



Govi Mithuru/Uzavar Tholan
A mobile agriculture service by Dialog, Sri Lanka



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ABBREVIATIONS

ARPU	Average revenue per user
BI	Business intelligence – using data generated by service users to make decisions about product/service design
IVR	Interactive voice response – a dial-in menu which allows users to interact with automated messages by pressing the keypad
LKR	Sri Lanka rupees – local currency
OBD	Outbound dialling, also called voice SMS or ‘robo-calling’. A pre-recorded message sent over the GSM network.
PIW	Product iteration workshop – quarterly workshops which aim to review data collected over the quarter from BI, user feedback from phone surveys, and user experience research to inform the evolution of the service.
UX	User experience – how the user engages with the product, practically and emotionally
VAS	Value-added service(s)

Executive Summary

Govi Mithuru delivers improved crop and family health for Sri Lankan farmers

Dialog Sri Lanka's Govi Mithuru (*Farmer's Friend*, Uzavar Tholan in the Tamil language version) is a value-added service (VAS) which commercially launched in October 2015. The product rollout was supported by a matched funding agreement between Dialog Sri Lanka and GSMA under the mNutrition Initiative funded by UK aid from the UK government (DFID). Under the agreement, the GSMA mAgri Programme also provided consultancy throughout the product development cycle. By December 2016, the service had acquired over 250,000 registered users.

Govi Mithuru promises to 'secure crop and family health'. It aims to offer comprehensive advice to farmers in Sri Lanka with a particular focus on reducing dependence on chemical inputs, an issue frequently

raised in the target market. Users register with a one-click response to an outbound dialling (OBD) message, after which they are profiled through a series of OBD calls requiring one-click responses for profile perimeters, or by dialling 616 and navigating through an interactive voice response (IVR) registration menu.

Recent increases in acquisitions can largely be attributed to an OBD campaign targeting rural Dialog users for crop information and housewives for home gardening content, and Govi Mithuru-branded airtime scratch cards distributed to rural Dialog stores. One-month free trials through both these channels led to significant subscriber uptake; field registration has generated a low but consistent number of registrations and will be continued and scaled up in selected regions.



Excerpt from a poster for the service in the Tamil language (service also available in Sinhala). Courtesy of Dialog Sri Lanka.

The service offers agricultural advice at each stage of the farming cycle, from land preparation to post-harvest support. Content is provided across eight crops, alongside nutrition and home gardening

content, all provided by CABI Sri Lanka and quality assured by the Sri Lankan Department for Agriculture. Each crop is charged at LKR 1 (0.007 USD) per day.

Key findings

- Farmers had access to information prior to Govi Mithuru, but it was deficient.** Early design research indicated that farmers had access to expert advice prior to service launch, but if it seemed risky they would deliberately ignore it and follow their instincts. Timely advice on dealing with pests and diseases was not always available, and easy access to chemical inputs through government subsidies (now revoked) reinforced chemical dependency in agriculture, which can have negative health impacts.
- With highly iterative user-centric design, highly personalised and government-approved content, and strong C-level support, Govi Mithuru built a large and engaged user base.** Over half of Govi Mithuru users are power users — active users who have repeatedly accessed the service. At 62% in December 2016, Govi Mithuru has one of the highest proportions of power users among the six services in GSMA's mAgri portfolio.
- Most Govi Mithuru users are male and are more likely to live below the poverty line than the national average.** One third (32%) of power users are female. An estimated 17% of power users are living below the poverty line compared to a national average of 7%.
- Power users use less chemical inputs and have a greater likelihood of changing their planting, post-harvest and storage habits compared to non-users.** The likelihood of reporting changes to planting habits is 3.3 times greater, and the likelihood of reporting decreased fertiliser or pesticide use is 2.18 times greater among power users than non-users.
- Providing a personalised service is key to success.** User experience (UX) research found that farmers want timely information that follows the crop calendar. Crop calendar software was created to meet this expectation, and various methods were trialled to collect the right information for a truly personalised service. Further research found that users are happy with the timeliness of the messages.
- Users generate direct and indirect benefits for Dialog.** A simple pricing model was key to the success of the service. Each active user incurs a daily charge of LKR 1 per crop. Users also generate 5% higher monthly average revenue per user (ARPU) and 3% lower churn than comparable non-users.

