Better Together

Pooling Aid Sector Demand for Digital Public Goods

Lessons from Sizing Mobile Channel Demand in Sub-Saharan Africa

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Digital Impact Alliance



BILL& MELINDA GATES foundation





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The Digital Impact Alliance envisions a world in which the underserved benefit from digital technology. DIAL is committed to identifying the most effective and efficient digital solutions to speed service delivery to reach more people and position countries to achieve the Sustainable Development Goals (SDGs).

DIAL has three primary aims: to expedite the deployment of proven software and technology platforms; expand mobile distribution channels; and ensure responsible, widespread access and use of network data. We conduct research and demonstration projects across these areas. For more information about the Digital Impact Alliance or this paper, please visit our website: <u>www.digitalimpactalliance.org</u>.



Altai Consulting is a consulting firm that specializes in emerging markets. Its client base includes private companies active in various sectors, as well as public institutions, international organizations and charities, including the World Bank, CGAP, GOGLA, the Bill & Melinda Gates Foundation, USAID, DFID, JICA, UNHCR, UNICEF and IOM. Altai has advised the governments of several developing countries in Africa, the Middle East and Asia in improving the effectiveness of their public policy and service delivery mechanisms.

EXECUTIVE SUMMARY

Mobile communication channels have the potential to deliver services targeting the underserved in support of the Sustainable Development Goals (SDGs). But while there have been projects that have experimented with the delivery of these services, most have not scaled beyond the pilot stage. DIAL believes that part of the reason for this failure to scale is the cost of provisioning mobile channels.

Building off of DIAL's continued exploration of innovative financing,¹ our initial hypothesis was that demand aggregation or pooled procurement of the development sector's spend on mobile communication channels could be used to secure better pricing and quality of service from the private sector. This paper illustrates the results from the first step in verifying this hypothesis: to quantify and qualify the potential value of the market, focusing on communication costs for mobile channels (SMS, voice/IVR, USSD, mobile money) used to interact with beneficiaries by implementers of aid and development projects in five sectors across sub-Saharan Africa (SSA).



Method and Results

We started by performing fieldwork in five countries, covering the four main SSA regions: the Democratic Republic of the Congo (DRC), Ghana, Malawi, Tanzania and Uganda. We then conducted 116 interviews across 78 organizations, covering the overall ecosystem: mobile network operators (MNOs), aggregators, donors, multilateral organizations and nongovernmental organization (NGOs). The following are key findings by mobile channel:

- SMS volumes are driven by a few players, mostly multilateral agencies.
- Voice/IVR allows for rich interactions, but impact needs to be documented further.
- USSD usage by aid and development players appears limited despite promise.
- Interest in mobile money is high among both supply and demand players.
- Mobile internet adoption is still limited in potential.

In each of the five countries, the 2018 market value of all mobile channels generated by NGOs and multilateral organizations was estimated at between \$500,000 and \$1 million. Using data from these five countries to extrapolate to all 48 countries in SSA, the total 2018 market is estimated at \$15.7 million, with mobile money standing out as the largest channel. This aggregate number for the sector appears low compared to the overall size of the telecommunications market.² Market appeal is further reduced by the fact that the mobile sector already perceives the aid and development sector as being difficult to work with, due to uncertainty of demand, long procurement processes and other factors.

While price has been cited as a reason for this low aggregate number, the fieldwork suggests that it is driven more by the lack of awareness of many implementing partners, particularly at the country level. These challenges to scale are consistent with qualitative findings obtained from DIAL's Ecosystem Baseline study in 2018. That said, the market appears bound to grow due to strong underlying trends. Our model predicts three scenarios that show a 2022 market value of between \$31.6 million and \$61.6 million. One key driver of growth is the

² According to GSMA's report, The Mobile Economy Sub-Saharan Africa 2018, the total operator revenues were \$40 billion in 2017.

¹ <u>http://digitalimpactalliance.org/wp-content/uploads/2018/12/DIAL_Financing_Digital_Markets_final.pdf</u>.

massive transition from in-kind to cash aid distribution, which is expected to continue. Mobile money's share in this transition is currently small but is expected to increase. The second key driver of growth is strong macro trends contributing to a larger market, including a growing and more literate population, higher rates of digital literacy supported by better coverage and mobile penetration, mobile money services' improved know-how and implementation over time, and aid and development organizations' continuous commitment to the further use of technology.

Next Steps

The original remit of the research was to investigate whether there was an opportunity to aggregate demand for basic core mobile channels (i.e., SMS, voice, USSD) as a means of securing better pricing or improved service, given the successes with similar activities by others (e.g., NetHope/USAID on broadband internet aggregation). This was based on the assumption that price was a key barrier to adoption of mobile. Our fieldwork suggests that this type of demand aggregation for these channels may be limited in the scale of its effectiveness given the awareness issues at the country level that are hindering adoption, despite the underlying trends that are driving the overall growth of mobile usage in low-income countries. This research underscores the importance of continued attempts by DIAL and others within the ecosystem to build implementer and supplier awareness, and highlights that we may need to expend more effort at the country level. This may be done in a few ways:

- **Build Local Knowledge and Capacity:** Supporting aid and development actors to develop knowledge and understanding of the various mobile channels and how they are applied in development and humanitarian contexts. This can be done by explaining the value proposition; sharing best practices, templates and tools; and showcasing existing technology components that can be used easily.
- **Connect Supply and Demand Actors:** Making it easier for supply actors (MNOs, mobile aggregators, technology providers) and demand actors (implementers, NGOs) to locate each other and creating opportunities for them to understand and interact with one another. This can be done by facilitating better supplier/customer market intelligence and cross-sector convening opportunities.
- **Gather and Package Evidence:** Our fieldwork highlighted the need for more and better evidence on the benefits of using mobile channels, given the community's lack of awareness. Understanding the pros and cons of each channel is a prerequisite to effective usage. To further encourage usage, data and evidence must be gathered on what's out there and what the impact could be compared to alternatives, especially for voice/IVR and mobile money.

Mobile channels used for development are increasingly recognized as a subset of global digital public goods, which by their very nature will require innovative models of pooling demand and financing. This paper lays some of the foundation for these innovative models by creating a flexible model for the sizing of demand, as well as the assessment of supply for mobile channels. DIAL welcomes participation and partnership from the community as it explores these themes further in the coming months.

FOREWORD

The potential for mobile-enabled communications channels to help deliver services to the underserved and support the achievement of the SDGs across multiple sectors is well documented. However, many projects do not scale beyond the pilot stage, falling short of their intended reach and impact. DIAL believes that lack of awareness about mobile capabilities, platforms and players, coupled with the inability to leverage economies of scale within the development and humanitarian sectors, makes service delivery slower, costlier and less effective than it could be.

To help address these challenges, DIAL is developing a series of guidance documents to support the following objectives:

- Build awareness of mobile channels and platforms and their ability to deliver at scale.³
- Increase the visibility of delivery partners' capabilities.⁴
- Test approaches for aggregating demand within the sector.

This paper supports the third objective. We started with the assumption that demand aggregation could address the low volumes arising from individual NGO deployments that make it difficult to arrange volume pricing.

As a first step, DIAL assessed the value of current spend on mobile communication channels by NGOs and multilateral organizations in five sub-Saharan African countries in order to build a forecasting model across all of sub-Saharan Africa for the next five years. The objective of this research project, which was conducted with Altai Consulting, was to "quantify and qualify" the opportunity, i.e., 1) size the current market and its likely evolution and 2) assess what changes are required to enable a wider adoption of mobile channels by aid and development actors.

Case Study 1: Unlocking the Benefits of Aggregate Demand

Gavi, the Vaccine Alliance: Advanced Market Commitments for Vaccines

One possible outcome of a demand aggregation intervention is the establishment of a pooled procurement structure, where several buyers are combined into a single entity to purchase a product or service at a discounted rate. A pooled procurement strategy could enable an advanced market commitment where the purchasing entity is legally bound to subsidize the purchase of a product at a set price as long as the product meets certain guidelines.

