



mAgri



# Tigo Baseline Report Executive Summary

Natalia Pshenichnaya & Tegan Palmer

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## Introducing Tigo Kilimo

Tigo Kilimo is a value-added agricultural information service (Agri VAS) for farmers in Tanzania. Mobile network operator, Tigo, developed and rolled out the service in partnership with TechnoServe, a non-profit with focus on helping smallholder farmers to access profitable value chains. Tigo also works with the Tanzanian Metrological Agency (TMA) and NURU, a provider of market price information. Tigo Kilimo has been partly funded and supported by the GSMA mFarmer initiative.

At the time of the baseline study in July 2013, Tigo Kilimo was still at an early stage of the product development cycle and did not yet generate monthly revenues sufficient for operational breakeven. The largest share of the investment was spent on content and platform development, with GSMA funds playing the role of risk capital.

Customers register for Tigo Kilimo by dialling the code \*148\*14# on their mobile phones. After compulsory free registration and profiling according to gender, age and location, they can 'pull' information from the service by navigating a USSD menu. Customers select the category of information - market price, weather or agronomy tips - and provide details which inform the content: market location and crop for the price, location and duration for weather forecast, crop and stage of the agri-cycle for the agronomy advice. The selected tip is then sent to the customer in one or several SMS messages, depending on their length. At the time of the baseline, each SMS message cost TZS100 (0.06 USD) across all content types. Tigo Kilimo introduced subscription packages in April 2013 which allowed customers unlimited access to content for one week. These packages were available in four options: three single packages of content – agronomy, weather or market information services (each 249TZS (0.15 USD) per week) - and a 'super' package (299 TZS a week/ 0.18 USD) that gave access to all three information types.

Tigo Kilimo plans to make information available through two voice channels in 2014: an interactive voice response (IVR) system – allowing customers to access the same type of content as on the USSD/SMS channel by listening to recorded voice prompts, and a helpline service - which allows farmers to consult with live agricultural expert.

### July 2013 Service Overview

Number of subscribers	32,714
Users who have requested information	12,473
Unique users in July 2013	431
ARPU (USD)	0.01
Tigo market share	~ 29%

## Market Overview

Tanzania is an emerging market with a mobile penetration of 53% at the end of Q2 2013, projected to 64% by 2017. The remaining unconnected communities are largely in rural areas. Eight mobile operators are registered in the country, with Airtel, Vodacom and Tigo respectively dominating market share.

Tigo Kilimo estimated a target market of 6.6 million farmers growing rice, maize and horticultural crops in Tanzania. The project aimed to reach 550,000 farmers within 18 months of launching the service. At the time of the baseline, 6% of the target market had registered for the service, though only 2% had used it to access information.

Tanzania does not yet have a strong agri-VAS presence; [the mAgri deployment tracker](#) shows two other mobile agriculture deployments in the market, both launched around the time of the baseline study. A case study performed in Morogoro, a rural region, revealed that farmers are in need of an up-to-date, on-demand source of agricultural information outside of the traditional channels.

### Available sources of agricultural information in rural Tanzania

	Source	Information offering
Mobile services	Nuru Infocomm/ one2two	Shares market prices among farmers through web based mobile platform. Launched summer 2013.
	Zantel Kilimo	Agronomy tips via USSD. Service provided by VAS provider Sibesonke, branded and marketed by Zantel. Launched summer 2013.
Person-to-person	Government extension	Face-to-face information and advice on farming practices; officers often cover several villages.
	Middleman	Market price information – potentially biased.
Traditional media	e.g. radio and TV	Radio is especially useful for weather forecasts, farming radio programmes are available (ex.: Farmer Voice Radio programmes). TV shows on farming as a business (ex: Ruka Juu by Femina)

## The customer – who is using Tigo Kilimo?

Young men appear to be the early adopters of Tigo Kilimo: men make up 68% of the customer base, significantly higher than the national average, and most customers (53%) are below the age of 25 (while only 19% of Tanzanian population fall into the 14-25 bracket).

