GSMA mAgri

mKisan Midline Evaluation

February – April 2014

Mobile4Development

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For more information on the GSMA's mAgri Programme, please contact us on magri@gsma.com

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

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Executive Summary

mKisan is an agricultural value added service (Agri-VAS) which had been live in India since December 2012. The service offers push content in the form of SMS and access to two pull channels, an IVR menu and a helpline, on purchase of a subscription package which costs 1INR per day, purchasable in packs of 10, 20 or 30 days. In the year since the baseline[1] mKisan's user base has more than doubled in size. However, its most valued customer base, the IVR users, has not seen the same level of growth.

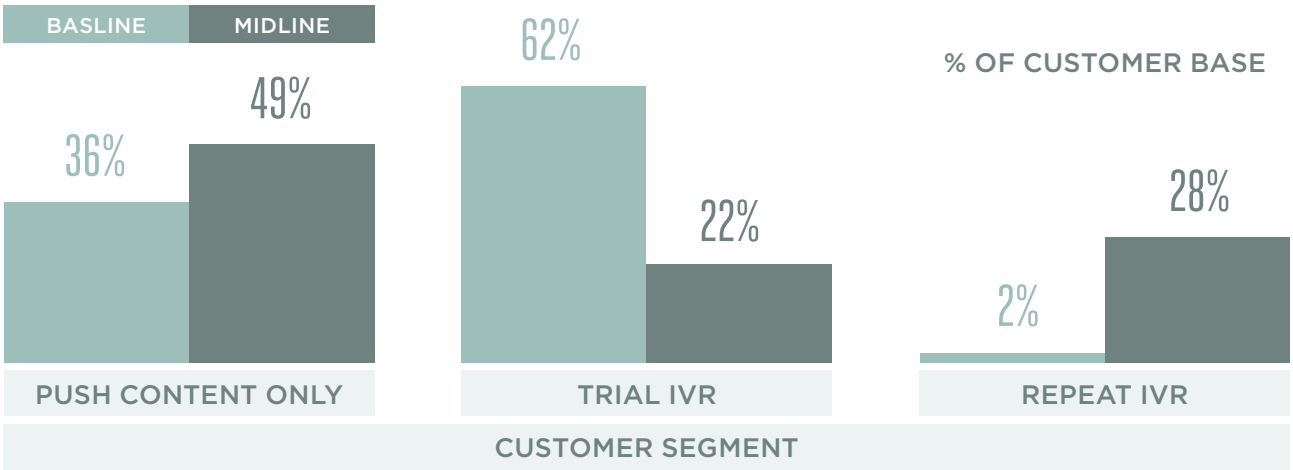
mKisan since the baseline

	BASELINE	MIDLINE	DIFFERENCE
Number of registered users (bought at least one subscription pack)	327,338	808,486	↑481,148
Number of IVR users (registered users who accessed the IVR service)	169,994	279,494	↑110,000
ARPU (USD)	0.89	0.92	↑0.03

More users than ever are now subscribed to SMS tips and updates without accessing pull content through IVR or helpline; 'push content only' users (figure 1); at the same time users who do access IVR are now much more likely to report satisfaction with the service and become repeat users than they were in March 2013 (table 1).

Figure 1

Customer journey - baseline to midline comparison



See the customer journey analysis for more details.

1. For a full explanation of the service, refer to the mKisan Baseline Report Executive Summary: A snapshot of the mKisan service in March 2013 http://tinyurl.com/p3tpxfp

Table 1

mKisan customer qualitative analysis

	PUSH CONTENT USERS	TRIAL IVR USERS	REPEAT IVR USERS
Percentage reporting access to alternative information sources	86%	47%	70%
Main reason for joining mKisan	Curiosity; learning new farming practice	Crop pests/ disease	Learning new farming practice; help to find inputs
Satisfaction with mKisan score	48	56	71
Most likely occupations	Farmer, office worker, casual labourer	Farmer, casual labourer	Farmer, student, casual labourer

Push content users have access to traditional information sources such as other farmers, agro-dealers, government extension and mass media. The majority report no pressing needs for information when they try mKisan, just curiosity. The majority of users who only receive push content from mKisan are not satisfied with the information they receive.

They need better education about the breadth of the services and the pricing model through engagement messages.

Read more about the segment in 'Push content user' section.

Trial IVR users have the most need for information services, and report trying to use the service in emergency situations. These users are most likely of all segments to be farmers, and the least likely to report having access to or using alternative sources of information. However, they are not overly impressed by what mKisan is offering, perhaps because their needs (around pests and diseases) are more acute than the needs of other users.

They need a more bespoke service which delivers practical advice actionable advice for emergency situations, ensuring users are aware of the more interactive channels (helpline and video). There is also evidence that this group do not understand the pricing model, leading to a reluctance to use higher value services. Performing user testing with this group would help to uncover issues with the service design.

Read more about the segment in 'Trial IVR user' section.

Repeat IVR users are information seekers – they largely report having access to other sources of information, but they are still interested in finding new information about farming from mKisan. They have spent more time exploring the IVR channel and have thus gained more satisfaction from the service. They are better at finding what they are looking for, including relevant seasonal content, than trial users. They want to know about better practices, better inputs and ways to improve their farms. They have had mixed success using mKisan as a tool, but they appreciate it as one source among many for agricultural information. Thirty one per cent of these users reported the mKisan had changed their farming practices. Of those customers who reported making changes based on advice from mKisan, 33% reported seeing a better yield, 2% felt they could better predict the weather, and 8% felt that they had more knowledge.

They need complete advice and tailored solutions utilising currently available methods such as the helpline and video content. Linking with an on-the-ground organisation would allow more practical demonstrations of methods.

Read more about the segment in the 'Repeat IVR user' section.

mKisan status update

mKisan has made some service improvements since the baseline. The user experience on IVR has been improved by decreasing the time between dialling the IVR line and reaching content.

Handygo have continued to promote mKisan service through below the line (BTL) marketing campaigns in varied geographical regions via SMS/OBD blast messages. However regulatory changes have limited the way customers can be acquired. In July 2013, the Telecoms Regulator Authority of India (TRAI) introduced 'double confirmation' guidelines with the aim of protecting consumers from being wrongfully charged for content. Customers have to agree twice to be signed up for VAS, once on the platform itself, and once through a third party channel. This includes SMS, OBD, internet, IVR, USSD, cold calling, and any other mode of activation. TRAI also stipulates that the deactivation methods must be publicised through mainstream media and any wrong activations should be removed and refunded within 24 hours*. This halved the number of VAS activations in India by August 2013.

The effects these changes have had on VAS providers like Handygo have been two-fold:

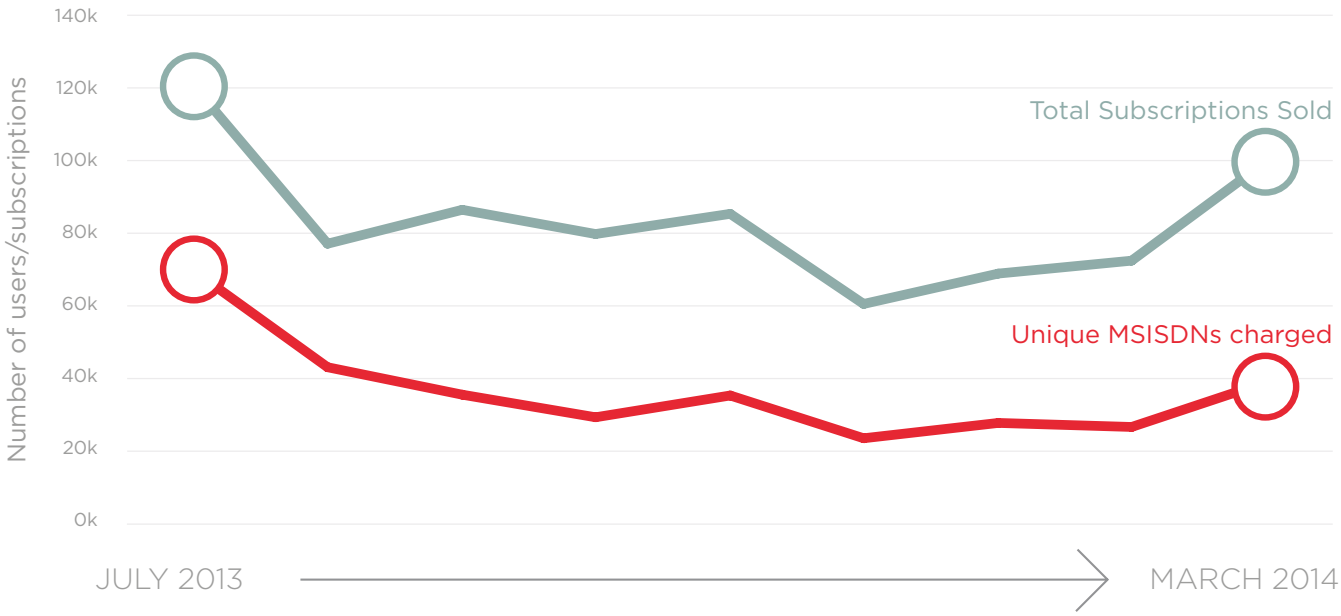
- Reduced marketing possibilities;
- Lower levels of competition from non-legitimate players.

mKisan uptake and usage

mKisan experienced the highest number of subscribers in its user base in July 2013[2]. This was the month in which the Telecoms Regulatory Authority of India (TRAI) introduced 'double confirmation' guidelines mentioned above. The average number of subscriptions purchased per user per month increased from July to October 2013, and has remained at around 2.5 since then (figure 2).

