action

Project Stage	Complete
Sector	Emergency health
Countries	Sierra Leone and Liberia
Apps	WhatsApp
Functionality	One-way broadcast list and two-way, one-to-one chat
Goals	To disseminate lifesaving information and interact with affected communities about Ebola



WhatsApp improved on the radio call-in model, enabling audiences to submit information that subsequently informed local content targeting misinformation and health behaviour

Background

Amidst the Ebola outbreak in West Africa in 2014, BBC's international development charity, BBC Media Action, created Ebola WhatsApp broadcast lists in Sierra Leone and Liberia. The lists were used primarily as a broadcast platform to distribute locally produced multimedia public health content.

Why messaging apps?

Prior to Ebola, BBC Media Action had been working with Krio language radio stations in Sierra Leone to cover local development issues. When coverage shifted to Ebola, the organization considered different tools to complement its radio programming and ensure that content was relevant, accurate and effective at helping communities protect themselves. WhatsApp was selected based on the success of the BBC World Service's regional WhatsApp Ebola News Service. In late 2014, the World Service had created a French- and English-language Ebola list to share repurposed BBC reporting and information from health organizations. More than 20,000 people subscribed after WhatsApp gave a special dispensation to the BBC, lifting its cap of 256 subscribers for broadcast lists.

BBC Media Action saw the popularity of this service and decided to create localized versions of the Ebola WhatsApp service. WhatsApp was selected over SMS because it enabled BBC Media Action to develop multimedia content for Sierra Leone and Liberia's illiterate populations and because SMS would be more costly for users. Managing SMS also required an aggregator, whereas WhatsApp could be set up for free and accessed by anyone with the app, regardless of their mobile network.

How it worked

While the Sierra Leone list was created on a local number and managed from a local office, BBC Media Action did not have an office in Liberia, so the list was initially managed from London. For both Sierra Leone and Liberia, BBC Media Action added new contacts manually and used the lists to broadcast information to communities to help prevent and treat Ebola. At times, subscribers wrote back to BBC Media Action either in response to requests for information or with questions of their own about routes of transmission and government and agency response plans. This information helped identify areas of concern that could be addressed via WhatsApp and radio, such as dispelling rumors, encouraging behavior change and directing people to services.

Results and reflections


BBC Media Action considers the WhatsApp list a success in Sierra Leone, owing largely to the app's multimedia features and familiarity. BBC Media Action's prior research indicated that WhatsApp was commonly used by Sierra Leoneans with smartphones to share content with their communities.³ The Sierra Leone WhatsApp service received more than 14,000 subscribers, while the list in Liberia, where WhatsApp is not popular, received total engagement in the hundreds. However, the smaller group in Liberia enabled more two-way engagement with subscribers, who responded to questions posed on the list and submitted substantive feedback on the utility and clarity of content. In Sierra Leone, it became difficult for the BBC team, which had only been set up to send information to the full broadcast list, to act in individual direct messages.

In both countries the manual addition of contacts was labor intensive, especially as there was no WhatsApp Desktop at the time. Having all WhatsApp communications confined to a single phone made it difficult for the team to work collaboratively and created an existential risk to the WhatsApp program if the phone was lost or stolen. The BBC Media Action team felt that the broadcast list had great potential to collect actionable feedback from subscribers, but without a desktop app or open API, they could not easily manage the high volume of incoming content. Moreover, much of this incoming content was not substantively useful. In hindsight, the team felt that an automatic filter mechanism for incoming messages or a way to automate responses or conduct surveys via WhatsApp would have allowed them to engage more purposefully in the two-way communication messages.

³ BBC Media Action routinely conducts research to map development problems and understand local audiences in the countries where it works, focusing on media habits such as preferred content, channels and technologies, as well as media and technology spending and consumption.

Ebola Community Action Platform (ECAP), Mercy Corps

Project Stage	Complete
Sector	Emergency health
Countries	Liberia
Apps	WhatsApp
Functionality	Group Chat
Goals	Coordinate community mobilizers in the field and enable them to share experiences and learnings



WhatsApp enabled field staff to share key learnings and informal content.