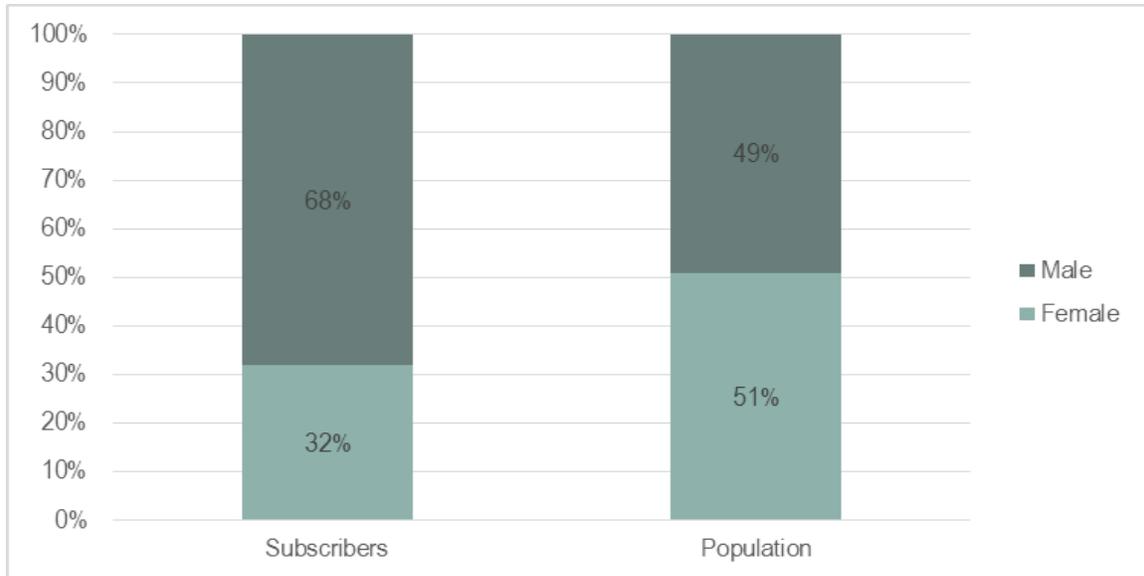


Figure 1 Gender divide in subscriber base vs. population

The vast majority of Tigo Kilimo users are small-scale farmers: 72% of customers surveyed at the baseline identified themselves as farmers, with 65% working on farms smaller than 5 acres (approximately 2 hectares). Most customers (65%) grow crops for both domestic consumption and selling at market. 17% said that they grow crops primarily for consumption, and 11% primarily for selling. Only a small number of customers do not appear to be farmers. 7% report having no land, and 6% report having no crops, while about 25% identified themselves as engaged primarily in non-farming occupations: traders, students, rural laborers, or other. Non-farmers may join the service to support their studies, get weather updates, or to satisfy their curiosity about a new mobile service, while traders may use it as an additional source of market price information.

Tigo Kilimo's customers are less likely to be in poverty than the wider population. Phone surveys with customers suggest that 13% fall below Tanzania's national poverty line (TZS 492/USD 0.30), compared to 26.6-33.4% of the wider population. Lower phone ownership and access, poorer literacy rates, and less disposable income to spend on VAS subscriptions may explain the under-representation of the poorest farmers among Tigo Kilimo's customers. as detailed below, the cost of using the service was found to be a barrier to greater use.

### Farmers' information needs and Tigo Kilimo

Farmers' information needs	Needs met?
Readily available and up to date agronomy information Advice on pests and diseases control	To some extent
Daily market prices for a variety of markets and crops	To some extent: - incomplete coverage of local markets and crops; - only average weekly price available
Weather forecasts that are more specific to farmers' locations than radio reports	To some extent – forecasts not available below District level
Advice on where and how to acquire inputs	No
Accessing financial services, especially credit	No

There is certain gap between information demanded by the farmer and Tigo Kilimo's content. Existing sources of market price and weather information lack geographical precision. Tigo Kilimo is hampered in its ability to provide more detailed weather forecasts as it is currently restricted to using TMA district level forecasts. Similarly, NURU is the only market information provider in Tanzania. Customers surveyed for the study have expressed a need for advice on access to farming inputs and financial services such as micro-credit, which is not available via Tigo Kilimo.

### The customer journey

Further data analysis and user interviews provided insights into how users interact with Tigo Kilimo and what their expectations and information needs are. It also uncovered some of the challenges to building a regular user-base. The baseline research has found that although farmers could benefit from the service by making better informed decisions, whether choosing the right time for planting, selecting the appropriate seed variety or negotiating a better price with the trader, there are still a number of bottlenecks on their journey from being a potential customer to becoming a regular user.