For example, this mechanism de-risks product development for and encourages innovation by the private sector for the production of vaccines, which otherwise might have a low financial return on investment. The vaccine sector got this right by using a financial innovation to accelerate the delivery and production of its lifesaving products. In the late 20th century, global health programs faced the challenge of stagnating penetration of vaccines in low-income markets. Millions of children were dying needlessly because existing vaccines were not making it to everyone who needed them. Decades of concerted research and collaboration by governments, multilateral organizations, donors and private-sector firms led to the creation of a mechanism that could aggregate demand in low-income markets and pool procurement. The Global Alliance for Vaccines and Immunization (Gavi) was established to accelerate market introduction of vaccines and get them to the populations in need by solving for a market failure, not a product failure. For more information on this case study, please refer to our paper, <u>Financing Digital Markets: What Vaccines Can Tell Us About Scaling Digital Technologies in Low- and Middle-Income Countries</u>.

³ For more information, please see our <u>Mobile Capability Model</u> that was released in December 2018.

⁴ For more information, please see our <u>Guide to Using Mobile Aggregators to Deliver NGO Services at National Scale</u> that was released in February 2019.

This paper profiles the aggregate market size for mobile channels within the NGO sector. It explores the various barriers to scale beyond price and introduces a market forecasting model that could be used to assess other digital assets in the aid and development sector. This paper will be used to gather reactions from the ecosystem on whether the demand is large enough, what assistance and arrangements this demand could secure, which perks (price or otherwise) are relevant to which stakeholders and in which countries and whether it is operationally worth trying to obtain these perks.



Methodology and Key Research Questions

This study aimed to qualify and quantify the opportunity driven by the aid and development sector's use of mobile channels. We focused on use cases that allow for direct interactions with general or targeted populations that do not have to pay⁵ for the services provided by aid and development projects in sub-Saharan Africa. We focused primarily on four mobile channels: SMS, IVR/voice, USSD and mobile money. We examined mobile internet on a qualitative basis only, given the rarity of use cases where an NGO would cover the cost of data on behalf of an end user.

Aid and development projects are defined as projects funded by donors and executed by NGOs or private implementers. The sizing emphasizes communication costs, i.e., costs incurred universally and strictly with MNOs. Additional services such as advice on the service design, technical set-up and support, and a short code⁶ are much less standardized and adding them would have made comparisons difficult. Government-led initiatives are excluded as they are expected to follow their own dynamics and would be very difficult to include in a demand aggregation exercise for the aid and development sector. For example, governments may fund projects differently—on a different timeframe and with a broader group of target beneficiaries.

Aid and development projects can be categorized as humanitarian aid or development assistance. The former tends to be delivered in disaster zones to respond to an incident or event in the short term, with a focus on saving lives. The latter tends to be implemented in developing countries to respond to systematic problems over a longer term, with a focus on economic, social or political development.

⁶ A short code is a short digit sequence, significantly shorter than telephone numbers, that makes access to the service easier.

⁵ There are successful aid and development projects, often by social enterprises, where beneficiaries have to pay and do so because they believe the service offers them value. This approach is not the most common because targeted populations are often very price sensitive. We did not include these kinds of projects, as the focus was to size the mobile channels market in terms of what is being paid by aid and development players in the lens of examining demand aggregation.

Figure 1: Scope Definition



Approach

In-country fieldwork was conducted to collect hard data and obtain qualitative insights. The selection of countries factored in the diversity of the continent while allowing for extrapolation of results to a broader geographical scale. **Four criteria were used while selecting countries:**



Aid volumes were assessed using official development assistance (ODA) data from the OECD.⁷ This led to the selection of five countries, all belonging in the top 10 of total ODA recipients:

2016 ODA	DRC	* Ghana	Malawi	Tanzania	Uganda
Total (USD)	2,102m	1,316m	1,241m	2,318m	1,257m
Ranking	5	9	10	3	6

Ethiopia was excluded because of its telecom monopoly and its low literacy rate; Nigeria was excluded because of its political complexity and low mobile money penetration; and South Sudan was excluded because of its low SIM penetration and literacy rate. Five sectors were selected for the analysis, based on the amount of ODA received and their relevance for mobile channels:



This study is comprised of two modules:

- 116 interviews across 78 organizations, mostly face to face, within the selected geographies with players from all of the ecosystems (MNOs, aggregators, donors, multilateral organizations, NGOs, sector experts and officials).
 - A forecasting model for all SSA built from those interviews.

Key Research Questions

Demand Side: Multilateral Agencies, NGOs	Supply Side: MNOs, Aggregators
Organization profile and scope of intervention	Organization profile and scope of intervention
Activity as an organization includes capacity, relevance of mobile channels, programs implemented and identification of use cases	Activity as an organization includes capacity, services, size, potential cross-country projects, etc.
Projects' mobile channel needs and usage	Projects' mobile channel needs and usage
Assess volume to populate model requirements from donors and plan to transition	Volumes by mobile channels split between MNOs and aggregators Minimum volumes threshold considered
Interactions with Supply Side	Interactions with Demand Side
Options for implementation, barriers and levers Assess role of HQ	Understand category of players, capacities and main challenges
Vision and market prospects	Vision and market prospects
Forecasted needs and usage Determine eagerness to push mobile solutions	Forecasted volumes and vision for the market Potential role for mobile Internet
Interest for pooled procurement	Interest for pooled procurement
Measure to which extent pooled procurement could drive volumes and what "needs to be true"	Assess what kind of volumes could significantly decrease prices

⁷ 2016 data was the most recent at the time of selection.

SETTING THE SCENE: UNDERSTANDING THE ECOSYSTEM

Supply Side

The supply side is made of two core categories that are different in terms of size, scope and notoriety.

Mobile Network Operators (MNOs)	Aggregators
 Operate the networks sustaining mobile channels but unwilling to provide additional services (e.g. technical support) 	 Can handle interactions with MNOs on behalf of their clients. Provide assistance (technical integration, obtaining short codes, etc.)
Easily identified	Harder to identify for aid players
Examples: Airtel, MTN, Vodacom, Orange, Tigo	 Examples: Synq Africa, Cellulant, Africa's Talking, Viamo

Depending on the mobile channel used, aid and development players either deal with MNOs or aggregators:

- For mobile money, aid and development organizations usually deal directly with MNOs, as they are likely to be considered a key account.
- Aggregators⁸ tend to be the main actor on the supply side for SMS and IVR. MNOs often consider aid and development volumes not large enough to be relevant from a business standpoint. Dealing directly with MNOs also requires more technical capacities from the demand side.

Some players provide project design as another level of service and do not usually call themselves aggregators. This is the case for Viamo, which specializes in IVR solutions, and for Geopoll. For the sake of simplicity, we classify these organizations as aggregators throughout this paper.

Demand Side

The demand side is divided into three separate categories, with donors focusing on funding, NGOs focusing on implementation and multilateral organizations having an in-between role.

Donors	Multilateral Organizations	NGOs
 Set Objectives and Targets 	 Have a lead sector role and seek to coordinate efforts 	Most common implementers for aid and development projects
Do not implement projects themselves but channel funds to selected organizations	Can select partners or implement themselves. Most often, only organizations with a nationwide reach	 Local or multi-country, tend to specialize
 Examples: USAID, Department for International Development, European Commission 	 Examples: UNICEF, WFP, UNHCR 	 Examples: CARE, International Rescue Committee, World Vision, Oxfam, Mercy Corps

⁸ DIAL has already published several papers on aggregators, such as: <u>https://digitalimpactalliance.org/research/mobile-capability-model/</u> or <u>https://digitalimpactalliance.org/research/a-guide-to-using-mobile-aggregators-to-deliver-ngo-services-at-national-scale/</u>.



We found that the headquarters (HQ) of the three categories of organizations are usually eager to push mobile channel use, as they see them as a safe, traceable and affordable way to reach beneficiaries. That said, we prioritized interviews on the ground rather than at the HQ level because decisions regarding the approach for a given project and the selection of providers are usually made at the country level to factor in the local context.

Public Authorities: A Significant Impact on the Market

Procurement by the government is excluded from our sizing exercise. However, laws and regulations impact the attractiveness of mobile channels. For instance:

- **Stringent know your customer (KYC)** norms or the requirement to have some sort of identification can impact beneficiaries' ability to own a SIM card.
- Level of taxes directly influences the attractiveness of mobile channels versus alternatives.

We also recognize that many aid and development projects could be taken over by the government over time if they prove effective. While we did not account for this in our model, we believe that this would dramatically transform the market we are assessing. Governments are in a unique position to 1) expand initiatives to a nationwide scale, which could significantly increase volumes, and 2) make demand aggregation more straightforward, even if it's mostly focused on ministries.