Figure 2

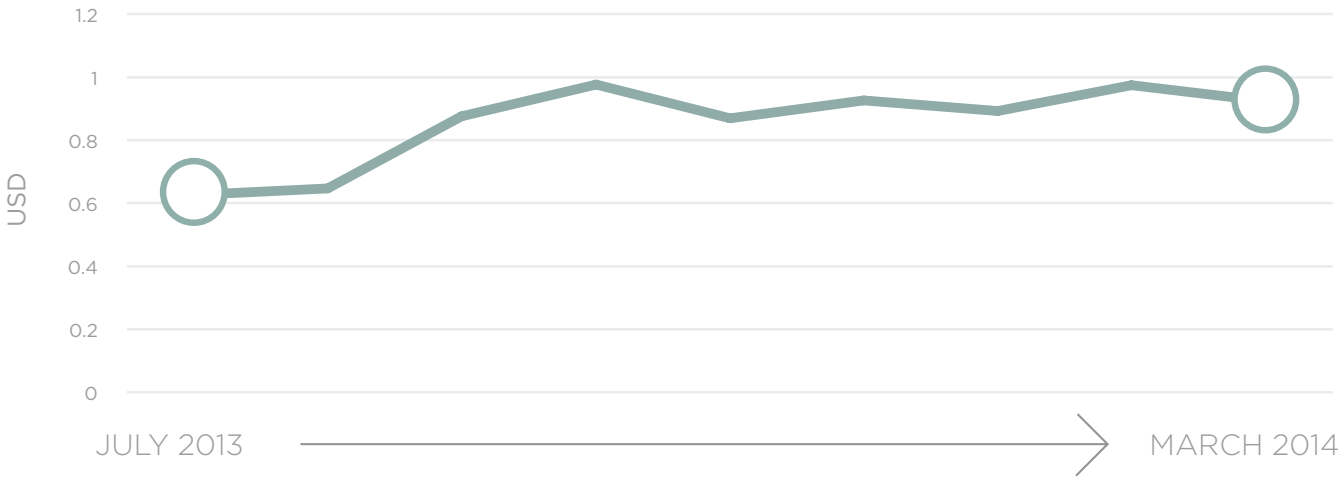
Number of users and subscriptions sold per month



July 2013 saw an ARPU low of USD 0.62; the peak was reached at USD 0.98 in October 2013, indicating an increase in per customer usage over this period; whereas less customers use mKisan since the introduction of the 'double confirmation' regulations, those that do access are more likely to return to re-subscribe. ARPU has since remained relatively steady between USD 0.87 and USD 0.97 (figure 3).

Figure 3

ARPU July 2013 - March 2014

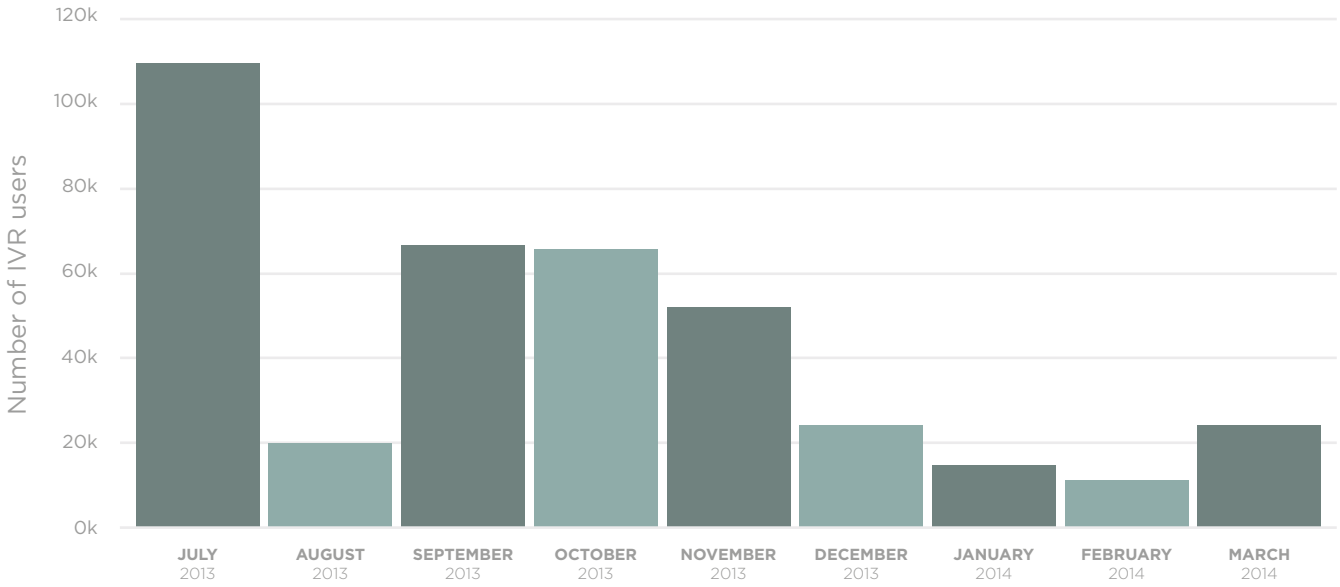


2. Continuous data for this service has been available since July 2013 and represents the beginning of the analysis.

mKisan's subscribers have used the different information channels to varying degrees. In March 2014, around half the customers who bought subscriptions used the IVR service; the remainder only received push content via SMS. The popularity of the IVR channel has declined steadily from a peak in July 2013 (excluding a dip in August), reaching a low point in February (figure 4). A drop of new customer acquisitions by half after July 2013 is similar to that of the national average after the introduction of 'double confirmation' regulation from TRAI.

Figure 4

Volume of IVR service users accessing each month

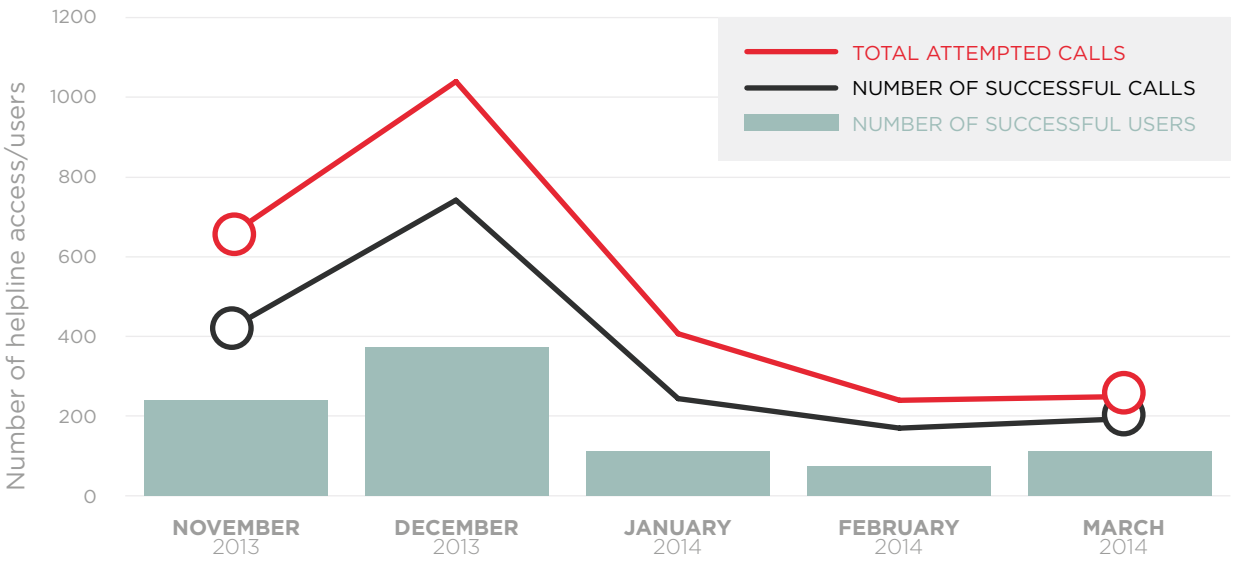


Source: IVR usage logs July 2013 – March 2014.

Very few customers (<0.01%) have made use of mKisan's expert helpline at this point (figure 5). The number of calls to the helpline peaked in December 2013 up to 1000 calls per month, coinciding with promotional activities via SMS and OBD in Maharashtra state, followed by a decline in early 2014. Almost a third of calls made during this month did not connect – 10% due to network issues, the rest were unanswered due to limited helpline capacity. The ratio of failed calls to received calls improved in 2014, probably due to less calls being attempted overall.