Group size limits increased management requirements for central coordinators.

Upgrades and unfamiliarity with the app limited adoption to a young minority of field staff

Background

In response to the Ebola outbreak in Liberia, in 2014 Mercy Corps developed the Ebola Community Action Platform (ECAP), a program to help communities learn how to protect themselves from Ebola and to access care. Eight hundred community mobilizers from 79 partner organizations were given phones, content and training to disseminate and collect community-level information about Ebola knowledge, attitudes and practices (KAP).

Why messaging apps?

The primary use of the smartphones was for mobilizers to report on their activities in communities via a separate data collection app. Mercy Corps staff believed the phones could also be a useful tool for the mobilizers to support one another by sharing learnings, experiences and tips, which could improve their effectiveness. Mercy Corps had good experiences using WhatsApp, even in areas of poor connectivity, so they installed WhatsApp on all the mobilizers' phones. While there was no published API, [B-WhatsApp](#) was identified as a service for bulk messaging so that the app could also back up ECAP's SMS system for coordination and alerts.

How it worked

KAP data collection via Open Data Kit (ODK) was a critical project deliverable, while the use of WhatsApp was viewed as an experiment. The mobilizer training reflected this, allotting just one hour of training for WhatsApp. Training focused on basic app functionality and adding mobilizers to chat groups. Mobilizers were simply instructed to discuss and share experiences in the field. Mercy Corps staff also participated in the chat groups, but only as silent observers. This passive and unstructured approach generated low participation. To increase engagement, Mercy Corps began curating evening discussions, proposing topics, and encouraging mobilizers to share stories and suggestions based on experiences in their communities.

Results and reflections

ECAP personnel differ in their assessments of WhatsApp. All agree that trainers and mobilizers had little familiarity with the app and low technical literacy, and that the emergency context resulted in insufficient training. These issues were exacerbated by technical problems during the short training period. WhatsApp was not available on Google in Liberia at the time, forcing users to download APK files from a web link to install and upgrade the app. In the end, WhatsApp was installed on only 85 percent of the phones, many suffered long periods of failure, and usage was concentrated among the youngest 25 percent of

mobilizers. Content shared was often informal, including selfies and photos from journeys to remote communities. The ECAP Monitoring and Evaluation (M&E) Lead saw this as distracting, while the Digital Lead saw it as motivating and providing valuable storytelling material. Both agreed that when WhatsApp discussions were stimulated by a Mercy Corps admin, they produced critical learnings. However, these benefits required significant M&E staff time in the evenings and distracted from primary responsibilities. WhatsApp's 100-member group limit made the task more difficult, requiring five parallel group conversations at a time.

As Ebola came under control, Mercy Corps' use of WhatsApp in Liberia ended in 2015, and the Digital Lead left the project. A second phase, ECAP 2, launched in 2016 to mobilize community preparedness but turned to SMS and voice calls to communicate with communities. For staff learning and coordination, ECAP 2 started a Facebook page and began using Facebook Messenger. Reflecting on ECAP 1, the M&E Lead believes Facebook Messenger would have been superior due to relatively greater penetration and familiarity in Liberia and the impact of Free Basics. The Digital Lead believes it would have encountered the same issues and achieved the same results as WhatsApp.

Farm.ink

Project Stage	Early
Sector	Agriculture
Countries	Kenya
Apps	Facebook Messenger
Functionality	Chatbot text dialogue and news digests
Goals	Connect farmers to information and each other



Background

Farm.ink was founded in 2016 to build chatbots to help Kenyan farmers improve their businesses. While initial user research led to a chatbot to link farmers with buyers, testing revealed that the infrequency of crop cycles limited adoption of a marketing-only tool. Farmers first wanted a better means of filtering through large farmer Facebook groups to find relevant cultivation information about their particular location and crop. The company has since begun developing a suite of Facebook Messenger chatbots to meet this demand.

Why messaging apps?