Case Study 2: Unlocking the Benefits of Aggregate Demand

Tanzania e-Government Agency: Centralizing Procurement via the Government

While we did not get to speak with the Tanzanian e-Government Agency directly, interviewees supplied considerable anecdotal evidence about its growing role in the mobile channel procurement space. The e-Government Agency recently established the Government Mobile Platform (mGOV) as a one-stop center for all government mobile services. It has developed a platform that facilitates the exchange of information via SMS or USSD between public institutions and citizens. The agency has also taken on the development of applications. As a government platform, it is well positioned to secure discounted rates for these mobile channels.⁹

Aggregating demand and centralizing procurement through the government provides numerous benefits. When the government is responsible for short code registration or coming up with messaging, it saves time and is more efficient. However, government involvement could suppress certain points of view or groups by denying them access to the market, and sometimes the private sector is better suited to deliver these services.

⁹ For more information, please see the agency website, <u>www.ega.go.tz/</u>.

SIZING THE MARKET

Assessing the 2018 Market in Fieldwork Countries

We leveraged the data collected during our fieldwork interviews to size the five markets as of 2018. Our confidence level on macro figures is high, as we believe we interviewed most of the key players on the supply side. Interviews with the demand side helped us cross-check the data and further detail the breakdown by sector.

A few points are worth noting:

- Figures collected account for a large majority of the market, typically estimated to be more than 80 percent. (A few players could not be interviewed.) The total market value is then calculated based on the figures collected and the share of the market they are estimated to account for.
- Zero-rated volumes, i.e., minutes offered to NGOs and multilateral organizations for free by an operator on its own network, have been excluded from the current and future sizing from a monetary perspective because setting a market value on them would be difficult and these volumes would not be relevant for a demand aggregation exercise. However, we did capture the volume of zero-rated services to understand if they could cause a market distortion and found that they did not. We found that voice/IVR had the highest prevalence of zero-rating.
- For mobile money, the market is assessed through transaction fees only.
- A few data points for this sizing from 2018 may belong to projects implemented in 2019, because some organizations talked more about their live projects from early 2019.

A Market of \$3.8 Million in the Five Fieldwork Countries

Each of the fieldwork countries has a 2018 market value of between \$500,000 and \$1 million, Tanzania being the largest one and Ghana the smallest.





When looking at the market composition per mobile channel, the DRC, Tanzania and Malawi are mobile moneydriven countries (i.e., mobile money accounts for a majority of the market) while Ghana and Uganda are more voice/IVR and SMS driven.



Figure 3: 2018 Market Split per Mobile Channel in Fieldwork Countries

When conducting a similar analysis per sector, health stands out as the biggest sector in Ghana, Uganda and Tanzania, while in the DRC and Malawi it is humanitarian/emergency.

Figure 4: 2018 Market Split per Sector in Fieldwork Countries



BUILDING A MODEL OVER THE 2018-2022 PERIOD FOR SSA

The first step was to size the 2018 market in all SSA. This interpolation is based on relative ODA per capita (World Bank), which gave us a total market of \$15.7 million, and 18 countries out of the 48 in SSA account for 80 percent of this total. This market value is low by MNOs' standards (their total turnover in SSA was about \$50 billion in 2018) but more significant for aggregators.

The next step was to build projections for five years. Even though the exact evolution of the market cannot be predicted, one can identify core market drivers and draw conclusions and recommendations.

Three Scenarios for a Market Bound to Grow

Because the market is currently faced with many barriers and challenges and many projects are still in the pilot phase, future market size can only be assessed through scenarios. The future market will very much depend on how these barriers are addressed. Some of them could be fixed at a limited cost while others are more structural and will take time to be addressed.

To build projections, the model starts from a series of 19 typical use cases in the five sectors of interest. It combines macro projections from institutions such as the United Nations and the GSMA to tailor the addressable market per country, and uses insights from the fieldwork to determine usage and penetration per use case. A detailed description of our methodology is in Appendix A.

The base scenario uses the minimum growth forecast, given the strong underlying dynamics and the expected improved know-how and implementation over time, but does not assume that the identified barriers will significantly decrease.

The market appears bound to grow:

- The strongest trend is the transition to cash distribution, which is expected to continue in the coming years. Mobile money has captured only a portion of this transition so far, but its share should grow given the interest from aid players and MNOs' growing expertise in this area.
- Strong macro trends are also contributing to making the market larger in the long term, including a growing and more literate population; higher rates of digital literacy supported by better coverage and mobile penetration; mobile money services' improved know-how and implementation over time; and aid and development organizations' continuous commitment to further use the technology.

The medium scenario is 30 percent higher than the base scenario, and the high scenario is 50 percent higher than the medium. Those rates focus on actors' behaviors and assess the extent to which both the supply and demand sides can progressively address the issues identified during fieldwork. Such changes in behaviors are difficult but do not involve a significant investment, and we have not assumed major changes in structural barriers (e.g., coverage, access to electricity, etc.). To set those scenarios, we have leveraged qualitative insights from the interviews and conducted crosschecks based on experience with project take-up.

Some external factors cannot be modeled. For instance, major regulatory changes, a very different frequency of humanitarian emergency crises or a sharp drop in aid are unpredictable and would impact the market.



Figure 5: Mobile Channels for Aid and Development Market Evolution in SSA Over the 2018-2022 Period by Scenario (USD millions)

All projections presented below are for the medium scenario, but conclusions are true for all three.

Different Evolutions per Mobile Channel, Sector and Region

The three mobile channels are expected to experience different trends, given their specificities and potential.

Figure 6: Market Evolution by Channel Over the 2018-2022 Period in the Medium Scenario



In all scenarios, **mobile money** is expected to become even more predominant in market value in 2022 than in 2018. This is supported by the massive trend towards cash disbursements, mobile money's current relatively low share of cash transfer methods, and mobile money's improved quality of service with experience over time.

- **SMS** messages are affordable and can quickly achieve a large reach, but the low unit price limits the overall market. A significant share of the population should be reached on a frequent basis for the channel to become a large market.
- **Voice/IVR** is expensive to implement if not zero-rated, and volumes are often uncertain at project launch. The case for impact still needs to be made to further attract aid and development players.

Usage of mobile channels varies greatly from one sector to the other.

Figure 7: Market Evolution by Sector Over the 2018-2022 Period in the Medium Scenario



All regions are expected to grow significantly, but a rebalancing is expected, with West Africa becoming on par with East Africa. Central Africa should experience the most rapid growth given its low starting point and high needs.

Figure 8: Mobile Channels for Aid and Development Market Size by SSA Region in 2018 and 2022 (in the Medium Scenario)





INSIGHTS FROM FIELDWORK

Main Trends per Mobile Channels

Each mobile channel experiences its own dynamics and trends, impacting usage.

SMS: Volumes Are Driven by a Few Players, Mostly Multilateral Agencies

Most NGOs tend to focus on a few thousand beneficiaries in one given area. Even if they send SMS on a frequent basis, total volumes remain low by MNO standards. Therefore, aggregators are the natural partners for such projects. Volumes are driven by a few multilateral agencies, which are the only ones with a nationwide reach. In some cases, they even target a large share of the adult population. In those cases, multilateral agencies are able to work directly with MNOs.

Case Study 3: Unlocking the Benefits of Aggregate Demand

UNICEF: Scaling Demand Around a Platform

Multilateral agencies like UNICEF and UNDP were responsible for large amounts of volume related to mobile channels in the countries we studied. UNICEF's U-Report is a social messaging tool that is free to everyone and allows for real-time information collection, primarily based on SMS. The initiative is currently operational in 41 countries and covers more than 3 million people. UNICEF typically conducts monthly polls among its "U-Reporters," who voluntarily subscribe, by sending questions via SMS. Answers are free of charge for the respondents. The monthly number of SMS messages sent and received can typically reach about 1 million in a country of close to 20 million inhabitants.

U-Report is powered by RapidPro, a free, open source software that allows users to easily build and scale mobilebased applications from anywhere in the world. In some countries like Uganda, U-Report has the functionality to receive questions as well. UNICEF Uganda has partnered with local NGOs and community organizations to provide them access to the platform in order to help respond to inquiries. Partner organizations are also allowed to run surveys through the U-Report system under the condition that they bear the messaging cost. In some countries, UNICEF has the potential to become the primary anchor for aggregating demand from other NGOs.