Figure 5

Helpline use November 2013 - March 2014



Source: Helpline usage logs November 2013 – March 2014.

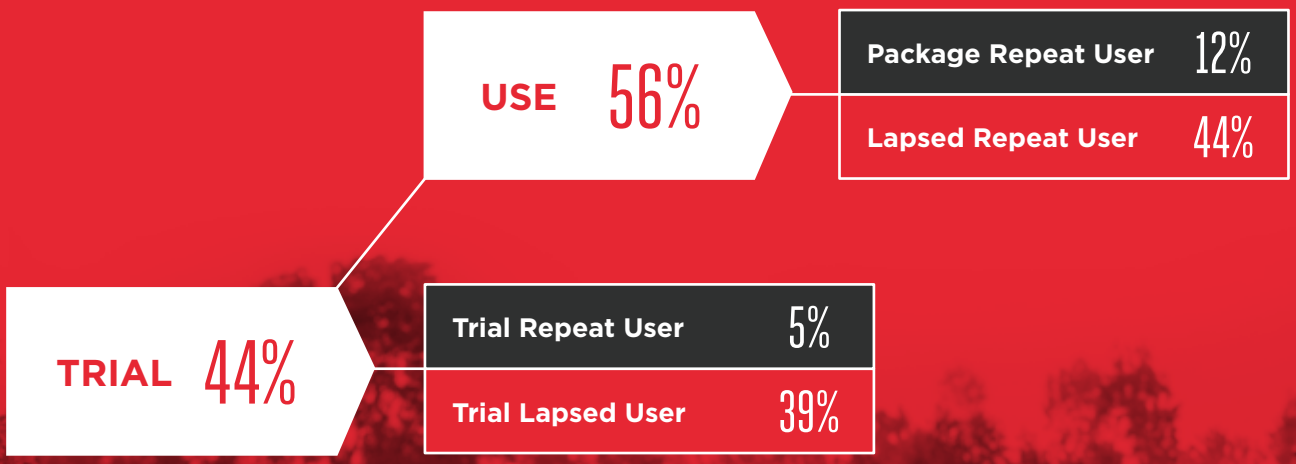
mKisan also provides access to instructional videos about agriculture and livestock management developed by an NGO, Digital Green. Data costs in India are becoming more competitive – Vodafone offers 3G at 2 Paisa/10kb, and Airtel offers the same for 3 Paisa. Both also offer packages with data inclusive. A package including 1GB data plus talk time benefits costs ~250R per month. 18% of survey respondents said they were able to stream videos on their phones; about half of these said that they have watched at le, ast one video through mKisan (9% of respondents). Within these users the most popular videos provided advice on controlling crop pests and diseases (39%) and other crop related tasks (22%). Around 17% of respondents watched videos about livestock management. Most video non-users stated that they did not understand the video link (67%); it may be necessary for Digital Green and Handygo to provide further education around streaming data in order to reach this market.

The customer journey

Since the baseline (see the mKisan Baseline Report Executive Summary: A snapshot of the mKisan service in March 2013) the concept of the customer journey has been modified with regard to 'push content only users' (formerly called 'registered non-users'). Users can be completely dissociated from the voice channels and still be long-term customers of mKisan, renewing subscription and receiving SMS tips. 56% of the mKisan customer base has purchased more than one subscription package (figure 6).

Figure 6

The mKisan customer journey (subscription package purchase) July 2013 - March 2014

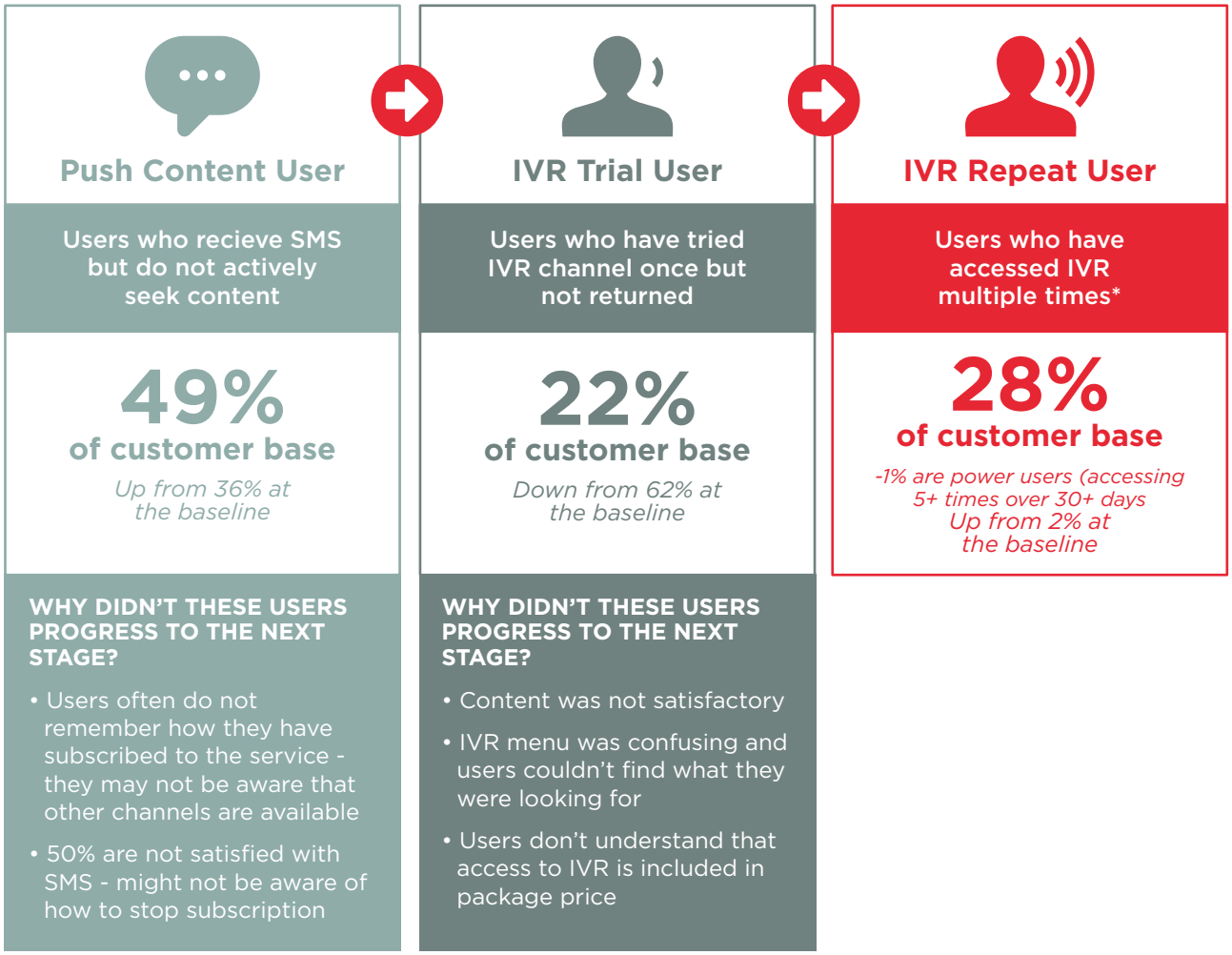


Source: Handygo reported user numbers.

Push SMS are appreciated by at least some of the user base (see mKisan delivery channels – user perception from interviews below). However, users might gain more benefit from accessing specific information to suit their needs via IVR and the helpline as well as receiving generic advisory. Minutes of use (MOU) is one of Handygo's KPIs for assessing the success of the service; they encourage customers to use IVR as part of their business plan. Customers interviewed for this report are therefore segmented according to their level of engagement with the IVR service (figure 7).

Figure 7

The mKisan customer journey (content access)



Source: Handygo reported user numbers/ IVR usage logs July 2013 - March 2014.
(* multiple times = on multiple days)

The share of the user base that have never used IVR has decreased by over a quarter since the baseline. At the same time more users than ever are now subscribed to SMS without accessing pull content, which suggests that Handygo must do more to educating users about the breadth of the service functionality available to them. However, users who do access IVR are now much more likely to become repeat users than they were in March 2013. This suggests progress in terms of the perceived usefulness of the IVR service for those users who have tried it. Six per cent of the total user base accessed the IVR channel at least once during March 2014.

Handygo report ~480,000 new users since the baseline; the rest of the addressable market is likely to be in the 'unaware' or 'aware' segments of the customer journey.

Push content users

Forty-nine percent of mKisan customers who purchased subscription packages in March never accessed the IVR or helpline services; these customers receive only the regular push content for the duration of their subscription package. This includes generic agricultural advice and agricultural news and alerts – including alerts about pest outbreaks, government schemes for farmers and weather-related advice.

Anecdotal evidence from repeat IVR users suggested that the push content was sometimes useful and actionable. However, because they are not pro-actively using the service to seek information of particular interest, push content only users may be less inclined to adopt new farming or marketing practices after using mKisan. In line with the user base average, 9% of push content users are women.