Farm.ink's founders saw that farmers were already using large Facebook groups to exchange information. However, within groups of thousands, users could not keep pace with or search through the information to extract what was relevant to them. The team believed chatbots could provide efficiency by filtering group information, so they tested 20 prototypes on Facebook Messenger and Telegram. Farm.ink felt the Telegram API enabled bots to have more meaningful functionality within groups, but no farmers had heard of the app, and downloading and training created costs for farmers and Farm.ink. Farmers' awareness and existing use of Facebook groups and Messenger enabled more efficient user acquisition.

How it works

Farm.ink continuously tests new business models and chatbots, recently deciding to offer a suite of Facebook Messenger chatbots built on a single unified database. The first is the Africa Farmers Club (AFC) bot, which is integrated with the AFC Facebook group. Farm.ink created the group in August 2017 to generate agronomic content, then saw an opportunity to capitalize on its growth to more than 37,000 members in three months. The AFC chatbot allows group members to input their crop and location via Facebook Messenger, which generates daily messages from the chatbot with links to relevant group content and nearby farmers, as well as games that allow farmers to earn "tokens" and compete with other group members.


Users can also use the chatbot to search for farmers and information by crop or location, prompting the chatbot to return links to content and member profiles. Farm.ink uses natural language processing (NLP) to extract terms from the text of Facebook group posts, label them by crop, and enable the bot-based search. Tagging by more complex criteria, such as the post's intent (e.g., ask a question, share a story, etc.) is done manually, but Farm.ink expects to increasingly automate these tasks as it expands its dataset. Farm.ink no longer applies NLP to parse unstructured user input to the chatbots, because in testing users preferred a button-based interface, and NLP technology struggled with text written in a mix of languages.

Results and reflections

As of November 2017, the AFC group averaged 28,000 active users, 2,000 posts, 19,000 comments and 70,000 reactions monthly. Fam.ink does not share chatbot user data, but reports retention is high. Farm.ink has begun testing the next chatbot in its suite, which will be licensed to agribusinesses for use as a “digital field agent.” The chatbot can answer questions, explain products, accept mobile payments, and process and deliver information like soil testing results through an API, emulating human field agents in a more cost-effective and scalable way. In addition to AFC Farm.ink is now prototyping a full suite of chatbots all built on the same database to include other services such as connecting buyers.


Food Bot and the AIDA Chatbot Builder, WFP and InSTEDD

Project Stage	Mid
Sector	Humanitarian response/food security
Countries	Worldwide
Apps	Facebook Messenger and Telegram
Functionality	Chatbot text dialogue
Goals	Provide refugees with an additional channel to communicate with WFP staff



Facebook Messenger is the preferred chat platform of refugees in sub-Saharan Africa

mVAM is designing for existing Messenger users and is not attempting to drive adoption



Some refugees use Messenger Lite or access Messenger through Facebook on their browser, preventing mVAM from leveraging UI features optimized for the app

Background

Since 2013, the mobile Vulnerability Analysis and Mapping (mVAM) project has monitored food security trends through short surveys of World Food Programme (WFP) beneficiaries (i.e., food insecure people around the world) using SMS, live phone interviews, online surveys and an interactive voice response (IVR) system. mVAM then anonymizes, cleans and analyzes the data, sharing the results as a public good and using them internally for humanitarian decision making. mVAM also shares information with beneficiaries through IVR and Free Basics (free websites), which beneficiaries can call and browse for free to access information about food prices and WFP assistance (e.g., food distribution dates) or provide feedback using the same channels. Since its inception, mVAM has worked in 34 countries, primarily in sub-Saharan Africa.

Why messaging apps?

In 2016, mVAM decided to experiment with chatbots as a new channel for beneficiaries to report and access WFP information, recognizing the growing popularity of messaging app in beneficiary countries, particularly among young people. mVAM engaged InSTEDD to prototype “The Food Bot” on Telegram and showcase the idea to donors and partners. However, early user testing in Haiti, Nigeria, and Kenya found that beneficiaries were unfamiliar with Telegram. Facebook Messenger and WhatsApp were the most commonly used messaging apps. In 2017, the team subsequently received funding to develop The Food Bot on Facebook Messenger. They conducted two rounds of user testing in the Kakuma Refugee Camp in Kenya and in Maiduguri, Nigeria, with refugees, internally displaced people, and with WF Country Offices. Field testing found that while not all refugees use Facebook Messenger, it was popular amongst 20- to 40-year-olds and community leaders, and there was significant demand for a chatbot service amongst country teams.