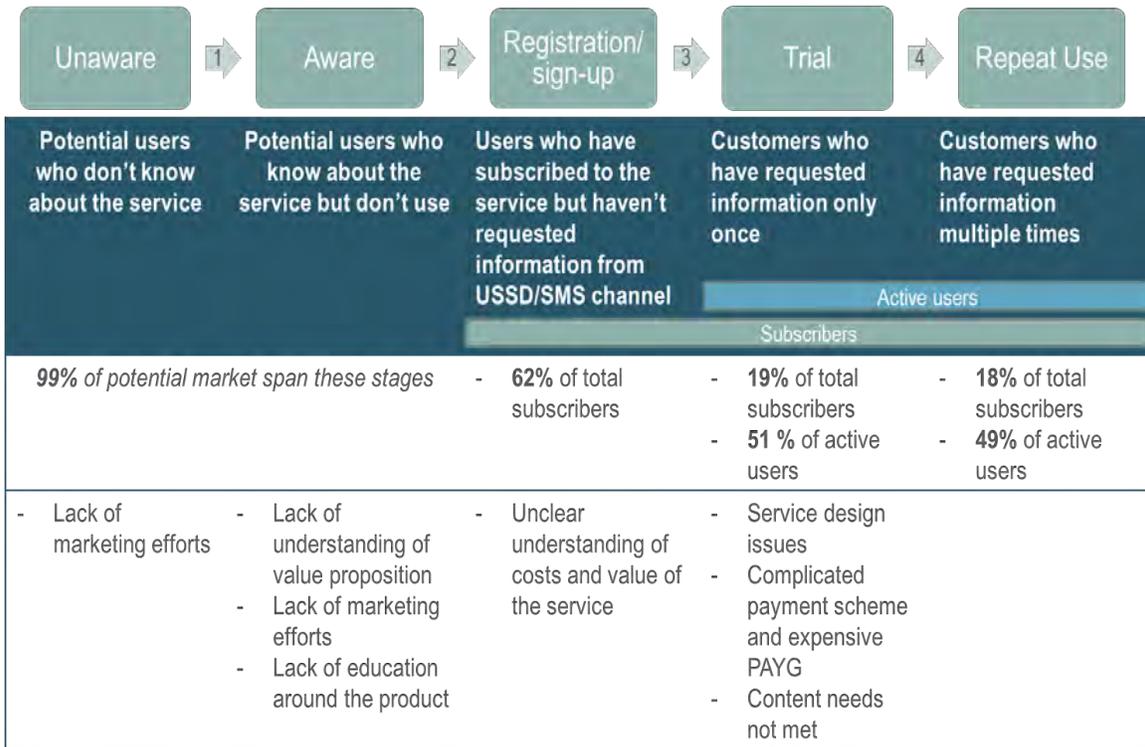


Figure 2: The customer journey shows bottlenecks where customers 'get stuck' along the way to becoming regular users of Tigo Kilimo

This study has mapped out the bottlenecks along the customer journey with an estimate for the percentage of customers 'stuck' at each stage and possible reasons for customers failing to make the transition to the next stage.

### Transition 1: from 'Unaware' to 'Aware'

The majority of the target market is unaware of the service: up to July 2013 Tigo's marketing efforts were limited to SMS-blast campaigns and a small number of freelancers (travelling agents) who were trained on the product. Tigo Kilimo needs a marketing campaign to increase the awareness among the farming population about the service and its value proposition. Strategic partnerships with on-the-ground partners such as NGOs, cooperatives, and farmer groups would provide additional distribution channels and allow for service demonstrations.

Tigo Kilimo was marketed (until July 2013) through blast messages – promotional SMS sent to large samples of Tigo registered subscribers. Although a blast SMS is a well-established method of increasing VAS ARPU in the existing customer base of a mobile operator, it doesn't allow Tigo to leverage on its competitive advantage. Marketing mainly to existing Tigo customers will give away the first-entry advantage to competitors who are rapidly moving into the mobile agriculture space. Tigo could increase its rural market share by marketing Tigo SIM cards as a farmer-friendly solution. This method has been previously used by Airtel India in their 'Green SIM' marketing campaign.

Between March and May 2013 Tigo leveraged its existing distribution channel to reach farmers with Tigo Kilimo service. Tigo's freelancers that sell Tigo SIMs, airtime, subscription packages and other Tigo services were trained on Tigo Kilimo. They would explain the benefits of the service and help with subscription. Agents' incentives were linked to the number of subscribed users, however a minimal number of acquired subscribers was required in order for agents to qualify for a commission. An unclear incentive system, and high targets have affected motivation, created confusion and resulted in agents preferring to promote other products and services. Lack of promotional materials available to the agents that could be given away during field events has been a major bottleneck in engaging the farmers. Tanzania has developed a culture of useful marketing materials for farmers, and if a product is marketed without tokens even as small as branded pocket calendars or pens, it creates a frustration among potential customers and results in a negative reaction. It was also observed that no promotional material was available in Morogoro in points of contact with farmers such as Tigo customer care centres or agro-vet dealerships. Tigo needs to invest in sufficient marketing presence of its rural product and a variety of marketing materials available to its distribution channels.

Of the 115 farmers who took part in focus groups for the case study, all were aware of Tigo Kilimo, mostly through blast SMS marketing campaigns. Blast SMS campaigns clearly do raise awareness of mobile services; however, this contribution is not necessarily positive as discussed in the next section.