Push content users are mostly farmers/herders (38%), casual labourers (13%) or office workers (13%). Their estimated average farm size is 4.8 acres, slightly smaller than the user base average (5.5 acres). Users in this segment are the most likely to report being casual labourers or semi-skilled workers. Push content users rely heavily on fellow farmers for agricultural information – 41% stated this as a source (table 2). However, access to information from agro-input dealers (21%) and from mass media (10%) was also higher in this segment than in others. Push content users displayed the highest level of access to alternative information sources across all segments, suggesting the need for information in this segment is lowest.

Table 2

Most popular stated sources of information between customer segments

	NONE	MASS MEDIA	FELLOW FARMERS	GOVERNMENT OFFICIALS	AGRO-INPUT DEALERS	MKISAN	TOTAL % STATING SOURCES OTHER THAN MKISAN
PUSH CONTENT USERS	12.8%	10.3%	40.5%	11.8%	21.0%	1.0%	86%
TRIAL USERS	53.2%	1.8%	28.0%	2.8%	13.8%	0.0%	47%
REGULAR USERS	21.8%	7.7%	30.8%	11.5%	17.9%	8.3%	70%

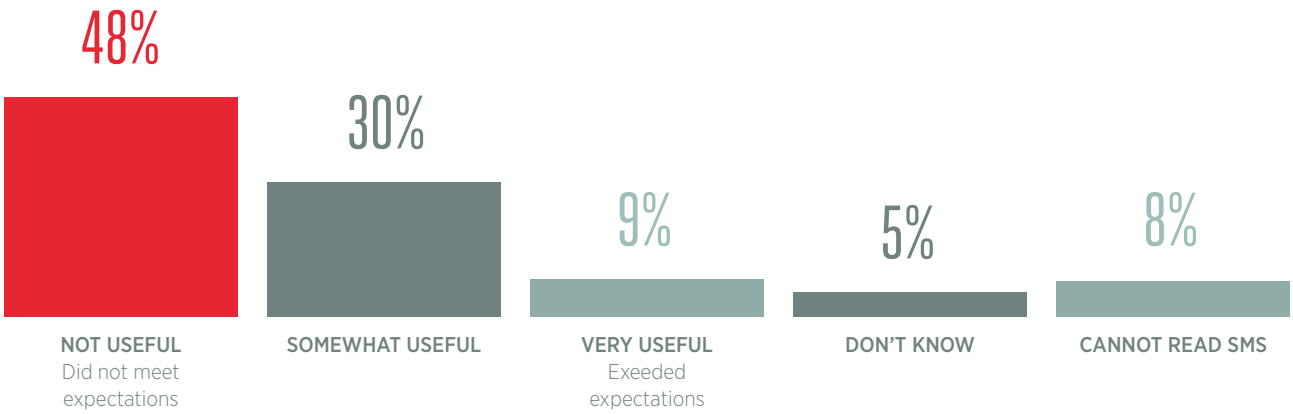
Source: mKisan user phone survey, February - April 2014

Most push content users said they could not remember how they first learned about mKisan (61%), or that they joined on the recommendation of another farmer (20%). The majority of this segment who gave any reason for joining the service said they joined out of curiosity (52%). These users may be joining mKisan without full knowledge of the range of channels that mKisan offers and how to access them. Handygo needs to use educational SMS/OBD messages regarding service offerings and engagement messages including content information with links to the IVR line. Face-to-face marketing is a much more effective way to educate users, but can also be expensive. Cut down costs by replacing van marketing with bicycle marketing, with a roaming branded mKisan agent who is able to serve for low costs after initial outlays.

Some customers may also be deterred from trying the IVR or helpline channels because of concerns about costs and poor understanding of the service pricing structure. Handygo has identified this as an issue which only effects customers acquired prior to changes in regulations requiring 'double confirmation', assuming that user who have 'double confirmed' will understand the service and pricing model. To assist more established users, Handygo could send a breakdown of the tariffs and services to this segment in place of one of the content messages to increase the customers' engagement with the service and their MOU.

Figure 8

Perceived usefulness of SMS in push content users



Source: Phone surveys February - April 2014

More than half of push content users surveyed said that SMS did not meet their expectations or that they could not read the content (figure 8). However, some push content users choose not to use the pull services because they value the SMS content and are not interested in using other channels - almost 40% of this segment said that they found the SMS content 'somewhat useful' or 'very useful' . Customers interviewed for the midline gave examples where SMS from each content stream had helped them to make decisions on their farms and in some cases led to increased yields:

I received some of the best information from the SMS you send. For example, before I never irrigated my wheat crop when the wheat heads were forming. But the SMS said that it's very important to irrigate the wheat crop at this stage. It would help in the formation of the heads. So, I irrigated my wheat crop and in reality, the results were good. Thereafter, I have always practised it.....

I was going to dig some channels along my fields. But the SMS alert said that it was going to rain the next day. So, I decided to cancel the digging. So, it was a timely alert, otherwise, all my efforts and hard work would have been washed away by the rains.

Anil, West Champeran, Bihar[3]

3. Download the mKisan midline case study report for more testimonials. Farmer's names have been altered.

Trial users[4]

Fifty one per cent of customers subscribing to mKisan in March 2014 used the IVR service; almost half of these users have only accessed IVR on a single day (22% of the entire customer base), meaning they could be defined as trial users. In line with the user base average, 8% of trial users are women.

Trial users have an estimated average farm size of 6.3 acres (slightly larger than the other two segments), and are more likely to have learned about mKisan through face-to-face marketing (mKisan distribution agents or agricultural fairs) than the other segments. Face to face marketing should be the easiest way to educate users, so an investigation into why this method does not result in more use of the pull service is recommended.

In comparison with push content users, few trial users join mKisan out of curiosity (13%; table 3). Most trial users join mKisan to access information about agriculture (53%), of which the majority were looking for information on pests and diseases in crops (43%).Farmers looking for information about pests and diseases are likely to be most desperate for information as they are facing the emergency on the farm; they are also most likely to report no other sources of agricultural information (table 2) so may be an easy audience to capture if the service lived up to their expectations. Trial users display the lowest level of satisfaction with the service of all the segments surveyed: just over a quarter of trial users share mKisan information outside of their households, compared to half of repeat users. Handygo need to consider creating a dedicated content category on pests and diseases on the top of the IVR menu since it is the most in-demand content from those users who try IVR for the first time. This menu option could also include direct access to helpline if automated content doesn't answer farmer's query.

Table 3

Most popular reasons for joining mKisan across the customer segments[5]

	CURIOSITY	RECOMMENDED	OPPORTUNITIES FOR FARMING/MONEY CREATION	LEARN NEW FARMING PRACTICES	CROP PESTS/ DISEASE	HELP TO FIND INPUTS	OTHER
PUSH CONTENT USERS	52%	8%	7%	33%	0%	0%	0%
TRIAL USERS	13%	0%	4%	9%	43%	9%	6%
REGULAR USERS	0%	2%	6%	29%	6%	21%	27%

Source: Phone survey February - April 2014

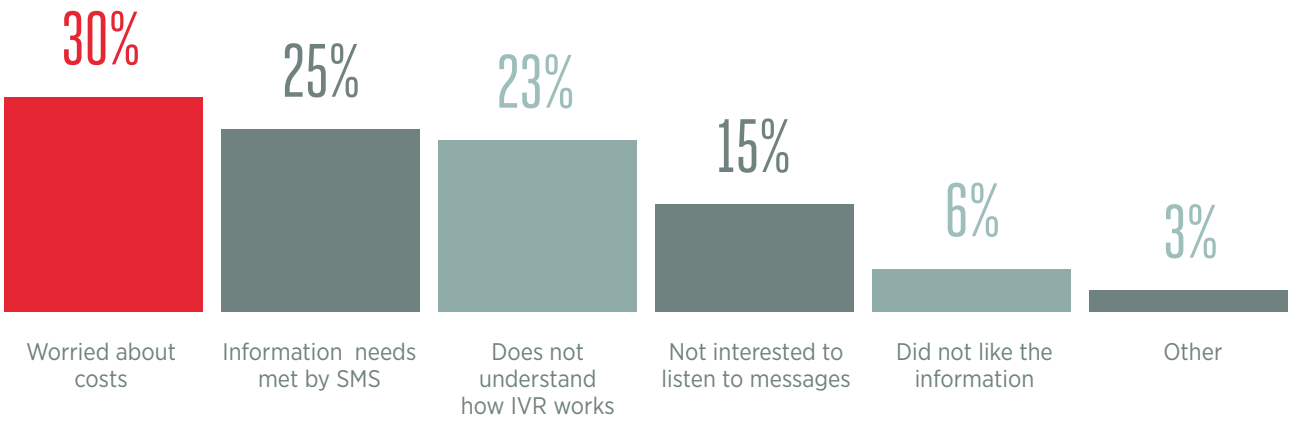
4. Trial users' and 'Repeat users' segments use data from IVR users only.
5. Options also included studies, market prices, weather information, livestock care and animal poor health, however these options are not shown as they were selected by a very small minority of respondents.

Surveyed trial users have not come back to the IVR service because of concerns about costs (30%), satisfaction with the SMS service (25%), and poor understanding of how to use IVR, including not knowing the number for dialling IVR (24%; figure 9). Few users (6%) said that they did not like the content they found, and there were no suggestions that customers couldn't find the information they were looking for.