How it works

Initial testing with beneficiaries suggested that The Food Bot would be useful for refugees in Kenya to provide feedback and submit complaints about WFP services, while In Nigeria it could be used to collect price information from traders. However, after testing with WFP Country Offices, mVAM and InSTEDD concluded that a single generic Food Bot would be insufficient to meet their diverse needs. Instead, mVAM concluded that WFP Country Offices and other humanitarian teams needed a web platform to quickly build and deploy their own custom chatbots with little in-house programming skills. mVAM and InSTEDD pivoted and began developing a chatbot builder platform for the humanitarian sector called AIDA. mVAM will

become AIDA's first major user in late 2018, as InSTEDD refines it for release as an open-source tool at the end of the year.

Results and reflections

WFP and InSTEDD's experience demonstrate the importance of conducting extensive user research and iterative testing before deploying messaging apps for development. In addition to their broader pivot from a single chatbot to a chatbot builder platform, testing also revealed insights about how different beneficiary groups access and use Facebook Messenger, and thus which user interface features they experience. While some download and use the Facebook Messenger app, others use Messenger Lite, which eliminates some advanced features to save space and use less data.

To avoid data charges, others log into the Facebook social media platform through their mobile browser and then use Facebook Messenger through the website. For these users, key UI features enabled through the Facebook Messenger API, such as multiple choice bubbles, are not supported. For AIDA, WFP and InSTEDD are designing chatbot interfaces that cater to all user groups, and eventually to multiple messaging apps.

MomConnect, Praekelt.org

Project Stage	Late
Sector	Health
Countries	South Africa
Apps	WhatsApp, Facebook Messenger and WeChat
Functionality	One-way messaging and one-to-one, human, text-based help desk
Goals	Improved antenatal care systems and practices



WhatsApp integration is most promising, but concerns remain about billing.



Facebook Messenger integration could not be automated because Facebook profiles rarely included mobile phone numbers.



WeChat integration provided little benefit due to low adoption in South Africa.

Background

Praekelt Foundation developed MomConnect in South Africa in 2013 as part of the Mobile Alliance for Maternal Action, a global partnership to reduce maternal and infant deaths by delivering information to women on their mobile phones. MomConnect provides pregnant women and new mothers with a text-based help desk to which they can send questions and receive guidance from trained nurses, as well as automated reminders and tips delivered throughout their pregnancy. Both aim to improve health services, outcomes and systems by driving utilization of public clinics and generating real-time performance data for health officials and providers. While registration is still conducted exclusively via USSD, and services are still available via SMS and IVR, in 2016 Praekelt decided to also test MomConnect services via messaging applications.

Why messaging apps?

Praekelt pursued messaging app integration to enable faster and cheaper messaging for MomConnect and its users and to expand MomConnect's help desk experience. WeChat was tested first due to availability of the API, but the app's penetration in South Africa was low and its user base was outside the low-income demographic. Praekelt also tested Facebook Messenger integration but struggled to reliably link users to their Facebook accounts due to users not always having registered their mobile phone numbers. Despite these challenges, in 2017 Praekelt decided to test WhatsApp when offered an exclusive opportunity to pilot an unreleased API.