#### Barriers:

- Lack of understanding of value proposition and how to use
- Mistrust of SMS campaigns due to the history of scam messages

#### Recommendations:

- Complement SMS marketing with above the line marketing

## Transition 2: from 'Aware' to 'Registration/sign-up'

Without a nation-wide survey it is impossible to judge what percentage of the wider population is aware of the service but decide not to sign up. However most of the farmers in the focus groups in Morogoro region claimed to have heard of the service, almost exclusively due to blast SMS campaigns – 112 out of 115 farmers. Around 10% of these farmers are registered users; only one had accessed content. Although farmers in focus groups do not form a representative sample, this snapshot of users' perception in one of the target areas is revealing of the effects of blast SMS campaigns.

Many farmers complained of receiving scam SMS messages, e.g. claims that they have won the lottery. There is little trust in SMS-based promotions which are not supported through other media to validate their authenticity.

Some of farmers stuck at the 'aware' stage were hesitant to subscribe to a service as they were unsure of its benefits: they were not aware that the information could help them to increase their farm productivity by improving the timing of planting, or learning about pest management etc. This further demonstrates the limitations of a marketing message condensed into 160 characters. Face-to-face marketing, media campaigns and promotional flyers are able to carry

**Barriers:**

- Unclear cost of the service
- Unclear value proposition
- Expectations for push content after registration

**Recommendations:**

- Explicitly define the pricing model for the service
- Offer free trial period

sufficient information to educate farmers on new services, including pricing, value proposition and how-to-use it.

### Transition 3: from 'Registration/sign-up' to 'Trial'

By the end of July 2013, Tigo Kilimo had 32,714 subscribers; however 62% of these customers never accessed information through the USSD/SMS channel. Customers stuck at the 'sign-up' stage would receive a welcome message by SMS and be targeted by promo messaging but would not request any agricultural content, providing zero revenue to the operator.

March-May 2013 saw the greatest number of new registrations to the service following the SMS-based promotions. June and July saw a sharp decline in the number of new acquisitions, and also in the number of customers requesting information from the service. Face-to-face and above-the-line marketing needs to be sustained alongside SMS campaigns in order to develop customer trust and gain acquisitions on a regular basis.

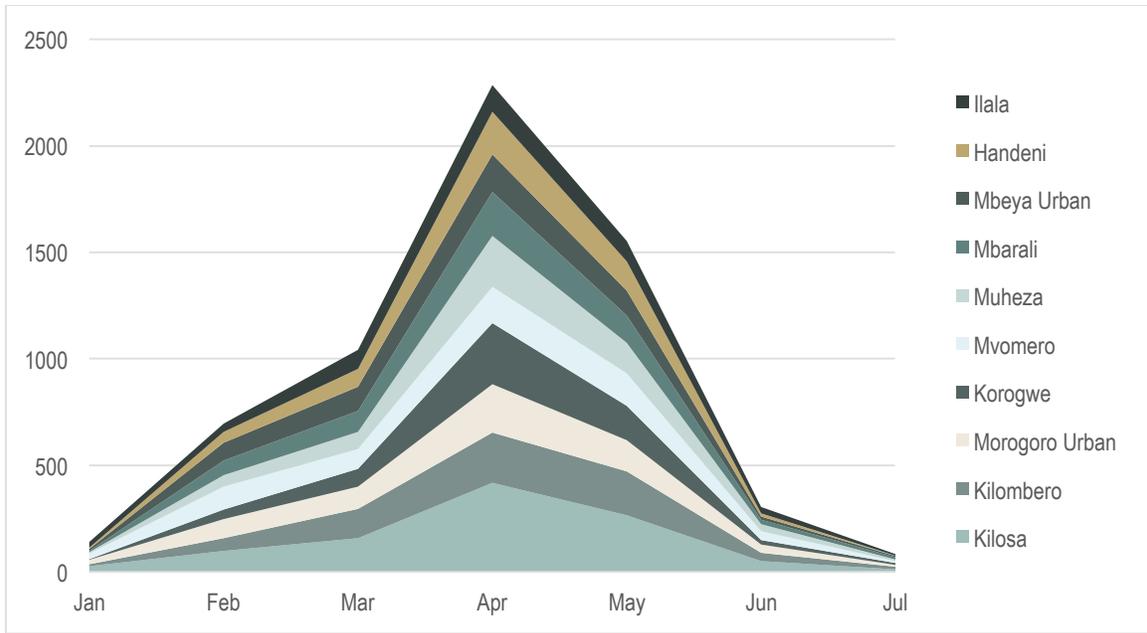


Figure 3 Top ten districts in terms of number of new acquisitions to the baseline; acquisitions per month

However, a huge proportion of new registered users gained no value from the service and provided no value for the service provider; by understanding the motivation of these users, Tigo could encourage them to take the next step on the customer journey.

The case study in Morogoro gives an indication of why customers failed to engage with the service: Farmers interviewed for the case study said that they were hesitant to use to the service for fear of the costs. Clear pricing tariffs should be communicated in all marketing messages, whether it's an SMS campaign, a poster or a face-to-face promotion.