Users with concerns about the cost of the IVR service have not understood that the IVR channel comes bundled together with the SMS content at no extra cost – they may not be aware that they have already paid to access this service for at least 10 days. Testimonies from case study interviews found that many customers do not have a good understanding of what is included in the price of subscription (see Repeat Users of IVR channel). Tactical use of below the line marketing to make trial users aware of all options available to them as a part of subscription pack could increase average MOU per user. This activity could also benefit those users who do not know the IVR number.

Figure 9

Reasons for using IVR service only once in trial user segment

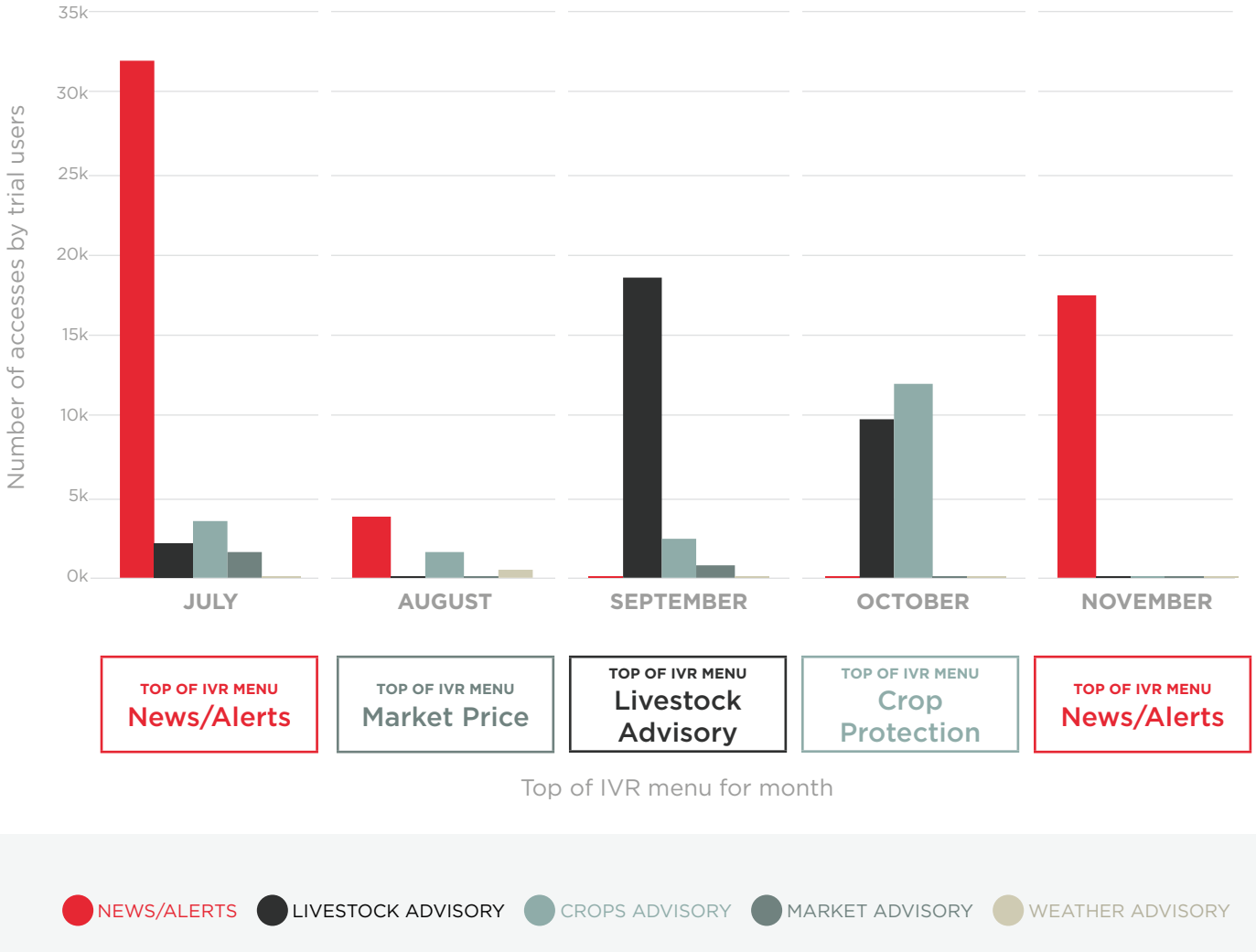


Source: Phone surveys February - April 2014

Although none of the trial users surveyed said they couldn't find what they were looking for, customer behaviour analysis illustrates a different story. Over half of trial users cited that they wanted to learn about pests and diseases when they joined the service; however only 19% of content accesses from this segment were in the agronomy section. Almost half accessed News/ Alerts content (information about government schemes, pest outbreaks and other relevant information) – these were not cited as priority topics by trial users. In fact, accesses by trial users seem to mirror the dynamic content at the top of the menu month by month much closer than it follows their reported information needs or the time of the season. Handygo introduced dynamic menu ordering from July – November 2013 based on what content had been accessed most (largely by repeat users) during the previous month. Trial users' access patterns during this period strongly followed the IVR content at the top of the menu (figure 10). This pattern is broken only in August – trial users did not follow the signpost to market price information at this time. Market advisory is generally the least accessed content by this segment across all months – interest in market price information among this segment does not seem to increase in October/November, which is around the end of the 'kharif' season in much of India, as one might expect. Trial users may be getting stuck using the IVR menu or unable to find what they want – performing user testing with these users would allow more visibility into any data access issues.

Figure 10

Content access patterns of trial users, showing which content stream was in the ‘press 1’ spot on the IVR menu. These access patterns suggest that trial users can be easily influenced by menu sign posting when accessing content.



Source: IVR usage logs July - November 2013

Repeat users

Almost one third of the user base (28%) are repeat users of the IVR channel – these customers have overcome the barriers identified above and successfully pulled information on multiple occasions. Repeat users accessed on average 5 times more IVR content than trial users. The survey found that they are also the most satisfied customer segment: repeat users are more likely to share information from mKisan with others outside their household as well as to recommend it to fellow farmers than any other segment (table 4).

Table 4

Customer satisfaction measures in users across customer segments[6]

	% OF USERS WHO HAVE SHARED INFORMATION FROM MKISAN OUTSIDE THEIR HOUSEHOLD	% OF USERS WHO WOULD RECOMMEND THE SERVICE TO A FRIEND	COMPOSITE SCORE
PUSH CONTENT USERS	33%	62%	48
TRIAL USERS	27%	85%	56
REGULAR USERS	47%	95%	71

Source: Phone survey February - April 2014

The midline study sought to understand what motivates repeat users to use mKisan and what they do with the information and advice that they are pulling from the service. Specifically, the study aimed to assess whether mKisan is having an impact on users' farming and marketing practices, and what factors influence this causal relationship. In line with the user base average, 9% of push content users are women.

6. Composite score is an average of the two satisfaction scores, with a possible top score of 100.

Who are repeat users?

About 42% of mKisan customers in the repeat users segment are farmers, which is close to the average for the entire customer base. Repeat users are less likely than other customer segments to be casual labourers, semi-skilled workers or office workers; a large proportion have occupations falling under 'other' (see table 5).

Table 5

Occupations across the user base

	FARMER/ HERDER	CASUAL LABOURER	SEMI-SKILLED WORKER	OFFICE WORKER	STUDENT	TRADER	OTHER
PUSH CONTENT USERS	37.9%	12.8%	6.2%	12.3%	8.2%	2.1%	20.5%
TRIAL USERS	51.8%	11.9%	6.0%	6.9%	0.5%	0.5%	22.5%
REGULAR USERS	42.3%	8.3%	0.6%	2.6%	9.0%	0.0%	37.2%

Source: Phone survey February - April 2014

Land sizes reported by repeat users completing the phone survey vary widely, from less than a quarter of an acre to 80 acres. Case study interviews with repeat users found a similar spread: from 1 acre to 50 acres. Repeat users are more likely to have a mixture of owned and rented farm land (17% vs. 9%).