Voice/IVR: Allows for Rich Interactions but Impact Needs to Be Further Documented

Voice/IVR is a good option for sharing information with illiterate individuals. Furthermore, richer content can be shared via prerecorded messages than via SMS. However, the channel faces several challenges:

- The unit cost of a minute of voice (e.g., \$0.05 to \$0.10) is much higher than for an SMS (e.g., \$0.01 to \$0.02). This means that the cost per person reached is not obviously cheaper compared to broadcast media alternatives, such as radio, for behavior change communication. Demonstrating impact will be key to driving wider adoption.
- Usage of such a channel can only be user initiated. Therefore, volumes can be hard to predict, making it difficult for implementers, who need to purchase minutes in bulk.

These difficulties are offset when volumes can be zero-rated, since MNOs do not charge any fee if calls are initiated on their network. In a country like the DRC, zero-rated calls accounted for a large majority of IVR volumes by aid and development players in 2018. There are two limitations to such an approach: 1) MNOs may restrict this approach because IVR does not generate income for them while using their network, and 2) only beneficiaries using this MNO can benefit from it.



We found that supply-side actors for voice/IVR were not always the same as for SMS, given the level of content and customization required for voice. Viamo was the only identified player offering IVR services in the five fieldwork countries, and it tends to focus on the aid and development sector. By contrast, most aggregators specialize in SMS and conduct most of their business with private companies.

USSD: Usage by Aid and Development Players Appears Limited

We found few examples of projects implemented by NGOs using USSD during the fieldwork. The channel was barely mentioned during fieldwork interviews and, therefore, was not included in the model. However, our findings are not necessarily indicative of the potential of USSD as a key communication channel for the development sector, and DIAL's 2018 baseline survey¹⁰ showed that in some contexts, it could prove effective. In fact, across all stakeholder groups included in the key informant interview process for the baseline survey, SMS and USSD were the most commonly cited communications channels.

Mobile Money Interest Is High Given Strong Underlying Trends

The aid sector has experienced a paradigm shift over the last decade, with cash transfers increasingly replacing in-kind assistance. The consensus now is that cash transfers give more choice and dignity to beneficiaries. The share of cash transfers in humanitarian assistance jumped from 1 percent of the global spend in 2006 to 10 percent in 2016.¹¹ Large multilateral agencies such as WFP, UNHCR and UNICEF are following the trend, and the amounts available for cash transfers are expected to keep growing in the years to come.

In this context, mobile money is an attractive solution for aid players when implementing cash transfers. Compared to traditional cash distribution mechanisms, it is more secure (implementers' staff do not have to carry large amounts of cash), it ensures the traceability of transactions (cases of fraud should decrease) and it allows for an almost live digitized reporting. Mobile money is also potentially cheaper than alternatives, such as distribution through bank agencies or security companies, and can foster financial inclusion over time.

¹⁰ https://digitalimpactalliance.org/research/digital-impact-alliance-2018-baseline-ecosystem-study/.

¹¹ <u>http://www.cashlearning.org/downloads/calp-sowc-report-web.pdf</u>.

However, the transition from traditional methods of cash disbursement¹² to mobile money has been slow because some aid players face challenges, such as KYC requirements for beneficiaries. Additionally, they are reluctant to abandon their current approaches since they are working, if imperfectly at times. When mobile money services were first launched, many aid organizations had high expectations and so became some of the first to try them out for large-scale projects in remote areas. However, most mobile money services were not ready for such large-scale use, which created a lot of frustration. Therefore, many organizations prefer to stick with existing solutions ("devils that we know") rather than risk another disappointment.¹³

Mobile Internet Is Limited in Potential to Reach Beneficiaries

While all aid and development organizations are widely using mobile internet services internally, their potential to reach beneficiaries on a large scale is limited since they require a smartphone and a 3G connection. Young, urban or affluent individuals have disproportionally more access to mobile internet tools, and typically these demographic profiles are not the primary target audiences for aid and development organizations. Furthermore reaching low-income people via the internet at no cost to them would require reverse billing, which currently is difficult to implement. This situation will take time to change in SSA.

Barriers to Address in Order to Unleash Growth

Following market sizing, the next step is to identify the impediments preventing a higher use of mobile channels by aid and development players.

Challenges Specific to the Aid and Development Sector

Aid and development players tend to focus on vulnerable individuals. Compared to the overall population, they are more likely to be poor, living in rural areas¹⁴ and illiterate, which means that they tend to have lower phone ownership and more coverage issues, making them more difficult to engage with. Furthermore, rural areas in SSA often have limited access to electricity, which makes it difficult to charge phones, and poor roads, which increases operational costs for MNOs. These structural barriers will take time to overcome.

The ways in which aid and development projects are organized and implemented could also create some difficulties, given that these are unlikely to change.

- Sending messages to all phone numbers in a database of beneficiaries, known as a "push" approach or SMS blast, is easy to implement and makes volumes easy to predict. However, NGOs first need their beneficiaries to subscribe or opt-in to receive messages. And because NGOs often lack experience on how to advertise their services and gain traction with a wide audience, their volumes are often low and hard to anticipate.
- Aid projects are usually for a set period of time and tend to run for shorter durations than initiatives conducted for private-sector clients. This makes them less attractive to MNOs and aggregators. Furthermore, we found one aid project that ended without informing beneficiaries, so people kept using the service and the aggregator had to bear the cost.
- As highlighted in DIAL's 2018 Baseline Ecosystem Study,¹⁵ aid and development players must include mobile channels in their proposal when they seek funding if they want to implement these channels later, but they rarely incorporate feedback or co-design with technology implementers at this stage. Therefore, when the project kicks off, there isn't always room to pivot or include something new, even if it might be more effective. This is also true for proposals that do not include mobile channels. After a project kicks off, it becomes harder to budget for and incorporate into delivery.

¹² This includes traditional money transfer companies (e.g., Soficom in the DRC), agency banking and even security companies (e.g., G4S in Malawi).

¹³ This was highlighted several times in the Cash Working Groups we met.

¹⁴ This is changing in some contexts, with internally displaced people relocating to cities.

¹⁵ <u>https://digitalimpactalliance.org/research/digital-impact-alliance-2018-baseline-ecosystem-study/</u>.

Aid agencies' mandate is to reach their target populations and will always choose the most effective way to do so, whether through radio, phone, social media or print. This becomes a limiting factor for the market size of mobile channel communication costs. While the use of mobile channels can prove to be effective in some projects, it's not always appropriate given the target audience. DIAL believes mobile channels should be available, affordable and easy-to-use, so implementers can access them when it makes sense.

Limited Ability to Scale

Projects using mobile channels must offer scale opportunities to be fully relevant for the demand side and attractive for the supply side (i.e., by providing a large volume of SMS, voice/IVR or mobile money transfer fees). Unfortunately, this happens only rarely. Most NGO projects have a limited size, since the intervention is usually in one geographical area with a few thousand beneficiaries. And sometimes there are numerous independent initiatives with the same objective occurring across a country with limited coordination on the tools used, which further limits scale. Even if organizations were eager to expand their reach, capacity would be an issue, as most of them would likely face serious constraints in terms of funding and staffing.

The ideal way for a development project to scale is to first launch a successful pilot project in a small area and then transition it to the government, which is in a better position to expand a project nationwide. However, this rarely happens. First of all, the criteria to determine what makes a project successful are often not set in advance, making the decision to transition to government oversight later on difficult. Furthermore, such a transition requires rigorous organizing and preparation, including coming up with a technical migration plan; capacity building at the relevant ministry; identification of possible interoperability issues; building a relationship of trust with the government; and, most importantly, co-designing with the ministry to foster ownership. Finally, public authorities often do not have adequate funding to expand the project, even if it seems efficient. Because humanitarian projects are usually based on an emergency and conducted for a short period of time, this type of a plan to transition to the government is not likely to be included from the start.