Some customers have assumed that after registration they would automatically receive relevant content, e.g. expecting a push model. Incentive structure that reward Tigo agents for spending more time with new subscribers to demonstrate the service is essential for customer education. Future monitoring, learning and evaluation (MLE) research will aim to better understand this segment.

### Transition 4: from 'Trial' to 'Repeat use'

Of the 38% of all registered customer who used the USSD service, approximately half became stuck at the 'trial' stage, using the service on only one occasion.

**Barriers:**

- Issues with service-design
- PAYG model is too expensive for small-holder farmers
- Some content on market prices and weather not available
- Farmers' information needs not met on some topics of interest

**Recommendations:**

- Simplify access, remove unnecessary steps from USSD menu
- Reduce the price of the PAYG
- Ensure the service is fully functional
- Add content that is in high demand (e.g. info on inputs)
- Offer free access to market pricing information, since this brings the most repeat customers

Weather was the most popular content among this segment (45% of requests), followed by market pricing (34%) and crop agronomy (21%). In line with the peak of marketing activities, April was the most popular time to request content in this segment. Content types were equally popular among men and women consistently over the months.

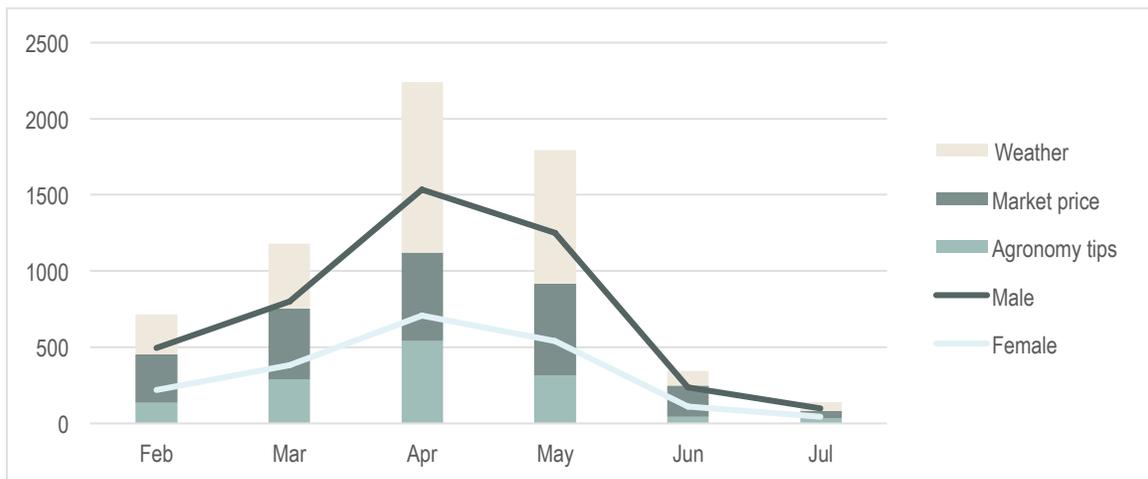


Figure 4 Trial users' access count by content type; trial customers by gender

Market prices are mostly requested for cash crops, and less so for crops grown for household consumption. Maize is the most popular crop in market price category, with rice prices being the second most accessed, both crops are important staple and cash crops.<sup>1</sup>

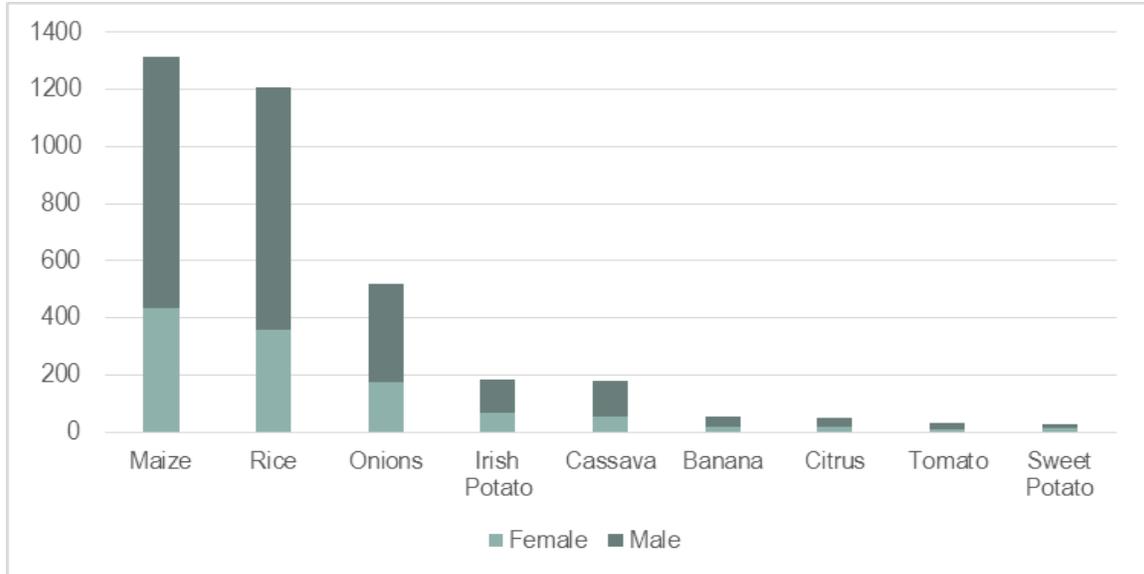


Figure 5 Market price information requested, in order of crop popularity, by gender