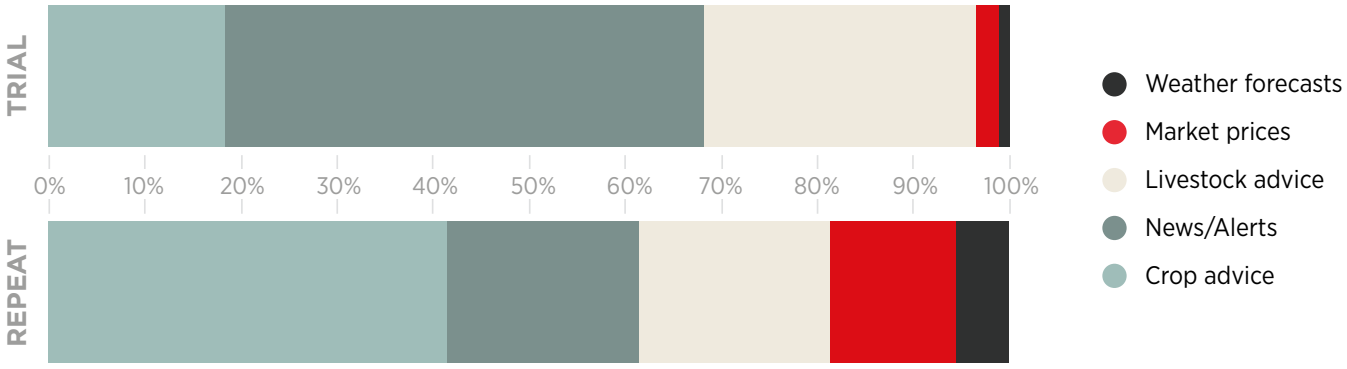
Data on farm size does not suggest that small-scale farmers are less likely to become repeat users. But farm size is an imperfect proxy of socio-economic status. Customers with very small farms may reside near urban centres and earn most of their living in semi-skilled urban labour or office work, treating a small plot of land as an entrepreneurial activity, or they may be very poor farming households in a rural area. Customers with large areas of land are larger-scale farmers who produce enough of a surplus in most years to sell their harvest.

Why do repeat users use mKisan?

Repeat users are better at finding the information they are seeking than other segments, and better at accessing seasonally relevant content. A third of repeat users cited that they joined mKisan to access crop advice. As well as accessing the service many more times that trial users (88% of content accesses are from repeat users), repeat users spend more time on agronomy content (figure 11) suggesting they are more proficient at finding content relevant to their needs.

Figure 11

Content popularity in trial and repeat users



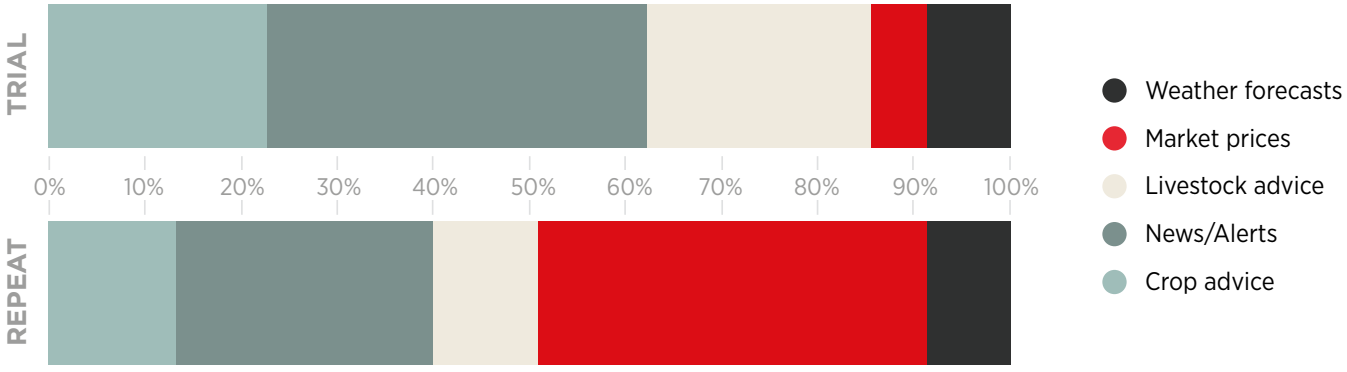
Source: IVR usage logs July 2013 - March 2014

Additionally, none of the repeat IVR users who were surveyed said they joined mKisan just out of curiosity, while 27% of trial and push content users gave this as a reason for subscribing (table 3).

Comparing the content accessed by trial and repeat IVR users between January and March 2014 suggests that 40% of repeat and power users are pulling content relevant to that season, compared to only 5% of trial users (figure 12).

Figure 12

Content accessed by trial and repeat users during the pre- to post-harvest period of rabi



Source: IVR usage logs January - March 2014

Repeat users are responsible for 100% of the hundreds of hits made to access market price information for the top 10 most popular crops on the IVR system during this time, eight out of ten of which are 'rabi' (winter) crops which would be harvested and potentially sold between January and March: wheat, mustard, maize, onion, tur lentils, potato, tomato and garlic.

During the phone survey most repeat users reported a desire to learn new agricultural practise as their reason for joining the service. They were also were also more interested in learning about farming inputs than other segments– 21% of repeat users refer to it as the main reason for joining the service. Some repeat users interviewed for the case study joined mKisan to solve a pressing problem on their farm, such as pests and diseases and declining yield.

I wanted to know about improved qualities of vegetable seeds, fertilisers, irrigation, etc. I also wanted to know about organic fertilisers. These were the main reasons... Once I faced some problems related to my potato crop also, so I used it and found the advice useful.

Rajesh, Rajgarh district, Madhya Pradesh

I thought that this service might help me in solving day to day problems related to agriculture, like pests, fertilisers, irrigation, improved seeds. I also wanted to explore new livelihood opportunities, like poultry farming, etc. Since I am a middle class farmer, sometimes the income from farming is not sufficient to meet our needs. I also wanted to find the solution of an immediate concern. My paddy crop was infested by a pest. This is the first time that I have sown paddy, so, I wanted to know how to control its spread.

Mukesh, Raisen District, Madhya Pradesh

Repeat IVR users are people who want information to improve their farming practice and find other sources to be inadequate or insufficient. Most get agricultural information from a number of sources and use mKisan as complimentary source of advice; 70% of surveyed repeat users mentioned accessing and using alternative sources of information. The most common source of agricultural information is fellow farmers and other 'informal suppliers' such as village elders (31%). Some customers said they believed informal or 'local' sources of information had some advantages over mKisan because the information they provided was more locally relevant:

[mKisan] has its own usefulness, but other sources are also needed. They provide local and appropriate information.

Arjun, Ujjain, Madhya Pradesh

Others cited agro-input dealers (18%), government extension workers (12%) and mass media (8%). Although 8% of users surveyed cited mKisan as their primary information source, for most customers this service provides complementary information that supports their decision-making processes. Case study interviews have also identified users who have joined out of a lack of alternative sources, or because they were dissatisfied with existing sources:

There is no information source in the village. We generally discuss our problems with other villagers and sometimes relatives who cultivate the same things.
Mahesh, Madhya Pradesh

I am not in a position to travel frequently whether to visit the town or the agricultural fairs (krishi mela) held there. So, I was finding it difficult to get information.
Arjun, Indore, Madhya Pradesh

I used it mainly to access information about weather, current agricultural produce rates (Mandi/Market rate), information about livestock. I am a KIsan Mitra (Farmers' Friend)[7] too. So, I also share information with fellow farmers.
Ashok, Chambal district, Uttar Pradesh

My only source of information is the village shopkeeper selling fertilisers, seeds etc. I am not satisfied. There is a Gram Sewak (local extension worker), but he rarely visits the village.
Ishan, Bihar

I use the Kisan Helpline service also. I have used it many times to inquire about day-to-day agricultural problems. It's rather a complementary source: when I don't get any information on mKisan, I use Kisan Helpline and vice versa (Kisan Helpline is a toll-free farmer helpline operated by the Indian government)
Bijay, Sagar, Madhya Pradesh

Earlier we used to believe the rates offered by the merchants or the middlemen for our produce. There was no other way of knowing the current rates except by visiting the market, which used to be very infrequent.
Arun, Osmanabad district, Maharashtra

mKisan was praised as a credible source by one interviewee:

I have no other reliable source of information except my neighbours and relatives, who are farmers. Here, the information was coming directly from the scientist. So, it was credible.
Mahesh, Madhya Pradesh

It is clear that the gaps in these farmer's existing knowledge bases and information sources are diverse, and so is their use of the service. In each case they are using the service to offset that information gap they are facing or augment their existing knowledge in order to improve their farming practice and increase or protect the yield and income.

7. Kisan Mitra are trained in new farming techniques by agricultural scientists as part of a government scheme

How have repeat users used information from mKisan?

A significant number of repeat users (31%) report changing their farming or marketing practices based on advice received from mKisan. Of these users, 23% used the information to try new methods for controlling crop pests/disease. A small number reported using new inputs or crops, new livestock care methods, or changing the timing of their farming practices. Of those customers who reported making any changes based on advice from mKisan, 33% reported seeing a better yield, 2% felt they could better predict the weather, and 8% felt that they had more knowledge. 20% said they saw no noticeable benefits, and a third could not answer.

Most of those interviewed for the case study gave examples of how they had adopted new practices on their farm, or said that they planned to in the coming season. The most common behaviour changes reported during both the phone survey and the case study related to practices around pest/disease control, use of new inputs or seed varieties, or irrigation methods.