Lack of Understanding Between Supply and Demand

There is a lack of understanding and common language between the supply side and the demand side, which impedes the use of mobile channels in development projects. Some of the criticisms of MNOs voiced by aid and development players include:

- **Hard to identify the right partner:** Aid and development organizations often struggle to understand who the right partner is for them (e.g., commercial, technical). This issue is made more difficult by the fact that aggregators often have little visibility.
- Limited understanding of development projects: NGOs complain that MNOs rarely seek to understand their objectives and context.
- **Not proactive enough:** NGOs usually make the initial contacts and have to provide precise specifications. They would prefer if MNOs and aggregators would seek to better anticipate their needs.
- **Provide little guidance:** NGOs often have limited experience with mobile channels, so would like to get more advice about best practices from MNOs to help them design impactful projects.
- **Not trustworthy enough:** NGOs claim MNOs "always say yes" but fail to deliver, and are not transparent about the challenges of implementation.

Conversely, MNOs and aggregators also face difficulties when dealing with aid and development players:

- **Lack of technical capabilities:** The use of mobile channels is still relatively new for aid and development players, which usually have small numbers of technical staffs.¹⁶ Furthermore, decisions regarding development projects are usually made in country, where staff members are less familiar with technology than those working at HQ and more eager to work with approaches they know. This means that MNOs often struggle to get the requirements and answers they need.
- Unrealistic expectations: MNOs often complain that aid and development organizations do not always give advance warning of their needs, which means they don't have enough time to prepare. For example, MNOs might be informed about a large disbursement of mobile money just one or two days in advance.
- **High project complexity compared to volumes:** Aid and development players often have many sophisticated requests, making their projects more complicated than those of private-sector clients, while their volumes are often lower.
- Absence of follow-up: MNOs are often frustrated by NGOs' lack of advertising and follow-up once their projects are launched to increase their reach and make them successful.
- Lengthy and cumbersome procurement: Aid and development actors tend to have long procurement processes to meet their donors' requirements. As long as the tendering and contract process remains time consuming—with a lot of administrative questions but little direction on how the channel would work in practice—and results in small volumes of business for MNOS, they are likely to decide that the effort to apply is not justified.

Ensuring that each side can facilitate the work of the other will be crucial to growing the market.



¹⁶ This can lead to gaps in understanding of the pros and cons of each mobile channel in a given context. For instance, the rationale to select SMS over voice/IVR is not always clear.

A Market Not Mature for Demand Aggregation

Another objective of the research was to measure the interest for new financing mechanisms such as demand aggregation. In our research around financing digital markets,¹⁷ we examined the process and components that led to the financial innovations around vaccines for the development sector to extrapolate potential lessons for digital technologies. We found that while mobile channels face similar issues to vaccines, including regulatory environments, capital requirements and information asymmetries, there were some key differences in root cause market failures, lack of physical products and ongoing costs.

We knew going into this project that this market faced two persistent issues: demand uncertainty and lack of capacity to maintain up-to-date policies. Therefore, we sought to examine the opportunity around demand forecasting and aggregation for mobile channels. Our research highlighted specific barriers mobile channels face when it comes to pooled procurement: lack of visibility on needs, limited standardization and a broad set of providers.¹⁸ These barriers, combined with current low volumes on mobile channels, make demand aggregation and pooled procurement unfeasible for this digital asset.

Mobile Channels Face Specific Barriers to Pooled Procurement versus Other Goods or Services (e.g. Vaccines, Bednets, etc.)



There would also be practical issues to solve to implement demand aggregation:

- Adjusting most donors' procurement rules, since a competitive process is almost always required. Such a change should be possible as it aims at improving delivery, but it may take time.
- Determining which organization is in the best position to conduct negotiations with the supply side. U.N. agencies would probably be the most relevant players, but their first priority is to ensure a strong coordination within the U.N. system.

The idea of aggregating demand was welcomed by the demand side, which recognized the benefits of gaining more bargaining power. Right now, many NGOs and multilateral organizations find it hard to get time with or advocate for their own product development needs with MNOs and aggregators, given their small individual volumes. Additionally, many organizations did not have the time, capacity or technical knowledge to bargain or negotiate with the providers of access to mobile communication channels. However, all parties agreed it would be difficult to implement. This approach could progressively become relevant as the market grows. In our interviews, we found that both supply- and demand-side actors could see the idea of pooled procurement being leveraged to reduce the pain of implementation rather than just to bring down the price. We found that most aid and development players are more interested in negotiating on quality and standards than on costs, should they have more bargaining power.

¹⁷ http://digitalimpactalliance.org/wp-content/uploads/2018/12/DIAL_Financing_Digital_Markets_final.pdf.

¹⁸ The use of aggregators, which create commercial and technical integrations between different MNOs, has the potential to partially address this issue. However, aggregators are not present in all countries and do not always have the full suite of MNO capabilities. DIAL is undertaking ongoing research to map the potential of these players as a useful intermediary for NGOs.

Case Study 4: Unlocking the Benefits of Aggregate Demand

NetHope: Demand Aggregation for Broadband Access

Via its Global Broadband and Innovations Alliance partnership with USAID, NetHope used a demand aggregation strategy in Uganda to negotiate significantly discounted broadband access rates for its NGO members and USAID implementing partners. By consolidating the needs of its NGO stakeholders and presenting them to connectivity service providers, NetHope was able to facilitate new solutions, including optimized pricing and improved quality of service. NetHope initially started with a focus on the Bidi Bidi settlement in the West Nile district of Northern Uganda, a refugee camp that hosts more than 274,000 people and is part of a complex of austere camps containing 3.5 million South Sudanese. NetHope worked with its members operating in that settlement—including Plan International, Danish Refugee Council, Mercy Corps, CARE, Medical Teams International, International Rescue Committee, Save the Children, World Vision and Norwegian Refugee Council—to facilitate a negotiation with Airtel to secure significantly discounted internet access rates for facilities associated with NetHope and USAID-affiliated NGO partners. While NetHope originally took on the risk of aggregating demand for the trial program, it became so successful that they have secured a discount rate at Airtel for broadband access for any NGO operating in Uganda.¹⁹

CONCLUSION AND NEXT STEPS

The remit of the research was to investigate whether there was opportunity to aggregate demand for basic core mobile channels (i.e., SMS, voice, USSD), as a means of securing better pricing or improved service, given the successes with similar activities by others (e.g., NetHope/USAID on broadband internet aggregation). Other digital assets (e.g., software, other technology) and other demand-side actors (e.g., the government) have been left out because of scope management and because their inclusion would imply a different demand aggregation exercise. This investigation was also predicated on the assumption that price was a key barrier to adoption of mobile. Our fieldwork suggests that this type of demand aggregation for these channels, despite the underlying trends that are driving the overall growth of mobile in low-income countries, may be limited in the scale of its effectiveness.

This is due in part to the lack of understanding between the supply- and demand-side actors, as well as broader challenges to achieving scale and pooling demand in aid and development projects. While the challenges to scale limiting the use of mobile channels that were raised by interviewees are not new to DIAL, our research now provides a better understanding of the current and potential market size of this activity. A lot of these challenges echo those uncovered by DIAL's 2018 ecosystem study,²⁰ such as the challenges around technical capacity of implementers, funding timelines and the need for more collaboration. These findings underscore the importance of continued attempts by DIAL and others within the ecosystem to build implementer awareness and highlights that we may need to place more effort at the country level.

Ways Forward for the Community

To address low volumes related to the use of mobile channels, stakeholders in the ecosystem and DIAL should prioritize three types of actions:

1 Build Knowledge and Capacity

Improving knowledge and understanding of mobile channels would increase implementers' willingness to use them in projects and could also decrease costs and complexity. Most aid and development players need guidance with practical tips, as mobile channels are quite new for them. Support for developing grant and

¹⁹ For more information, please refer to the NetHope website, <u>https://solutionscenter.nethope.org/resources/initiatives/demand-aggregation-for-improved-con-nectivity</u>.

²⁰ <u>https://digitalimpactalliance.org/research/digital-impact-alliance-2018-baseline-ecosystem-study/</u>.

contract proposals that focus on the right priorities could be provided, as well as contract templates with realistic incentives, commitments and phasing to expand pilots. Guidance on data protection would also be welcome. Any attempt to share best practices would need a careful gap analysis to avoid duplicating work, as many resources already exist. It is also important to note the need for capacity and talent development in-country, where human resources can become a limiting factor on how far "best practices" are able to influence day-to-day activities.

The use of existing and reusable ICT "building blocks"²¹ can be used to decrease development costs and reduce complexity. As established by ITU and DIAL, the SDG Digital Investment Framework helps policymakers identify reusable ICT building blocks (e.g., ID, messaging and payment services) that can deliver priority SDG use cases (e.g., enroll a student, provide crop information). A key tenet of the framework is that there are recurring business processes across the SDGs that common ICT services can support and multiple sectors can invest in and share. Some of them are already available open source (e.g., RapidPro by UNICEF) and are being used for aid and development projects.