Country context

Market leader Dialog launched Govi Mithuru in a volatile agricultural sector

Dialog (Axiata) is the largest of five operators in Sri Lanka. Incorporated in 1993, Dialog offers a comprehensive media service, including 2G-4G services, fixed and mobile broadband, and television packages. Govi Mithuru was launched to reach out to the rural segment, 80% of whom (13.4 million people) are engaged in subsistence farming and depend on agriculture for their food and livelihood. Around 7% of the population live below the poverty line at USD 2.50 per day.¹

One third of the country's land (2.2 million hectares) is cultivated. Rice is Sri Lanka's staple food crop and the most cultivated crop in the country (average 3.4 million tonnes per year), followed by tropical fruits and sugar crops.² Recent water shortages due to low rainfall are having a negative impact on the irrigation of paddy

fields. This affects production, which in turn affects the price of rice for consumers, which increased sharply from September to December 2016, reaching a record high of SLR 87/kg (USD 0.57). This has had a significant negative impact on the food security of Sri Lanka's poorer and more vulnerable residents, especially those in the most rural areas. Over a quarter of children under five are underweight as a result of malnutrition.³

As a result of the water shortage and deterioration in food security, the FAO predicts emergency humanitarian assistance will be needed in Sri Lanka. The FAO also recognises excessive "indiscriminate" use of fertilisers and pesticides⁴ poses a significant health risk. In this context, Govi Mithuru's focus on providing practical solutions to alleviate the use of pesticides is timely.

TABLE 1

Sri Lanka country context at a glance

Number of active Agri VAS (2016) ⁵	2
Mobile penetration (Q4 2016) ⁶	69%
% of population living in rural areas (2015) ⁷	82%
% of GDP contributed by agriculture (2013) ⁷	11%
% of the labour force employed in agriculture (2012) ⁷	39%
% of female labour force employed in agriculture (2005) ⁷	35%
Country population (millions, 2016) ⁷	21
Target market (millions, 2016) ⁸	0.75



1. The World Bank, 2012, PovcalNet, <http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx>.
 2. Average over 14 years (2000-2014) from the model for GSMA, 2016, "Market size and opportunity in digitising payments in agricultural value chains", <http://www.gsma.com/mobile-fordevelopment/programme/magri/market-size-and-opportunity-in-digitising-payments-in-agricultural-value-chains>. Please contact the mAgri@gsma.com for the full methodology.
 3. World Health Organisation (WHO), Nutrition Landscape Information System (NLIS), <http://apps.who.int/nutrition/landscape/report.aspx?iso=LKA>.
 4. Food and Agriculture Organization of the United Nations (FAO), 2016, "Sri Lanka and the FAO: Partnering to achieve sustainable food security and nutrition", <http://www.fao.org/3/a-az497e.pdf>.

5. mAgri Deployment Tracker (currently offline). Please contact mAgri@gsma.com to receive the full list.
 6. Unique mobile subscribers in Sri Lanka at the end of 2016 as a percentage of the total market population. GSMA Intelligence.
 7. The World Bank Databank, <http://databank.worldbank.org/data/home.aspx>.
 8. The number of agricultural workers in Sri Lanka with mobile phones who are likely to pick up VAS. For the full methodology, see GSMA, 2015, "Market size and market opportunity for agricultural value-added service", <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/02/Market-size-and-market-opportunity-for-agricultural-value-added-services-Agri-VAS.pdf>.

Partnership model

Strong external partnerships supported the launch and iterations of Govi Mithuru

A strong partnership between Dialog and tech partner Synapse Solutions ensured the product could be developed and iterated with relative ease. CABI's Sri Lanka office has strong ties to the Department of Agriculture and delivers quality scientific and highly localised content for the Govi Mithuru service based on a farmer's agro-ecological zone and type of rice they grow. CABI Sri Lanka was supported by CABI's global team as part of the GSMA-contracted global content partnership (GCP).⁹

The product team sits within the Sustainability Department. Starting with just a product manager and UX lead, the team has grown to include an in-house content specialist and a team of six members split across product, channel, and UX functions. UX functions were supported by frog design, the global UX partners for the mNutrition initiative.¹⁰

Strong buy-in from the CEO and senior leadership team and cross-functional support from stakeholders towards the second half of 2016 ensured that internal resources were committed to scale up the service. This buy-in was aided by evidence of the commercial benefit of the service in the form of new SIM sales, increased user revenue, and enhanced loyalty of existing users.