Yes, I have benefitted from this service. I learned how to manage the irrigation of the potato crop. I also learned about the pesticides/fungicides to be used in case of any problem. I have already harvested the crop. I have got good potato production.
Sandeep, Mujaffarpur, Bihar

I talked to an expert from mKisan about blight control in potato, because my crop was affected by it. The potatoes were not forming properly under the plant. It reduced my potato production significantly. So, I wanted to know about any effective fungicide. The expert told me to use Zed-78. It is a fungicide. It helped in protecting my plant. I also came to know that one should use nitrogen right in the beginning during the first irrigation after sowing gram. Earlier, I used nitrogen after 15 days to one month after sowing. I came to know that the same is true about the garlic crop too. Following this advice gave good results... It increased the per bigha (local land measure) crop yield
Aditya, Indore, Madhya Pradesh

Repeat users are much greater users of market price content than trial users: between January and March 2014, about 40% of calls made by the repeat users to the IVR service relate to market price information, but only 5% for trial users (figure 12). When interviewed, some users provided examples of how they used this service to inform their marketing behaviour:

I ... tell [the other villagers] about the current rate of different agricultural produces in the market. They have started valuing my information.
Ashok, Chambal District, Uttar Pradesh

Now, I can check the rates and show the same to the merchants/ middlemen also. So, they are not able to deceive us anymore... It has been possible only through this service. We had no other way of knowing these things, except making a visit to the market. Now, I check all the market prices before selling anything.
Arun, Osmanabad district, Maharashtra

Attributing behaviour change to any one source is difficult: many different reasons are often behind such choices. Furthermore, mKisan's customers are not using the service in a vacuum. Some of the changes in farming or marketing behaviour that repeat users attribute to mKisan may have been influenced by other sources, and vice versa. It is therefore important to note that even in cases where a particular change in behaviour cannot be clearly attributed to mKisan, it is possible that the service has still had an effect on customers' information-seeking and decision-making processes:

We haven't made any drastic changes in agriculture (cultivation of seasonal vegetables) that I can share with you. But it has definitely changed the way of seeking information.
Ramesh, Aurangabad, Bihar

I haven't calculated [the effect of these changes on my profits]. Moreover, since I get information from different sources, it's difficult to calculate mKisan contribution specifically. But the information has benefitted me.
Mahesh, Madhya Pradesh

mKisan delivery channels - user perceptions from interviews

Repeat users were asked questions about which of the channels available on mKisan they found most useful. Some users favoured the SMS content:

I received some of the best information from the SMS you send. For example, before I never irrigated my wheat crop when the wheat heads were forming. But the SMS said that it's very important to irrigate the wheat crop at this stage. ..the results were good. Thereafter, I have always practised it.... I was going to dig some channels along my fields. But the SMS alert said that it was going to rain the next day. So, I decided to cancel the digging. So, it was a timely alert, otherwise, all my efforts and hard work would have been washed away by the rains.
Anil, West Champeran, Bihar

The weather information is useful for us. Other SMSs were also useful, as they made us check our crops from time to time to see if there was any problem. They made us more alert.
Nithin, Pakur district, Jharkhand

However, this is to some extent effected by the users' misunderstanding of the pricing structure. Even some repeat users are not aware that the SMS are part of a charged service, or that the IVR and helpline are part of that package:

Because of using [the IVR] number, Rs. 30 was deducted from my balance. I didn't know that it was a paid service. So, I discontinued the service for some time. But I get free SMS alerts. My family is facing monetary problems, that's why I discontinued the paid service.
Ishan, Bihar

Some customers do not seem to understand how they had come to subscribe to mKisan, or what they are paying for the service:

"I received an SMS on my mobile. Thereafter, I started getting SMS alerts. I didn't do anything from my side to join this service.
Mahesh, Madhya Pradesh

Some had trouble navigating the IVR menu and finding answers to specific questions:

I had some difficulty in finding the information I was looking for, especially in the case of garlic and onions. I wanted some general information on seed varieties, fertilisers, irrigation, etc. but I could not locate this information. You should tell how to use the system. You should help us in finding the information. This is what I felt.
Nithin, Pakur district, Jharkland

When I looked for information, I only listened to some pre-recorded information, which was very general in nature. If I had a specific query, I could not get it resolved.
Ishan, Bihar

The helpline was considered useful, but not available enough:

There was nothing that prevented me from using the information. But, on this service, I never got an opportunity to have a direct conversation with the experts. It never happened.
Anil, West Champeran, Bihar

Handygo might consider introducing services to customers with a free trial period – this will allow users to experience the value of the service. When the payment period begins, the payment model should be transparent to the customer.

What factors enable and inhibit behaviour change?

Whether or not mKisan customers act on the information and advice they receive from the service depends on a number of factors. These relate to the design and operation of the mKisan service itself (referred to as internal factors) and the customers' own profile and characteristics, as well as their wider context (referred to as external factors).

INTERNAL FACTORS

Service and content design issues undermine the potential impact of mKisan on the farming and marketing practices of repeat users of the service. The case study interviews found examples of repeat customers who turned to mKisan to find particular information, but found it difficult to use the service to find what they were searching for, or found the information did not meet their expectations. A few customers interviewed in the case study reported facing issues in using the pull services on mKisan to access information, but two respondents did say that they stopped using the IVR/helpline temporarily because of service design difficulties.

Some interviewed customers complained of finding mKisan content to be incomplete, which meant that instructions on new farming practices were difficult to follow:

> The expert advised me to use Margosa leaves to control this pest. She also gave instructions on how to use this, but I couldn't understand it properly. She advised me not to use chemical pesticides. I tried to use the information as per my understanding. It helped me in controlling the pest to some extent. But, to eliminate the pests completely, I had to use a regular pesticide. To some extent, I wasn't able to understand the whole process on the phone. A live demonstration might have made it clearer. I can't say if it was complete, but on the phone, I could not understand it fully, because I had never used a herbal pesticide before.
>
> **Bijay, Sagar, Madhya Pradesh**

> I didn't find much information on organic fertilisers. I have been using the chemical fertilisers, so in order to make a shift to organic fertilisers I need to know the whole process of applying it to the crops... On some new things, like vermi-composting, it only gives information, so sometimes we face problems in learning these new techniques.
>
> **Mukesh, Rajgarh District, Madhya Pradesh**

This evidence provides an interesting insight into the kind of information which may not be best suited for dissemination over the phone. Digital Green, the NGO that makes video content for farmers, may wish to further investigate the idea that disease and pest control and organic techniques may be the content which benefits most from video demonstrations.

Incomplete advice may mean that new practices are not implemented correctly, so the potential benefits (such as improved yield) are not fully realised:

I can say that it worked 50 percent in controlling the retardation... I felt that the information was not complete. It mentioned the name of the spray, but it didn't mention how much (quantity) should be used on one acre of land

Ajay, Vidisha, Madhya Pradesh

Handygo would encounter a problem trying to provide advice on the amount of fertiliser, compost, pesticide or other inputs to be used per unit area across states in India. The bigha is the most common measure of land; however this refers to a different area in different geographies. Handygo could make this information more relevant for farmers by directing them to the helpline where answers can be more tailored to individual cases.

In one anecdotal case, even advice from the helpline experts was not applicable as the user was not convinced it was practical:

I talked to an expert and he told me not to use chemical pesticides. Instead, I was advised to use halogen lamps that attract the flying pests, so the crop could be saved from this infestation... The use of halogen lamps was something new for me. I had never heard about it... It didn't seem practical to me. So, I didn't use it.

Mukesh, Raisen district, Madhya Pradesh

National regulations prevent Handygo's content partner CABI from providing information about certain chemicals. However, they should be aware that users may need convincing of the practicality of organic solutions.

EXTERNAL FACTORS

Poorer and less-educated farmers, as well as women (only 9% of the customer base are female) may be less likely to use mKisan on a repeat or regular basis. Even some of the repeat users interviewed for the case study are concerned about costs of using the service (see page 23 mKisan delivery channels - user perceptions from interviews).

Using the IVR channel to navigate through menus and find desired information requires a level of patience and technological literacy, which may discourage less educated farmers from persevering with the service.

Sometimes, I find it difficult to search for the market prices of a particular place. So, other less tech savvy farmers must be finding it even more difficult to search for information. So, you should also hold live demonstrations to show how to use the service.

Mukesh, Raisen district, Madhya Pradesh

Training field agents to go to all the villages across six states would not be practical for a VAS provider. VAS providers could consider working with other organisations to train brand ambassadors: local farmers who could teach farmers how to use the service in return for an incentive. This model has been successful for IKSL, a competing service in India, which identifies respected farmers in villages and trains them to be 'kisan mitra' ('farmer's friends') who publicise the service at the village level.

Usage analytics reveals that both trial and repeat users fail to find any content on their first use of the IVR service in 10% of cases. This causes some customers to turn away and not try again, while others persevere. This seems to be due to a combination of education or technological literacy, individual attitudes, and individual users' characteristics which requires further investigation. Further exploration of customer segments, behaviours and perceptions could help Handygo understand how to create value, grow and maintain repeat users segment.

Conclusions

In an increasingly difficult market place for VAS, the mKisan service has grown and is on track to reach target numbers, in line with GSMA milestones, by the close of the funding relationship. However, there are opportunities to increase customer satisfaction in ways which are beneficial to the business.

Minutes of use (MOU) in particular could be increased by better educating users about the IVR and helpline channels. This could be achieved through below the line marketing, though face-to-face marketing may be a better option for farmers' learning. An ambassador scheme, or agents on bicycles rather than in vans, would cut down the cost of this endeavour.