Trial customers may have found the service too expensive to be using it on a regular basis. Focus group participants thought that 100Tsh was too much for one text message. They suggested that 50Tsh on the PAYG model would be a fair price, and were in favour of subscription packages. Such packages were introduced in April 2013, 3-4 months before the case study, however new pricing option could lead to the usage uptake only if its discovery is organic and easy to act on. Multiple pricing options could also become a bottleneck in accessing the service, especially if placed as an obstacle to reaching the information. During the user testing it was found that the pricing screen, which 'warned' customers that the requested content would cost 100Tsh and suggested alternative pricing methods, was very likely to cause confusion and led to customers hanging up without accessing information at all. It is recommended that users purchase their first tip by the PAYG model; with a simple follow-up message confirming how much was deducted from their balance. The customer should then be informed about bundled offers and packages by additional push SMS after they have tried the service and understand its value.

Around 800 subscription packages were purchased between their launch in April and the baseline study. The combined package, which allows access to all types of content within a week, was by far the most popular option among those who purchased the packages, suggesting that the service doesn't need to offer customised packages at this stage. Subscription packages were not found to encourage repeat service use at this time; less than 3% of

<sup>1</sup> United Republic of Tanzania [Agricultural Sector Development Plan: Integrated Pest Management](#) revised version

packages were purchased by repeat users. However deeper service design problems may account for this lack of return users.

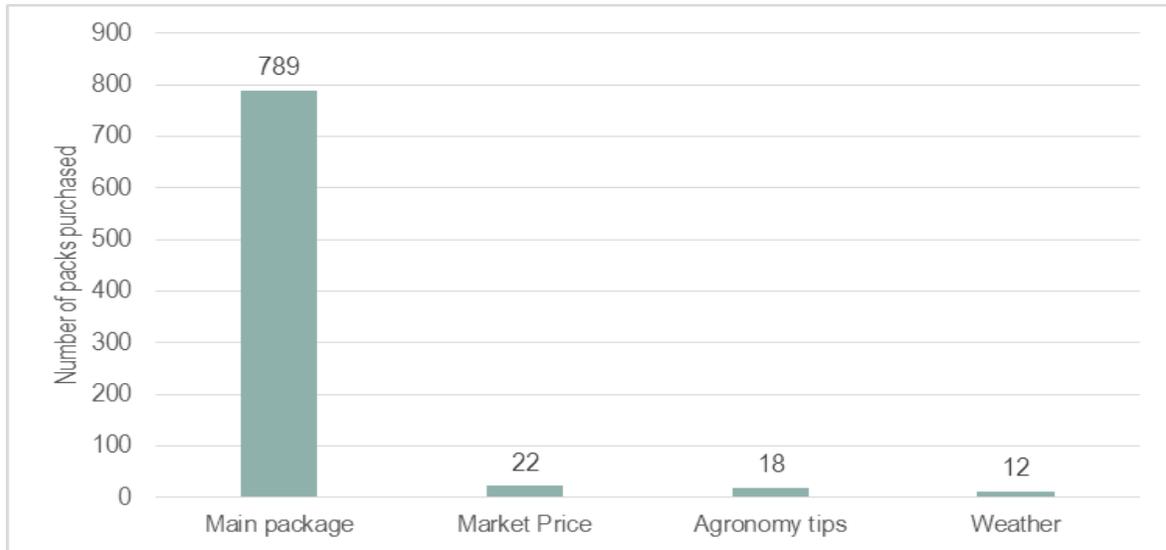


Figure 6 Number of packages sold for each content type from their launch in April 2013 to the time of the baseline

During user testing it was observed that customers experienced difficulties in USSD navigation and processing from one step to another. Since most of USSD screens did not offer the option to go to back previous menu, this often resulted in 'dead-end' experiences. The service required up to 10 transactions to access a single tip, which results in USSD time out and general confusion or tiredness of the customer. It is estimated that as many as a third of customers can stop the process at each stage before information is reached. This could partially explain low service uptake.<sup>2</sup> The option to return to the previous screen should be added, and USSD flow needs to be simplified to reduce the number of steps to reach the content.