A similar kind of support could be offered to MNOs and aggregators, which can find it hard to grasp the aid and development landscape. Describing successful projects in other countries could help them enrich their offerings to aid and development players, on top of technical support.

2 Connect Supply and Demand Players

Better collaboration and connections between supply and demand players can reduce transactional costs between the two sectors. There is clear interest in getting actors to work together in country to pre-position channels and mechanisms across technology platforms, including mobile distribution channels, that could be used by all sectors. For example, during a humanitarian crisis there would be significant benefits to having a pre-negotiated arrangement for emergency access to selected critical communication channels rather than having to work this out in the midst of the crisis.

One thing that DIAL is already working on to improve collaboration is helping aid and development players broaden their supply base and consider the use of aggregators that have the capabilities²² to meet their needs. This work could be expanded to include more aggregators as well as technology service providers. It would also be helpful to create a list of contacts at MNOs and other organizations for NGOs to use when reaching out, which would go a long way toward bridging the gap between supply and demand.²³ Such information could be disseminated in workshops and working groups in country, as well as at the headquarters of aid and development organizations.

Another way to encourage collaboration is creating opportunities for supply and demand actors to meet and interact with one another and understand how they can help one another. DIAL has trialed these in a number of countries, with promising results.²⁴ Interestingly, both supply- and demand-side actors see the pooled procurement of mobile channels as being able to reduce the pain of implementation, not just decreasing the price.

3 Gather and Package Evidence

Our fieldwork highlighted the need for more and better evidence on the benefits of using mobile channels, given the community's lack of awareness. Understanding the pros and cons of each channel is a prerequisite to effective usage. Highlighting success stories, substantiated by hard evidence, would also be critical to creating interest and facilitating proposal drafting. Improved monitoring and evaluation of technology projects is needed, and evaluations need to be more widely shared.

In addition, more effort needs to go into getting the research and findings to the right decision-makers and influencers. In order for aid players to expand their use of mobile channels, they need to see how the impact of these channels compares to alternatives that they're more familiar with. Because mobile channels replace an existing alternative rather than create a brand new opportunity in most cases, aid players on the ground will

²¹ <u>https://digitalimpactalliance.org/wp-content/uploads/2019/03/DIAL-ITU_ICT4SDG_Digital-Investment-Framework-Call-to-Action.pdf</u>.

²² <u>https://digitalimpactalliance.org/wp-content/uploads/2019/04/DIAL_MNI_Report-2V.pdf.</u>

²³ A core challenge will be to update this information on a regular basis.

²⁴ <u>https://digitalimpactalliance.org/research/promoting-mobile-sector-engagement-in-malawi/</u>.

usually opt for the more conservative route and just stick with what they know. Therefore, research projects demonstrating the effectiveness of the mobile channel will be essential to gain the support of organizations and donors in the long term. However, such research projects require funding and experience, and little research²⁵ has been identified so far. There is a clear need for a strong independent player to organize this effort. Research should focus on voice/IVR with an emphasis on behavior change communication, since radio remains more common. Regarding mobile money, research should showcase the advantages of alternative cash transfer options in aid and development contexts. Identifying the right projects for this endeavor could be challenging, as they must be big enough to be representative and relevant for many countries and use cases.

Mobile channels used for development are increasingly recognized as a subset of global digital public goods (e.g., software, mobile data elements, infrastructure), which by their very nature will require innovative models of pooling demand and financing. This work lays some of the foundation for these innovative models by creating a flexible model for the sizing of demand and assessment of supply for mobile channels. Echoing recommendations from the High-Level Panel on Digital Cooperation's recent report, *The Age of Digital Interdependence*,²⁶ DIAL agrees that more research and tests are needed to establish minimum criteria for classifying technologies and content as digital public goods, establish requisite pre-qualifications for these technologies and demonstrate how digital co-investments or co-purchases could work. More guidance and support is needed for the investment, implementation and capacity development related to these digital public goods. DIAL welcomes participation and partnership from the community as it explores these themes further in the coming months.



²⁵ Such research should be conducted over a long enough period, at least six months to one year.
 ²⁶ <u>https://digitalcooperation.org/wp-content/uploads/2019/06/DigitalCooperation-report-for-web.pdf</u>.

Recommendations for MNOs and Aggregators

MNOs and aggregators could take simple, inexpensive steps to make the most of this growing market:

Engage more with aid and development players: MNOs and aggregators should designate dedicated people and teams to interact with aid and development actors and become more familiar with the language they use and the way they structure their projects. Engaging with working groups would help showcase capabilities and widen reach.

Educate and manage expectations: Most aid and development organizations are not familiar with mobile channels and thus not aware of the challenges MNOs face. Being clear from the start on what can be reasonably expected is a mandatory step to working together on how to address barriers and build a trusting work relationship.

Leverage experience in other countries: MNOs and large aggregators have a wealth of experience in multiple countries that they could share with aid and development players. Highlighting best practices and relevant use cases would also help build attractive value propositions.

Take a geographical approach for mobile money: Getting large enough volumes is important to justifying the deployment of mobile money agents and improving the ecosystem. Since a project with one NGO may not be sufficient in a given area, MNOs could be more proactive and find other NGOs operating in the same area in order to reach a critical mass.

Improve reporting and further assess impact: NGOs have strict reporting requirements from their donors. This means that mobile channels will be more attractive if reporting from MNOs is achieved in a comprehensive and timely manner. Supporting impact assessments (e.g., how mobile money transfers can improve financial inclusion over time) will also improve the perception of mobile channels and market actors.

Recommendations for Donors, NGOs and Multilateral Agencies

Demand-side players, especially implementers, could do more to make the most of mobile channels in their projects without making significant investments:

Beef up capacity: A solid understanding of how mobile channels work is a prerequisite to making the right choices and does not necessarily involve a lot of training or technical knowledge. HQs should play a key role by leveraging existing materials like those developed by DIAL and from the Principles for Digital Development community and supporting local operations on how to best advertise their products to ensure a strong engagement from beneficiaries.

Be clear about volumes and phasing: Organizations must provide MNOs and aggregators with clear information about the scope of the project so they can calibrate their efforts. For instance, asking for a proposal for cash distribution with mobile money on a nationwide scale is unfair for the providers if it might not be needed.

Seek standardization: Taking a more standard approach that is based on best practices—in terms of messaging, language, amount transferred, frequency of transfers, etc.—will result in a smoother implementation. Providers will then have more time to build a robust solution and will be in a better position to anticipate challenges.

Work with donors to make demand aggregation easier: In several cases, pooling needs (e.g., platforms, mobile money agents, SMS messages purchased) could make procurement more efficient. Not only could it reduce costs, it could lead to a better level of service by bringing more volume to the providers. However, implementing such an approach would currently conflict with many donors' procurement rules, so that will need to be addressed.

Play the long game: Delays or poor implementation can have dramatic consequences for beneficiaries. Using new tools properly and creating a trustworthy relationship takes time, and the reward in the medium term can be significant for the targeted individuals and the whole ecosystem.

APPENDIX A: MODEL METHODOLOGY

To conduct the analysis, we built a model to size communications costs related to mobile channels and platforms in aid and development projects in sub-Saharan Africa, leveraging our fieldwork interviews to measure both volumes and value per mobile channel and per sector. We took a different approach for the current sizing and projections for the next five years.

Figure 9: Example From Forecasting Model



Current Sizing

In each of the five countries, the current value of the market is derived from interviews in the field, with details for the following categories: number of users (SMS, voice/IVR, mobile money), yearly usage, unit price and percentage of zero-rated voice. The case studies discussed account for most of the market value (estimated between 70 percent and 90 percent) and the market value is estimated with a gross up factor.

The fieldwork showed strong trends across the board (e.g., growing use of mobile money, importance of health, etc.) but also marked differences (e.g., importance of civil society and governance in Malawi compared to other countries, limited use of the SMS channel in the DRC). Fieldwork results are interpolated for all other countries by combining the addressable market for each of them with relative ODA per capita (from the World Bank).