Some users still find they are unable to find the information they are looking for through the IVR channel. Build the capacity of the helpline, and make it easier to find through the service. This allows customers to find the exact answers they are looking for. However, evidence from farmers suggests that some information is too different from usual practice to be delivered even over phones; content providers should consider this when creating new tips.

The mAgri customer journey framework highlights some interesting differences between users who become regular high quality users and those who don't make it through the process in terms of level of access to alternative sources, motivations for accessing the service, and satisfaction with what mKisan offers as outlined in the executive summary. However, qualitative indicators from other mAgri supported deployments suggest that there may be critical differences in the attitudes of users who are able to overcome service uptake barriers similar to those outlined by previous research.[8] Future GSMA research will explore these differences and the how services can be shaped to best serve their most loyal users.

8. See the mAgri market entry toolkit 2011, Chapter 2.4

Annex 1: Methodology

The midline study was designed to answer two overarching research questions:

1 Why are some customers not using the service more?

Analysis of usage patterns on mKisan found that the majority of customers use the service on a limited basis. 71% of customers fall into the push content user or IVR trial user customer segments (see the Customer journey, p.6). The midline study aimed to test four hypotheses about why the majority of mKisan customers seem to be using the service to a limited degree. These hypotheses were:

1. Customers are not aware of the IVR or helpline services
2. Customers do not know the number to dial IVR or the helpline
3. Customers are satisfied with what they get from the helpline service
4. Customers who have trialled the IVR or helpline service were not satisfied with these services – due to difficulties using the platform or content quality

2 What impact, if any, is mKisan having on the farming and marketing practices repeat users of the service?

28% of customers have used the IVR or helpline service on a repeat basis – this is defined as those who have made calls to one of these services on at least two separate days. It was assumed that this group of customers would be most likely to report examples of behaviour change, and the midline study aimed to answer a number of questions to explore this:

1. What motivates repeat users to use the service?
2. How do customers use information and advice from mKisan?
3. And what are the factors that facilitate or constrain the adoption of new farming or marketing practices based on mKisan?

Three sources of data were used to answer these questions: data on subscriptions and usage patterns from mKisan's client relationship management (CRM) database; a structured phone survey with almost 1,000 customers; and a case study composed of 19 semi-structured interviews with customers in the 'repeat user' segment. Data collection was organised by dividing the mKisan customer base into four different customer segments. The table below describes how the different data collection activities were coordinated. Methodology for each of the data collection methods is described in the sections following this table.

CUSTOMER SEGMENT	REGISTERED NON-USERS	TRIAL USERS	REPEAT USERS (IVR)	REPEAT USERS (HELPLINE)
Definition	Customers who subscribed to the service, but never called the IVR service or helpline (only received regular SMS push content)	Customers who have only called the IVR or helpline service on a single day	Customers who have made calls to the IVR service over at least two separate days	Customers who have made calls to the helpline service over at least two separate days
Key question(s)	Why do some customers subscribe but never use the 'pull' IVR or helpline services?	Why do some customers call the IVR/helpline services once, and never call back?	What motivates repeat users to use the IVR/helpline services? How have repeat users changed their behaviour? What are the factors that facilitate/constrain behaviour change?	
CRM system	Identifying sample and usage patterns	Identifying sample and usage patterns	Identifying sample and usage patterns	
Phone survey	Survey to test hypotheses of barriers to increased usage	Survey to test hypotheses of barriers to increased usage	Survey to measure prevalence and nature of behaviour change across repeat user segment	
Case study	Not used	Not used	Semi-structured interviews over the phone with repeat customers to collect detailed stories, anecdotes and data on reported behaviour change	

IVR usage logs

Anonymous data on the IVR usage patterns for individual customers was drawn from mKisan's IVR usage logs for the period of 1 July 2013 – 4 March 2014. As required by Handygo's commercial agreements, Handygo provided only coded MSISDNs for mKisan customers – customers are not identifiable from MSISDNs.

Customers were segmented in line with the customer journey according to how many times they have used mKisan via different channels. Usage data was then analysed and compared across the segments to identify variations in usage, such as the type of content accessed by trial and repeat users. This was accompanied by phone surveys (with all customer segments) and the case study (only repeat users) were then employed to help explain any variation in usage levels between segments and test existing hypotheses about limited usage.

Phone survey

Four separate phone surveys were designed for the midline study, one for each customer segment. In addition the key questions outlined in the table, each survey also collected data about:

- Customers' profiles – gender, land size, main occupation, and sources of agricultural information; and
- Feedback on mKisan – including willingness to pay for the service, satisfaction level, suggestions for improvement and use of agricultural videos provided by mKisan (developed by Digital Green, a consortium member)

The survey was designed to mitigate confirmation bias: questions were written in an open-ended style – i.e. avoiding questions with possible yes/no answers – with single or multiple-choice close-ended responses to be selected by agents; helpline agents were expressly instructed not to read out the lists of available options, but to probe where necessary to arrive at an answer. Each of the surveys was translated from English into Hindi, with oversight from a bilingual M&E expert. The survey was piloted and conducted by a third party helpline. Handygo briefed the helpline agents on the purpose and structure of the survey before commencing.

The phone survey sample was selected by randomly selecting phone numbers from each of the customer segments sampled from the CRM system. Not all customers who were called completed the survey: Most did not complete the survey due poor phone reception, changing their phone number since using mKisan (so the agents' calls did not connect), and customers not answering the phone or declining to take the survey. The final sample is therefore affected by sampling bias. The target sample and final sample for the survey is presented in the table below. The table includes confidence intervals for each sample (assuming 95% probability). Survey results were entered into a spreadsheet and converted into pivot tables to compare across segments.

CUSTOMER SEGMENT	REGISTERED NON-USERS	TRIAL USERS (IVR)	REPEAT USERS (IVR)
Target sample	380	380	380
Final sample	247	260	298
Confidence interval	+/- 6.23%	+/- 6.07%	+/-5.67%

Case study

The case study was conducted through a series of 19 semi-structured interviews with repeat mKisan customers. Interviews were conducted over the phone – field-based data collection from a sufficient sample was not possible due to the highly dispersed distribution of mKisan's customers (often only 1 or 2 per district). An interview guide was designed to facilitate the interviews, composed of a checklist of open-ended questions and suggested follow up questions for probing. Phone numbers of customers who were repeat users of the helpline or IVR services were selected randomly from the mKisan CRM (customers who had completed the survey were excluded from the sampling frame).

As with the survey, the sample for the case study is affected by sampling bias: not all customers who were called could be reached, answered their phones, or agreed to take the survey. Only two women answered the researcher's calls, and both stated that male relatives (who were absent) had made the calls to mKisan. All interviews were transcribed and digitised, and analysed for key themes, patterns and trends.

Study limitations

USAGE LOGS

Handygo are unable to share usage logs outside of the IVR channel due to commercial agreements. It is therefore not possible to compare users on different channels on data insights.

PHONE SURVEY

A third-party helpline, based in India that was contracted by Handygo (the product owner of mKisan), conducted the survey. The company specialises in customer satisfaction surveys, rather than M&E or research in the agriculture sector. The survey therefore presented some challenges as it required agents to avoid prompting certain responses while carefully probing for meaningful answers. Agents were briefed on the purpose and structure of the survey, but budget constraints meant that an extended training session and full briefing on the topics of agricultural extension and behaviour change were not possible.

This limitation has a number of implications for the phone survey data:

- Some of the variation observable in the data between customer segments may be due to differences in surveying technique between helpline agents, rather than real differences between customer segments.
- Agents may not have closely followed the instructions to not tell customers the possible answers when asking the questions or probing for clarity, thereby leading to confirmation bias.
- A number of multiple-choice questions that were designed for agents to 'tick all answers that apply' were answered by ticking only one option. This makes it difficult to get a full picture of, for example, what changes customers have made to their farming practice based on mKisan information.
- The survey is long (especially the survey of repeat users) and survey fatigue may have affected some respondents' answers; this could explain why a large number of responses to some questions are "cannot answer".

CASE STUDY

The case study aimed to collect data about the outcomes of mKisan usage for behaviour change, and the factors that affect this. As no baseline data was collected on customers' farming practices before using mKisan, the case study collected data on self-reported behaviour change. It was not possible to collect evidence of behaviour change based on a comparison of data collected on farming practices 'before' and 'after' using mKisan or by independent verifiable means. The case study therefore relies on what customers say about whether and how they have changed their behaviour and how mKisan contributed to this, without being able to independently verify these claims. This is a limitation of the data collected as reported behaviour change is subject to confirmation bias and inaccuracy.

Conducting these interviews over the phone also has a number of trade-offs:

- Interviews conducted over the phone, rather than in respondents' houses or farms, do not allow the researcher to make observations that may help verify statements or assist with probing.
- Building rapport with respondents over the phone to help them feel at ease and feel comfortable in sharing some sensitive information can be difficult; the interviews tested participants' patience and trust.
- Phone-based interviews also suffer from technical problems, like disruptions in the connection and failing reception.

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