Despite the difficulties of navigating through the USSD text channel, the final SMS message was perceived by users as of a great value, since they can save the information and revisit it later or share with the household or community. Tigo could deploy a push model where customers receive regular messages upon purchase of a bundle.

Negative trial experience has been further intensified by limited content availability. Daily weather forecast and market price tips were not available for some of the locations offered on the menu, which resulted in error messages being sent to the users. It is critical to ensure that the service only offers available content options, with no error messages received upon any of the requests. Dynamic menus should be deployed in order to minimise the risk of gaps in dynamic data feeds such as weather and market prices.

<sup>2</sup> [Agri-VAS Functional Requirements and Best Practice](#) GSMA mAgri December 2013

Customers may have decided not to return to the service after the trial because the content did not satisfy their needs, or provide information that was new and unavailable from other sources. Currently both weather and market content lack required granularity. Tigo Kilimo provides weather forecasts from the TMA at Regional level; some farmers participating in a focus group discussion in the Morogoro Region wanted forecasts at sub-Regional levels that were more specific to their own location. The service also lacks content on topics of interest such as information on where to get farming inputs or how to access micro-finance services.

### Focus on repeat users

Only 18% of active users accessed information more than once by the time of the baseline. Collectively these customers made almost 17,000 requests for data; an average of 3 requests per user. Repeat users were more likely to be male (71%) than the subscriber average. In focus groups, women farmers were observed to be more cost conscious than their male counterparts. In Tanzanian society, men tend to control resources, land and benefits, so women are likely to have less income. Lowering the cost of the service may increase its appeal among women.

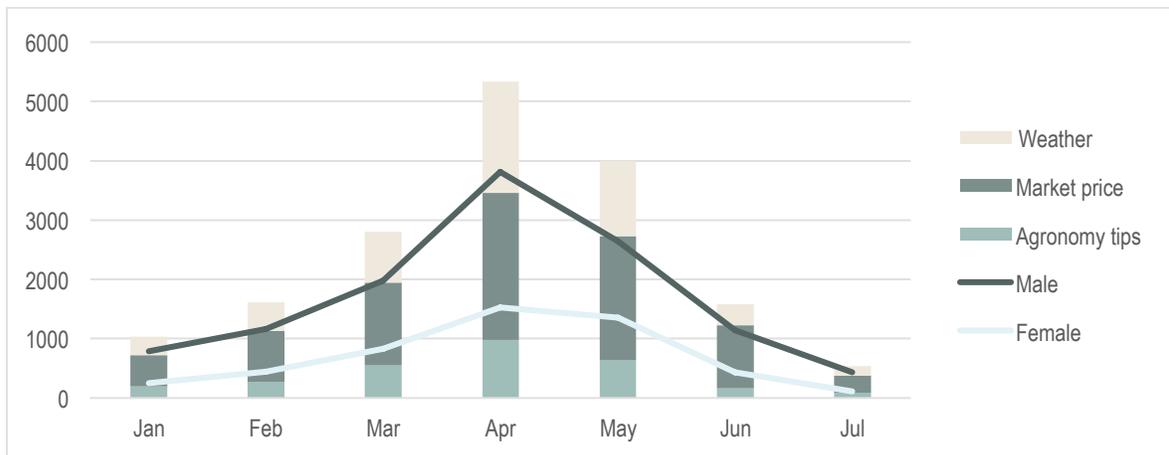
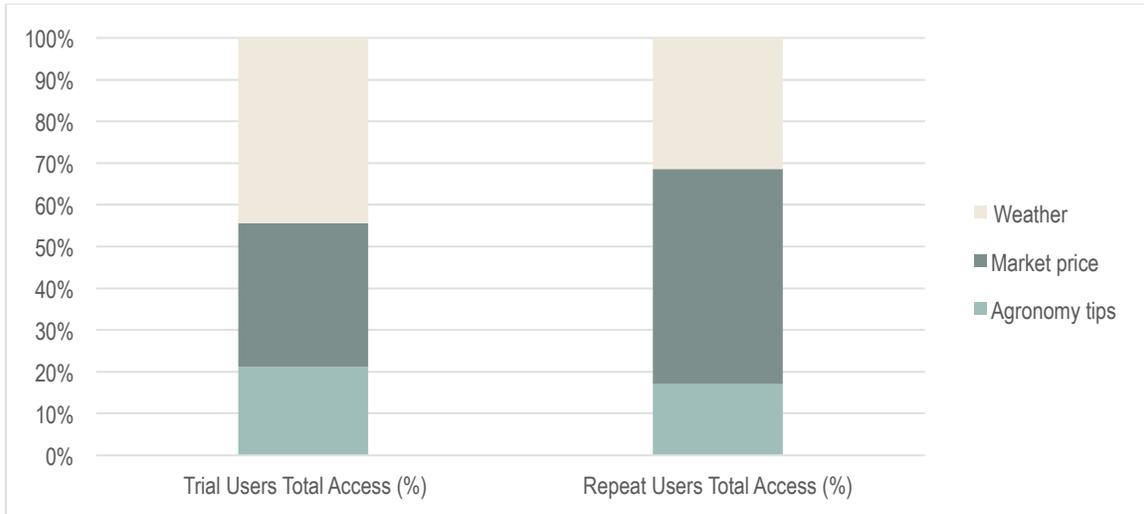