How it works

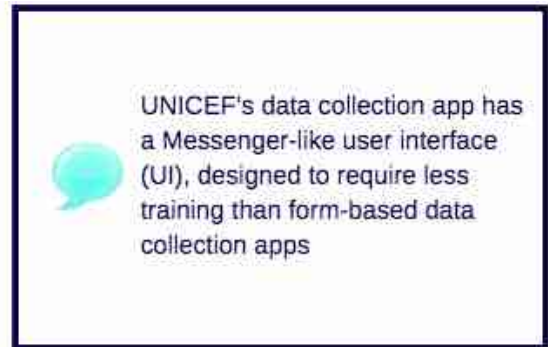
After a new MomConnect user registers via USSD, the platform now uses the phone number to automatically search WhatsApp and allow subscribers to engage MomConnect via the app. If the subscriber is a WhatsApp user, all further tips and helpdesk communications happen across WhatsApp. If not, the subscriber still has access to the MomConnect services via SMS or IVR. On the backend, help desk nurses monitor the system and push responses to incoming queries through a single, channel-agnostic interface, which then delivers them according to each user's preferred channel.

Results and reflections

Praekelt reports that its WhatsApp integration has quickly improved MomConnect's efficiency and effectiveness, but viability depends on the final commercial pricing. Plans and new funding are nevertheless in place to test multimedia and other behavior change content and techniques via WhatsApp, and early prototyping with bots and groups is proceeding with caution.

RapidPro Surveyor, UNICEF

Project Stage	Mid
Sector	Civic engagement
Countries	Worldwide
Apps	Native application
Functionality	Field data collection application
Goals	Replace forms with offline, text-based and multimedia data collection in the field through an easy-to-use messenger-like user interface



Background

UNICEF, in collaboration with Nyaruka Ltd., released RapidPro in 2014 as an open-source platform to allow international development practitioners to develop country-specific mobile services for engagement and data collection. The platform lets users create SMS and IVR applications. UNICEF has used RapidPro to deploy many SMS-based data collection systems and has found a back-and-forth messenger-bot-like dialog to be useful in guiding data collectors. The RapidPro Surveyor application was created in 2015 to provide a chat-like interface on smartphones without network connectivity. RapidPro Surveyor's messenger-like UI reduces user training requirements and improves data quality.

Why messaging apps?

RapidPro Surveyor is not a messaging application in the traditional sense, in that it does not let people chat with others on the internet. Instead, it provides a messenger UI through which data collectors interact with simple bots to record information in a conversation rather than by filling out complex electronic forms. UNICEF believed a conversational UI would be more familiar to field staff, who were increasingly using smartphones and messaging apps, and that it would be easier to learn than data collection apps like Open Data Kit (ODK) Collect. UNICEF already had custom chatbots to test the viability of conversational messaging UI but needed an app that could work without an internet connection.

How it works

Users create surveys using RapidPro's web-based survey composer. These surveys are in the form of a "flow" of questions that can include branching logic to ask different questions based on a user's responses. The finished surveys are downloaded to the RapidPro Surveyor Android app. Using the Android app, users answer the survey questions, and the answers are stored on the phone or tablet to be uploaded back to RapidPro when the device is again connected to the internet.

Results and reflections

Beyond the reduced training requirements, UNICEF also observed that RapidPro Surveyor similarly allows for validation and normalization of data "on the way in," as users work through a survey. This in-the-moment validation lets users correct mistakes and improves data quality. Despite these benefits, RapidPro Surveyor remains experimental and UNICEF does not have plans to promote its adoption.

Save Bangalore's Trees & #BangaloreIsBurning Campaigns, Jhatkaa

Project Stage	Late
Sector	Environment
Countries	India
Apps	Whatsapp
Functionality	Group reporting and dialogue; broadcast lists
Goals	Motivate, coordinate and facilitate citizen environmental advocacy



Jhatkaa supporters are more responsive via WhatsApp than on SMS, IVR or email

WhatsApp media sharing features enabled crowdsourcing of evidence for activism

WhatsApp group and list limits create major inefficiencies for large-scale communication

Background

Jhatkaa is an Indian advocacy organization founded in 2013 to initiate grassroots citizen campaigns for action on environmental and human rights issues. Most of Jhatkaa's work has revolved around online petitions, followed by advocacy and outreach with supporters via SMS, IVR, missed calls, email and social media. In 2016, Jhatkaa used WhatsApp as an additional channel to engage supporters of two separate campaigns in Bangalore.