The development and scaling of the product was supported by a matched funding agreement with the GSMA mAgri programme. The GSMA mAgri programme also provided support throughout the product development cycle, from implementation to iteration, business intelligence (BI), monitoring and evaluation, and content support.



FIGURE 1

Govi Mithuru's contracted partners



9. For the global support structure, see GSMA, 2017, "Creating scalable, engaging mobile solutions for agriculture", <https://www.gsma.com/magri/creating-scalable-mobile-solutions>

10. The mNutrition global UX partner, contracted by GSMA to ensure user experience was prioritised: <https://www.frogdesign.com/>

Product timeline

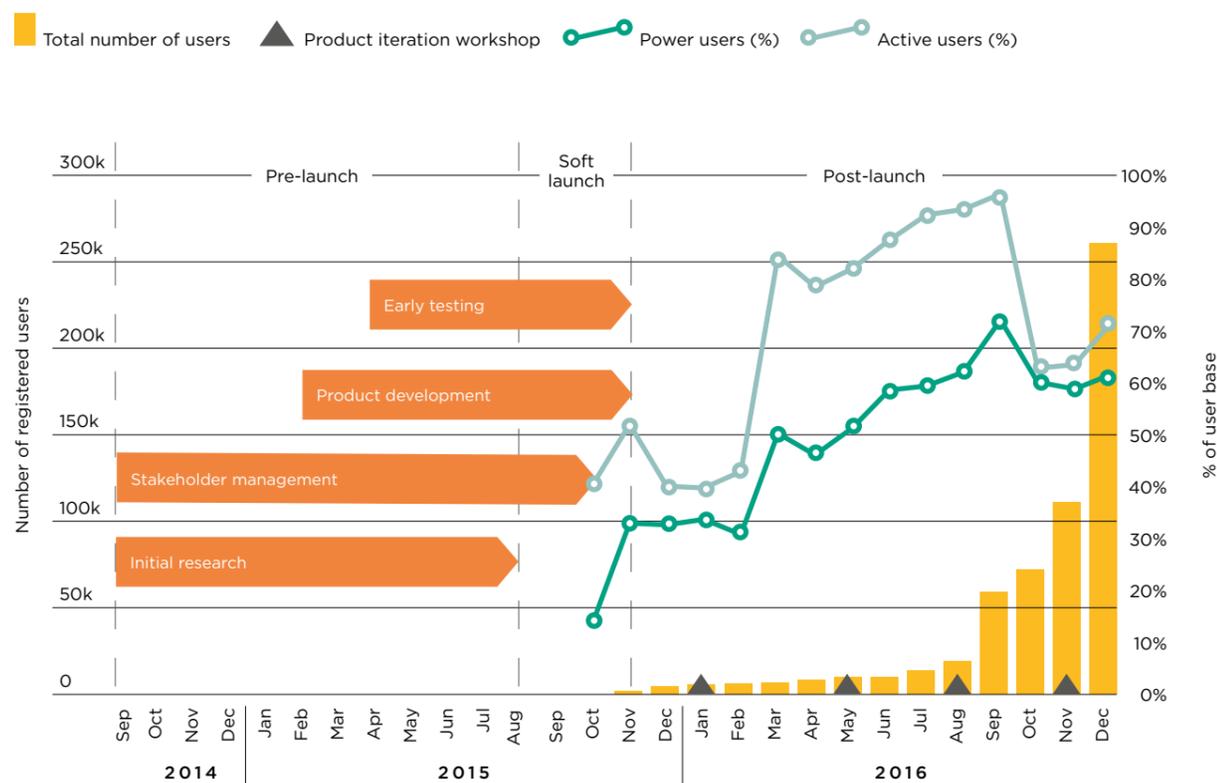
With highly iterative user-centric design, highly personalised and government-approved content, and strong C-level support, Govi Mithuru built a large and engaged user base.