Figure 7 Access count of different content types in repeat users; gender in repeat users

Dynamic content (market pricing and weather) was more popular among both segments of active users than the static agronomy content. Market pricing was the most popular content among repeat users, attracting 51% of requests in this segment. This was followed by weather (32%) and agronomy tips (17%). Tigo offer their customers one free access to weather information as a trial; this is reflected in the popularity of weather content among trial users. Market pricing information was the most popular content among repeat users. Since call log data suggests that market price information is more likely to attract return customers, Tigo should consider offering a free trial of market pricing information instead. An early stage VAS provider would benefit from offering one free access from each content type in a random allocation for a limited period. The resulting analysis would allow them to ascertain which content type, if any, drew the most repeat custom.



**Figure 8 Comparison of content accessed by trial vs. repeat users**

A focus on market prices shows a gender alignment with the segment average, though women were slightly more likely to search for cassava, sweet potato, Irish potato and tomato price. Horticultural crops are grown by women and young farmers as they generate higher cash value on a small plot than more traditional crops.

It has been observed during the case study that two of three farmers who were a part of the pilot, and were trained on the service by Tigo's partner TechnoServe, became regular users of the service and reported that it had had an impact on the way they farmed. When compared to a ratio of regular users to the total size of the user segment that was acquired by SMS marketing one in over a hundred, it is clear that Tigo should invest in education of its early adopters, before they would be able to demonstrate the service to their community.

16% of active users (6% of subscribers) returned to the service for a period of more than one month. This represents a reasonable portion of the customer base providing Tigo with regular revenue. It is encouraging that the service is attracting repeat users even with the service design and functionality faults. This points to a real demand in the market an alternative to traditional sources of agricultural information, which a mobile solution like Tigo Kilimo can deliver.

## Next steps

The methodology for the baseline study summarised in this report breaks the conventional scope of monitoring and evaluation review and intends to provide actionable insight and some level of business intelligence to the service provider as well as to the wider mobile agriculture industry. This is because we recognise that the success of business-lead services could be more adequately assessed by a business-oriented framework and appropriate user segmentation. Structured business intelligence insights combined with qualitative data collection are more likely to result in the 'learning' component than a single report on progress against a set of indicators. The mFarmer initiative

intends to apply a segmentation approach when analysing the behaviour change within the target population across all four mFarmer projects. It will also assess the impact created within the segments of users with higher likelihood for attributable changes in income and livelihood, such as repeat and power users, for one of the selected projects.

#### **About the GSMA Association**

The GSMA represents the interests of mobile operators worldwide. Spanning more than 220 countries, the GSMA unites nearly 800 of the world's mobile operators with 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in industry sectors such as financial services, healthcare, media, transport and utilities. The GSMA also produces industry-leading events such as Mobile World Congress and Mobile Asia Expo.

For more information, please visit the GSMA corporate website at [www.gsma.com](http://www.gsma.com). Follow the GSMA on Twitter: @GSMA.

#### **About Mobile for Development - Serving the underserved through mobile**

Mobile for Development brings together our mobile operator members, the wider mobile industry and the development community to drive commercial mobile services for underserved people in emerging markets. We identify opportunities for social, economic impact and stimulate the development of scalable, life-enhancing mobile services

#### **About the GSMA mAgri Programme**

mAgri catalyses scalable, commercial mobile services that improve the productivity and incomes of smallholder farmers and benefit the agriculture sector in emerging markets. The GSMA mAgri Programme is in a unique position to bring together mobile operators, the agricultural organisations and the development community to foster sustainable and scalable mobile services that improve the livelihoods of smallholder farmers.

#### **Contact**

For more information on the GSMA's mAgri Programme, please contact us on [magri@gsma.com](mailto:magri@gsma.com)

For queries relating to the mFarmer Initiative, please email us on [mFarmer@gsma.com](mailto:mFarmer@gsma.com)

Copies of the Morogoro region case study and the study methodology are available on request.

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For further information please contact

[mAgri@gsma.com](mailto:mAgri@gsma.com)

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Authors: Natalia Pshenichnaya, Tegan Palmer.

GSMA mAgri team is closely working with the ALINE Initiative within Firetail Consultancy, for the monitoring and evaluation of GSMA funded projects.

GSMA London Office

T +44 (0) 20 7356 0600

<http://www.gsma.com/magri>