Figure 10: Current Market Sizing of the Five Fieldwork Countries

Current Sizing (USD k)	DRC	Ghana	Malawi	Tanzania	Uganda	Total
SMS	\$70k	\$135k	\$212k	\$201k	\$270k	\$888k
IVR	\$43k	\$264k	\$145k	\$146k	\$369k	\$967k
Mobile Money	\$605k	\$105k	\$435k	\$641k	\$152k	\$1,938k
Health	\$56k	\$328k	\$80k	\$556k	\$450k	\$1,479k
Agriculture	\$36k	\$81k	\$31k	\$154k	\$136k	\$438k
Civil Society/Gov.	\$14k	\$12k	\$225k	\$115k	\$122k	\$488k
Humanitarian/Emergency	\$573k	\$72k	\$399k	\$119k	\$72k	\$1,235k
Education	\$\$39k	\$10k	\$58k	\$44k	\$2k	\$153k
Total	\$718k	\$504k	\$792k	\$989k	\$791k	\$3,793k
Zero-rated min	\$10,800k	\$1,073k	\$870k	\$1,200k	\$1,125k	

Projections for the Next Five Years

Use cases are a good way to build a robust, bottom-up approach to size the potential market. There are already strong examples for each mobile channel, such as:

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SMS: Weekly SMS to young mothers to share information on how to take care of their newborn (MomConnect in South Africa)

- IVR: Agricultural tips for farmers on prerecorded, zero-rated voice messages accessed by phone (42502 in DRC)
- Mobile money: Monthly transfers to crisis-affected households (WFP in Malawi)

We implemented a systematic approach, combining secondary research and interviews with experts, and identified 19 typical use cases (between three and six per sector) in each of the five selected sectors. All are based on existing services.



For each use case, typical volumes and prices/fees of SMS, minutes of voice/IVR, and amounts of cash transferred with mobile money come from observations from the fieldwork or identified projects in other countries.

To size the market from here, we followed three steps:

1	2	3
Who are the relevant individuals for the service?	Who (among the target) can be reached in practice?	Who (among addressable) is actually using the service?
 Country underlying target markets e.g. rural population, pregnant women etc. Macro assumptions are used to change the underlying market over time Each target market, assessed at the sector level in each country, has been estimated using robust data (e.g., incidence rate of main diseases from the World Health Organization for health use cases, employees from the International Labor Organization for agriculture use cases, population figures from the World Economic Outlook for civil society and governance use cases). 	 Share of target reachable via mobile Generic use cases face specific constraints to reach potential Smartphone take-up reducing needs for traditional services We then factored in mobile and smartphone penetration, using 2018 data from the GSMA to define the addressable market. 	 Fieldwork used to assess service and sector usage and up-take Service up-take supply- driven (using ODA per capita as proxy) Scenario-based market potential (2018-2022), factoring price evolutions Eventually, we assessed service up-take in each sector within the addressable market and relative size of generic use cases within sectors to come up with the scenario-based market. Insights from the fieldwork have been critical to determining the development path of sector penetration through generic use cases. For example, in the humanitarian sector, early warning systems or information sharing during disasters can achieve a high penetration quickly (simple messages, no need to register, etc.) while health services tend to be more specialized, with a higher penetration among their target market.

Following the base case that was built on minimum growth forecasts, we defined two other scenarios: the medium case is 30 percent higher than the base case, and the high case is 50 percent higher than the medium case. Those rates factor in the extent to which both the supply and demand sides can progressively address the issues highlighted in the feedback from fieldwork, especially the lack of understanding between supply and demand that could be improved at a limited cost. To set them, we have not designed a specific sub-model, but we have leveraged the qualitative insights from the interviews and conducted crosschecks with our experience on projects' take-up. The same take-up is applied across the board and adjusted to country specifics through the addressable market.

Overall Structure and Analysis

The model is structured as follows:

Figure 11: Structure of Forecasting Model



For the five fieldwork countries, the actual prices are the ones used in the model. For other countries, the starting unit price is based on a relative position of the price in each country against the median of the fieldwork countries. The relativities come from third-party sources²⁷ documenting voice or SMS prices across all countries. The prices for the five fieldwork countries are projected to drop by 2 percent per annum. For the other countries, the target price is based on relative prices against the target median price. However, the relativities are assumed to be minor in the first year. When projecting revenue, an additional discount is applied. Three scenarios on price discount over the period were included in the model: 0 percent, 2 percent and 5 percent. Those assumptions for pricing reflect several findings from the fieldwork: 1) mobile channel prices are now stable, 2) large volumes (e.g., SMS for large U.N. programs or big aggregators) are already purchased at a discount and 3) pooled procurement seems unlikely to be implemented in the coming years given coordination challenges. All projections presented in the documents are based on the medium price discount scenario.

The analysis is available per mobile channel and per sector, with a yearly increase from 2018 to 2022, as well as by African region, scenario and type of price discount. The model was built from the start to be flexible. It's straightforward to add a new country or a new use case and to review some of the assumptions if the market were to change in the coming years.

²⁷ Sources are Clickatell for SMS, and VIP Communication, LycaTalk and LocalPhone for voice.

APPENDIX B: PROFILE OF DRC



Market Specificities

Operating in DRC is expensive and uncertain	Renting sites to tower companies is almost twice as expensive in the DRC compared to Western Africa. Therefore, coverage likely won't increase significantly in the years to come. The unclear legal framework ²⁹ and limited price transparency makes operating there uncertain.
SMS is not considered an effective channel	The literacy rate of 75 percent, according to the United Nations, is widely believed to be inflated. This is reinforced by the numerous local languages that do not have an official written form. Adults rarely use SMS, since oral communication is culturally more valued than written communication. Some aid actors claim that MNOs sent so many SMS messages that it became annoying, leading most people to ignore them.
Aggregators are barely present in the DRC	SMS usage by aid and development organizations is by far the lowest in the DRC compared to the other fieldwork countries. For example, there is no U-Report there. None of the aggregators identified by DIAL (Cellulant, Africa's Talking, SynqAfrica) are present there, but Viamo has a local office, which makes sense since voice is considered more impactful. The DRC also had the highest volumes of zero-rated minutes among the five countries.
Players are scattered geographically	MNOs and U.N. agencies are all based in Kinshasa, while the bulk of aid and development projects happen in the East (North and South Kivu), North and Kasai, meaning that program staff are often far away from where decisions are made.
Concerns about fraud are high	According to several aid and development players, the first mobile money implementation that took place around 2015 faced a lot of issues, with money not reaching recipients. Cash disbursements are now increasing again but prove hard to control, especially in remote areas. Many players are concerned about the abuse of power and are trying to implement complaint mechanisms.

²⁸ Sources for figures come from the World Bank for ODA per capita, the United Nations for population and literacy and GSMA to calculate SIM penetration among adults.

²⁹ For instance, the Central Bank considered that a refugee card is a valid ID to open a mobile money account, but it was not clear from the telecom regulator if such a document is accepted to purchase a SIM card, despite the fact that it is a prerequisite. New taxes also threaten the possibility to have zero-rated calls free for users or the capacity to use mobile money to transfer cash to vulnerable individuals (because of very high fines in case of erroneous KYC).

APPENDIX B: PROFILE OF GHANA



Market Specificities

Ghana's market is the smallest of the five fieldwork countries	The total market is about \$500,000. This came as a surprise since the population, literacy rate and phone penetration are all higher than those of the other smallest country of the five, Malawi. This can be linked to the lower share of aid in the economy, with ODA accounting for 2.2 percent of GNI.
Mobile money is not much used, despite its recent growth ³⁰ in Ghana	Expectations for this channel are lower than in other countries. Interviewees expressed a general distrust of mobile money, which is surprising given the rise in mobile money penetration and agent deployment. (MTN claims to have more than 120,000 agents in the country.)
Unlike in other countries, aggregators prove the most interested in demand aggregation	Ghana has a vibrant aggregators market that is now doing limited business with NGOs. They see demand aggregation as an opportunity to get access to new businesses with secured contracts and appear optimistic regarding market prospects due to high penetration and literacy.

²⁸ Sources for figures come from the World Bank for ODA per capita, the United Nations for population and literacy, and GSMA to calculate SIM penetration among adults.

³⁰ <u>https://www.cgap.org/blog/how-ghana-became-one-africas-top-mobile-money-markets</u>.