Dedication to designing for the end user ensured that activity increased throughout Q1, Q2, and Q3 2016. As the product began to scale, activity levels dropped as a new batch of users tried out the service for free.

At 62% in December 2016, Govi Mithuru has one of the highest proportions of power users among the six services in GSMA's mAgri portfolio.

FIGURE 2

Govi Mithuru product timeline



Total number of users: count of all users who have ever been on the platform
Active users: users who answered OBD or accessed the IVR channel during the month
Power users: active users per month who have accessed IVR or OBD content multiple times on the service
Product iteration workshops: quarterly workshops where service data is reviewed and changes planned

Design firm, frog design, accompanied Dialog and the GSMA for initial market field research during Q4 2014. The team spoke to over 80 participants (including farmers, agricultural experts, agribusiness owners and middlemen) and mapped their pain points and trusted information channels to understand firsthand the needs of the customers they aimed to serve.¹¹

Key insights from the field:

- **Farmers already have access to information, but it is deficient.** When expert advice seems risky and not validated, farmers deliberately ignore it and follow their instincts. Timely advice on dealing with pests and diseases is not always available.

- **Easy access to chemicals has reinforced chemical dependency in agriculture, which can have negative health impacts.** Farmers' business goals therefore affect the health of their families.

- **Finance tends to be offered at the beginning of the season, with little follow-up support.** Loans require farmers have steady incomes, but their earnings fluctuate throughout the season.

Following the pilot phase, four product iteration workshops (PIWs) were held with GSMA and the cross-functional team. PIWs aimed to review data collected over the quarter from BI, user feedback from phone surveys, and UX-led research to inform the evolution of the service. User issues along the customer journey were identified, and solutions were incorporated into the roadmap for the following quarter.

FIGURE 3

Key insights from PIWs

PIW	Date	Selection of key issues identified	Suggested solution	Implemented
1	Jan 2016	Four step self-registration is difficult for potential users with low technical literacy.	UX test self-registration flows in the field.	Yes
		Create incentives for the existing agent network to sell the product.	Create a Govi Mithuru branded SIM to sell at rural outlets.	Yes
2	May 2016	The dedicated agent distribution network cannot provide broad product awareness in the target market due to limited scale.	Promote the service through farmer society meetings and radio campaigns.	Yes
		Service is limited to paddy crop only.	Tailor content for six more crops and add to service.	Yes
3	Aug 2016	The product is well received, but marketing remains expensive and is not reaching enough of the target audience, including existing Dialog users.	Share successes to date with the C-level sponsor. Create internal case for traditional VAS marketing targeted at rural users.	Yes
4	Nov 2016	Content targets male users.	Introduce home gardening content with a female voice.	Yes
		Users demand weather content.	Assess providers of localised weather content in Sri Lanka.	Currently underway

11. For more information on the tools used and stories from the field, see GSMA and frog design, 2015, "The mAgri Design Toolkit", <http://www.gsma.com/mobilefordevelopment/magri-design-toolkit>

Commercial sustainability

In December 2016, Govi Mithuru was the fifth most successful VAS in Dialog history in terms of subscriber numbers. The service took almost 11 months to reach the first 10,000 users. Initial radio marketing, coupled with a dedicated field sales channel, led to minimal acquisitions at a high cost. Correctly incentivising agents was also challenging. Organising events at ground level and using the existing sales channels for activations, coupled with an attractive commission structure, supported scalable ground level activation models. A strong VAS marketing push and word-of-mouth promotion added 250,000 registered users between September and December 2016 (15 months after launch). In December 2016, 35% of the identified target market for the year had registered for the service.¹²

Targeted OBD-based registrations, an innovative scratch card activation program, and free trials in rural districts helped scale the service at low cost. Acquisitions peaked in December 2016 thanks to these marketing methods. These low-cost marketing initiatives, deployed in the second half of the year, reduced acquisition costs per user to less than 10% of their peak.