Why messaging apps?

Jhatkaa first used WhatsApp as part of the #BangaloreIsBurning campaign to stop trash burning. Because local officials had minimized the issue, Jhatkaa saw an opportunity to crowdsource photographic and locational evidence via WhatsApp, used by 96 percent of Indian smartphone owners.⁴ In September, Jhatkaa initiated a new campaign, Save Bangalore's Trees, to halt the destruction of trees for road widening. Unlike #BangaloreIsBurning, the campaign did not require crowdsourcing photos, locations, or other multimedia from supporters. Therefore instead of using WhatsApp, Jhatkaa had new campaign supporters register by making missed calls to a dedicated phone number. Supporters were then sent an SMS encouraging them to refer friends. The marketing was successful, generating more than 200,000 missed call registrations, but this scale made the cost of continued SMS outreach and engagement unsustainable. Moreover, few registered supporters responded to SMS outreach. Hoping to increase engagement and reduce costs, Jhatkaa attempted to transition supporters to WhatsApp for continued dialogue and updates.

How it works

Both campaigns were marketed through email, Facebook, print, radio and events, calling on supporters to sign an online petition and contact a mobile phone number. For #BangaloreIsBurning, supporters were asked to send a WhatsApp message to a number to be added to a group through which they could then share photos and locations of trash fires, which Jhatkaa then added to a public [map](#). Supporters of Save Bangalore's Trees were asked to make a missed call to a number to register their contact. Upon registration, Jhatkaa would send supporters an SMS with a call to action to forward it to others so they could also register. After registration and referral, Jhatkaa continued trying to engage supporters via SMS dialogue and updates. As SMS costs increased and engagement waned, Jhatkaa attempted to move

⁴Supporters were politically active urban residents who had signed an online petition, so Jhatkaa expected most had smartphones.

supporters to WhatsApp by sending an SMS with a new WhatsApp number and encouraging recipients to contact the new number via WhatsApp to join a group or broadcast list.

Results and reflections

Both campaigns successfully met their goals, as Bangalore issued penalties for burning garbage, and the road-widening project was canceled. More than 500 fires were submitted to the #BangaloreIsBurning groups for mapping, and the Save Bangalore's Trees groups had up to 10 percent engagement from members, up from 1 percent on SMS. Yet only 2,000 of the total 200,000 supporters transitioned to WhatsApp. And even at small scale, WhatsApp's limits on group and list size forced Jhatkaa to break the contacts into multiple groups and lists, at one point managing more than 20 groups at a time. Jhatkaa fears that at greater scale, these limits will become unmanageable. Conversely, the organization has capitalized on these groups by conducting A/B testing of different messaging approaches, sharing identical links with different messages to different groups, then using the source code to compare click rates for each.

Shujaaz, Well Told Story

Project Stage	Early
Sector	Youth/education
Countries	Kenya and Tanzania
Apps	Facebook Messenger and WhatsApp
Functionality	Peer-to-peer and group chat
Goals	Drive behavior change through character-driven entertainment and education.



WhatsApp engagement exceeded the Shujaaz team's capacity, leading to a new "Player First" strategy in which fans self-organize and administer their own chat groups

Shujaaz Facebook page admins receive private fan messages via Facebook Messenger in order to counsel sensitive issues and recruit research and event participants

Background

Founded in 2010, Well Told Story (WTS) is a Nairobi research and production company that produces Shujaaz, a youth media initiative that combines a comic book with radio and YouTube programs. Shujaaz revolves around young, authentic fictional characters who surface sensitive issues to help youth improve their lives. These issues are usually part of broader campaigns or research initiatives conducted on behalf of WTS' commercial and development partners and clients. Fans then engage with the characters and issues through toll-free SMS, WhatsApp and social media, including character Facebook pages and Facebook Messenger accounts, which are used to generate research insights and drive behavior change.

Why messaging apps?