APPENDIX B: PROFILE OF MALAWI



2018 Value per Inhabitant (in USD cents)

Malawi boasts the most "Aid driven" economy. Nationwide SMS campaigns are most prevalent. Frustration with Mobile Money is high.

Market Specificities

Aid presence is prevalent	ODA accounted for about 25 percent of Malawi GNI in 2018, a much higher share than in other countries. This means that large NGOs have massive clout, and a lot of coordination with the main ministries is required.
Significant barriers prevent mobile channels usage	The main obstacles include poor coverage, the lowest literacy rate and SIM penetration among adults in the fieldwork countries, poor access to electricity, a lot of phone sharing that limits inclusiveness and the fact that SMS messages are much longer in Chichewa than in English.
Several large SMS campaigns have a nationwide reach	A couple of UNDP campaigns (e.g., for the elections and a new national ID) have a very wide reach, with no equivalent in the four other countries visited. UNICEF's U-Report already has high volumes compared to the population size.
Frustration with Mobile Money is high	Challenges to moving cash around the country are very high for all aid and development players. There was a lot of hope that mobile money would solve these issues when it was launched in 2013, but initial projects were far from satisfactory. Disappointment with mobile money was so high that many players have not tried switching to this channel, despite the high cost of alternatives.

²⁸ Sources for figures come from the World Bank for ODA per capita, the United Nations for population and literacy, and GSMA to calculate SIM penetration among adults.

APPENDIX B: PROFILE OF UGANDA



2018 Value per Inhabitant (in USD cents)

MNOs are unlikely to consider working with Aid players as a priority as they focus on core business. Refugee programs have large potential.

Market Specificities

MNOs face serious challenges	MNOs in Uganda are dealing with high staff turnover, which made it difficult to find people for face-to-face meetings. There is also a lot of government pressure on the industry, such as changes in KYC requirements forcing reregistration and senior staff at one MNO being deported out of the country at the time of the fieldwork. In this context, MNOs prefer to focus on their core business and consider aid and development projects as high effort with low reward.
MNOs are cautious about SMS usage	The idea that excessive SMS messages are an annoyance is widely shared. For instance, one MNO decided to stop value-added services (VAS) because it was damaging the brand. Therefore, willingness to push this channel is limited.
Refugee programs represent a large potential for cash disbursements	Uganda has the largest number of refugees in SSA (1.2 million, mostly from South Sudan). Therefore, the country is a priority target for UNHCR and WFP and could have a real potential for mobile money transfers. It also had a welcoming policy overall, with land being granted to refugees and offering them the right to work, but KYC requirements were reinforced in 2018, making it harder for refugees to own SIMs and open mobile money accounts. The potential is thus not met given that the agent network is not fully developed.

²⁸ Sources for figures come from the World Bank for ODA per capita, the United Nations for population and literacy, and GSMA to calculate SIM penetration among adults.

APPENDIX B: PROFILE OF TANZANIA



2018 Value per Inhabitant (in USD cents)

Stringent regulation disincentivizes Aid players' use of mobile channels. Government is launching its own aggregators.

Market Specificities

Tanzania and Zanzibar are distinct markets	Both have different governing bodies and are treated as distinct entities by all aid and development organizations, which adds to the complexity of using mobile channels. For example, two approvals by health public authorities are required for health messages. For our sizing exercise, we have combined them.
Government is increasingly regulating usage of data and technology	This directly impacts the aid and development community's use of mobile channels. Examples of recent regulations include: only the government can publish data on the Tanzanian population, an official approval from COSTECH is required to conduct mobile surveys, all content pushed to beneficiaries must be approved by the government.
Government aggregators are getting launched	The government's objective is to implement pooled procurement for all the projects it manages that involve mobile channels. Two of them are already in place: 1) GePG (Government e-payment Gateway) for mobile money, which brought fees from 3 percent down to 1.1 percent 2) E-gov agency for SMS. They are still new but mandatory for government-led projects.

²⁸ Sources for figures come from the World Bank for ODA per capita, the United Nations for population and literacy, and GSMA to calculate SIM penetration among adults.

APPENDIX C: TECHNICAL GLOSSARY

Term	Definition
Advanced market commitment (AMC)	A legally binding agreement for an amount of funds to subsidize the purchase, at a given price, of an as-yet-unavailable vaccine against a specific disease.
Cash aid	A cash payment from a government or other entity to help improve the lives of its citizens.
Digital service provider (DSP)	An organization that either integrates with various MNOs or a mobile aggregator to provide access to MNO communication services. DSPs, along with aggregation services, provide value-added services, such as content delivery, conducting surveys and setting up hotlines through the various communication services. Examples include Praekelt, EngageSpark, TolaData, Mobile Accord, Souktel and Viamo.
Global digital public goods	Digital goods that are both non-excludable (no one can be prevented from consuming this good) and non-rivalrous (the consumption of this good by anyone does not reduce the quantity available to others); have benefits that extend to all countries, people and generations; and are available across national borders everywhere. Examples include software, data and standards.
In-kind aid	Specific goods or services provided to recipients for free or at a reduced rate by a government or other entity.
IVR (interactive voice response)	A subscriber-initiated call to an interactive voice response (IVR) platform that routes calls to an individual or intelligent automated voice service (e.g., customer care).
Know your customer (KYC)	The process of a business or other entity verifying the identity of its customers in order to avoid any potential risks of illegal intentions or misuse.
Mobile aggregator	An organization that integrates with various MNOs, providing access to MNO communication services through their aggregation application. Examples include Cellulant, Twilio, Nexmo, InfoBip, Africa's Talking and Synq.
Mobile money	A technology that allows people to receive, store and spend money using a mobile phone.
Mobile network operator (MNO)	An organization that provides wireless communications services. Examples include Verizon, Telus, MTN, Vodafone, Vodacom, Orange and Airtel.
Pooled procurement	Combining several buyers into a single entity to purchase a product or service at a discounted rate.
Reverse billing	When a service is configured so that the digital service provider is billed, i.e., for both sending and receiving text messages.

APPENDIX C: ABBREVIATION GLOSSARY

Term	Definition	
CAGR	Compound Annual Growth Rate	
DRC	Democratic Republic of the Congo	
GSMA	Global System for Mobile Communications Association	
HQ	Headquarters	
IDP	Internally displaced people	
IVR	Interactive voice response	
KYC	Know your customer	
MM	Mobile money	
MNO	Mobile network operator	
NGO	Nongovernmental organization	
ODA	Official development assistance	
UN	United Nations	
UNDP	United Nations Development Programme	
UNICEF	United Nations International Children's Emergency Fund	
UNHCR	United Nations High Commissioner for Refugees	
USAID	United States Agency for International Development	
USSD	Unstructured supplementary service data	
SDGs	Sustainable Development Goals	
SMS	Short message service	
SSA	Sub-Saharan Africa	

APPENDIX D: PARTICIPATING ORGANIZATIONS

50:50 campaign Accelere RDC Action Against Hunger African Medical and Research Foundation (AMREF) Africa's Talking Aga Khan Foundation Airtel Care and Assistance for Forced Migrants (CAFOMI) Cellulant Christian Aid **Click Mobile Clinton Health Access Initiative** Congo Call Center Consultative Group to Assist the Poor (CGAP) Cooper/Smith CorpsAfrica Department for International Development (DFID) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) DIAKONIE **D-Tree** ELAN RDC European Commission Humanitarian Aid (ECHO) FHI360 Financial Sector Deepening (FSD) Forum for Agricultural Research in Africa (FARA) Girl Effect Give Directly Grameed Foundation Hivos - Humanist Organisation for Social Change Human Development Innovation Fund (HDIF) Infobip International Organization for Migration (IOM) International Rescue Committee (IRC) KINU Living Goods Marie Stopes Mercy Corps Metajua mHub Malawi Millennium Challenge Corporation (MCC) mPediaree MTN

NetHope **Opportunity International** Orange Palladium International PATH Pathfinder Pegasus Population Services International (PSI) Save the Children Shule Direct Solidaridad The Global Fund Tigo Ubongo United Nations Capital Development Fund (UNCDF) United Nations Children's Fund (UNICEF) United Nations Development Programme (UNDP) United Nations Population Fund (UNFPA) United Nations Programme on HIV/AIDS (UNAIDS) United Nations Refugee Agency (UNHCR) United Purpose United States Agency for International Development (USAID) Verifie Viamo VillageReach Vodacom World Bank World Food Programme World Vision