The WTS hypothesis is that collective discussions lead to collective behavior change, so Shujaaz values two-way and group communication with fans. For the many fans without internet access, toll-free SMS has been an essential channel for engagement. For those with internet access, social media has been equally critical. Shujaaz Facebook pages, created for each of its characters, enable fans to gather in a public digital space and engage with the characters and each other to discuss issues prompted through Shujaaz programming. Because of Facebook Messenger's direct integration with these pages, the Facebook Messenger app quickly emerged as another key tool to engage fans one on one. While Facebook Messenger allows for group chats, they cannot be created by a Facebook page account, such as those for the various Shujaaz characters. Therefore as WhatsApp penetration began to grow in Kenya in 2015, the Shujaaz team adopted WhatsApp as a means to create and monitor smaller group discussions with fans.

How it works

All Shujaaz media calls for fans to engage characters via SMS and the Facebook pages of its different characters. The Facebook page for Shujaaz's main character, DJ B, has the largest number of fans, who engage through comments on his posts. WTS has a dedicated social media team that manages the page, prompting conversations through posts and comments. Followers can also engage DJ B through Facebook Messenger to seek support with personally sensitive issues. The Shujaaz social media team then either asks the follower to share their story anonymously for group discussion or refers them to professional services. Since 2015, the team has also created more than 20 WhatsApp chat groups on behalf of DJ B. Some are created after in-person events for attendees to stay connected, while others focus on specific themes. Some are created as targeted focus group discussions for research purposes. Fans are also encouraged to form and manage their own groups and add DJ B's number.

Results and reflections

WTS regularly tracks the volume and content of SMS and Facebook interactions. Entering 2018, DJ B's Facebook page had 567,000 followers, and in 2017 inspired 106,089 comments from 37,835 unique users. Nearly 500,000 fans sent more than 90,000 monthly SMS texts to Shujaaz's toll-free SMS shortcode. In the same year, Shujaaz found that fans exposed to these digital channels were associated with better family planning practices and higher income than their peers. Toll-free SMS remains Shujaaz's most frequently used channel. The company does not yet separately track Facebook Messenger and WhatsApp engagement but receives hundreds of daily messages on each. WhatsApp is especially difficult to analyze without an API or analytics feature, and the group chat size limit has stretched capacity, leading WTS to deprioritize it as an area of focus for fan engagement while encouraging fans to create their own chat groups.

Tarjimly

Project Stage	Early
Sector	Refugee services
Countries	Global
Apps	Facebook Messenger
Functionality	Chatbot and peer-to-peer text dialog
Goals	Provide refugees and aid workers instant access to live translators



Background

Founded in early 2017, Tarjimly is a chatbot that connects aid workers and refugees with human translators around the world. The founders, all Muslim-American technology professionals, were moved to help refugees after watching news of the Syrian civil war and resulting refugee crisis unfold. When they volunteered in refugee camps, they spent most of their time helping translate for refugees and the aid workers who served them. Afterwards, they determined to apply their technical and linguistic skills to create a chatbot to supplement the shortage of translators available to refugees and aid workers.

Why messaging apps?

Despite a shortage of translators available to refugees and aid workers in person, the Tarjimly founders discovered a substantial supply of multilingual speakers willing to help remotely. What was required was a low-cost intermediary to connect translator supply with demand. The team believed that a chatbot linked to a popular messaging app would be the most practical solution in terms of development costs, overhead and onboarding. The team chose Facebook Messenger, calling the app the “the best and most robust” option to develop their chatbot and facilitate peer-to-peer conversations, and noting that aid workers, refugees and translators were already using Facebook to call on their global networks for assistance.

How it works

When first opening Tarjimly, users select whether they are a refugee, aid worker or translator. Translators then input which languages they speak and their available time slots. Thereafter, during the selected slots, Tarjimly asks the translators if they are available. Translators who confirm availability can then be matched with refugees or aid workers. When refugees and aid workers register, they select the languages they need to translate and wait as the chatbot searches for a translator according to language, availability and quality ratings. When the match is made, both parties receive an introductory message within the chatbot and a note that they are entering a live session. To protect the privacy of both parties, the chatbot does not connect users directly through their Facebook profiles but instead hosts a conversation within the chatbot dialog box. Both sides are able to exchange text, photos and audio notes to request or provide translations. Throughout, the refugee or aid worker can push a button to “end session,” prompting a translator rating that feeds back into the algorithm for future matching.

Results and reflections

While Tarjimly originally expected that refugees would be using the app most frequently, in practice, most users are the aid workers who are helping refugees. Across all three user groups, onboarding has been smooth due to Facebook’s popularity. In its first week, Tarjimly registered more than 1,000 translators and now hosts hundreds of sessions monthly. User reviews are mostly positive, and a common request from translators has been for sustained relationships with refugees. Tarjimly is now experimenting with a

scheduling feature.

While Tarjimly continues to believe Facebook Messenger is the best option to support its services, some limitations have frustrated expansion. Users cannot connect via live video chat because conversations are hosted by the Tarjimly chatbot, which is connected to Tarjimly's Facebook page, not a user profile. Facebook only facilitates video chat on Messenger between two user profiles connected directly, not for conversations mediated by a chatbot. Tarjimly is also not language agnostic. It supports 11 languages and continues to add more. In the very long term, the Tarjimly team envisions expanding its product to serve as a generic translation mediator between multiple different messaging platforms.

U-Report, UNICEF

Project Stage	Late
Sector	Civic engagement
Countries	Worldwide
Apps	Facebook Messenger and Telegram
Functionality	Chatbot and P2P text dialogue
Goals	Allow young people from around the world to join and participate in a social movement that amplifies their voices to help create positive political and social change



For a legacy SMS program, does it make sense to switch to messaging applications?



Telegram was ineffective due to lack of familiarity among active U-Reporters

Background

U-Report is a program intended to amplify the voices of young people in countries where UNICEF works. It was originally implemented using SMS to allow youth to register as “U-Reporters” and then receive and respond to questions about their lives. Responses are aggregated and shared back to U-Reporters, government and NGOs, and are published publicly. In emergencies, such as the 2014-2016 West Africa Ebola outbreak, U-Report was also used to deliver lifesaving information. In 2016, UNICEF started experimenting with allowing youth to interact with U-Report using internet messaging applications.

Why messaging apps?

Responding to trends showing the increased use of messaging applications among youth around the world, U-Report decided to expand its channels. Telegram was chosen first in early 2016 because it was one of the first messaging applications to provide an open API that allowed organizations to develop and integrate chatbots with other platforms. Telegram, however, had low penetration in the countries where U-Report operates, so it was never used at scale. Later in 2016, U-Report tested the Facebook Messenger API for delivering U-Report surveys. By late 2017, the integration was still at an early stage, but the U-Report team viewed its partnership with Facebook as a critical investment that would result in cost savings to U-Report and U-Reporters because, unlike SMS, there is no per-message cost to use Facebook Messenger.

How it works

U-Report’s use of messaging applications relies on structured decision trees. U-Reporters send messages and are asked specific questions based on the content. U-Report sometimes supplements this with appointment-based activities, where incoming questions are answered live by UNICEF staff and answers are streamed live on Facebook. These sessions allow U-Reporters to receive a more in-depth human response that is then amplified for a broader audience. UNICEF is experimenting with machine learning and artificial intelligence for future U-Report chatbot conversations, but human involvement is still considered essential to provide critical learning that will later optimize the machine learning structure.

Results and reflections

While U-Report has since developed about 20 different conversation streams using Facebook Messenger, their deployment remains in the early stage and their effectiveness relative to toll-free SMS is yet to be thoroughly assessed. As of late 2017, U-Report had only deployed a chatbot at scale in Myanmar, where

15,000 U-Reporters have been engaged through Facebook Messenger following difficulties integrating with the mobile network operators for SMS communications. U-Report representatives have resisted drawing early conclusions about the Facebook Messenger integration, noting that the U-Report platform's architecture, originally built only for SMS, is still being adjusted to optimize the integration. One clear benefit is that Facebook Messenger is more cost effective than SMS for, has great UNICEF and, therefore scaling potential.