Detailed UX work throughout the project ensured this product addressed real farmer pain points and made it easy for farmers to engage with the service. Engagement levels increased over Q1 2016, remaining above 60% for the remainder of the period. Peak activity occurred during September when a huge influx of new users subscribed to the Govi Mithuru service. The majority of these users were power users, which was indicative of high levels of service engagement.¹³

Users generate direct and indirect benefits for Dialog. A simple pricing model was key to success. Each active user incurs a daily charge of LKR 1 per crop. Users of the service also have 5% higher monthly ARPU and 3% lower churn than comparable non-users. Most (70%) of the 2016 service revenue was generated in the last quarter, boosted by the marketing efforts concentrated in that period. This incurred considerable marketing expense and human resource allocations, both of which increased administrative expenses. In Q1 2017, the team consolidated, reallocating human resources to other projects while continuing to grow through low-cost marketing initiatives and strategic partnerships. These cost reductions allowed the service to reach operational breakeven 18 months after launch.



12. Target market is defined as the number of agricultural workers in Sri Lanka with mobile phones who are likely to pick up VAS. For the full methodology, see GSMA, 2015, "[Market size and market opportunity for agricultural value-added service](#)".

13. Users who were active during the month and have accessed content on the service multiple times.

Who uses Govi Mithuru?

A range of farmer archetypes access the service, suggesting that Govi Mithuru has broad appeal

Farming archetypes in Sri Lanka were identified through design research supported by frog design during Q4 2014. 'Optimistic' and 'stuck' farmers were found to be the target early adopters for this service. Field research conducted in January 2017 with Govi Mithuru power users found that most (22 out of 34)

were 'stuck' farmers, with five 'optimistic', four 'on the verge' and three 'established'.¹⁴ Established and on-the-verge farmers seemed to report more nutritional changes, and optimistic and stuck farmers reported more on-farm changes, although understanding this requires further research.

FIGURE 4

Farming archetypes in Sri Lanka

	Financial access	Tech literacy	Attitudes and behaviours	Access to information
	1 = very low 5 = very high			
 On the verge	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	Barely harvests enough to feed the family, so works for others to earn more income. Reactive to outer circumstances; doesn't feel empowered to change the situation.	Other than family, mostly isolated. Loses out when it comes to water distribution, grant assignments, or prices. Other information comes from TV.
 Stuck	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>	Hardworking but limited by traditional knowledge. Trapped by financial circumstances, is risk averse and listens to new advice with heavy scepticism.	Engaged in the community, attends farmer association meetings and leads local initiatives. Relies on government support. Other information comes from newspapers.
 Optimistic	<input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>	Upbeat outlook on the future, open and financially able to experiment and take risks to improve the farm. Usually "in the know" about the latest trends.	Engages with trusted farmers. Family has a say in decisions, but doesn't have veto power. Gathers information from many sources.
 Established	<input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>	Principal interest is in taking care of family. Has an established set of principles that has led to success on the farm, and doesn't often deviate from them.	Not much time for the community, but attends the most important meetings. Listens to friends and family, but ultimately trusts own judgment.

14. Based on qualitative assessment of the in-field researcher.

Benefits for users

Phone surveys and field work to understand the benefits of Govi Mithuru for end users were conducted in January and February 2017. This is an interim study performed only 15 months after the soft launch of the service, so changes to farming behaviour are tracked (as indicators of possible future benefits) alongside improvements in on-farm production.

A third-party call centre surveyed a treatment group of 446 power users and 210 non-users.¹⁵ The non-user group was selected based on the likelihood they would have similar profiles to the user group, but would not have benefitted from the service during the previous farming season. The 38 respondents interviewed for the qualitative study were selected to provide a broad set of insights on the experiences of power users.

FIGURE 5

Govi Mithuru outcomes pathway



15. Power users are users who accessed IVR or OBDs more than once during Q2 and Q3 2016. Non-users are users who registered before the phone survey date, but had not accessed any information on the service.

Power users apply less chemical inputs and are more likely to change their planting and harvest and storage habits compared to non-users.

Govi Mithuru power users are more likely to decrease their usage of chemical inputs than non-users. Power users are 2.2 times more likely to decrease fertiliser and pesticide use than non-users.¹⁶ This finding is particularly encouraging given the warnings of global health organisations to Sri Lankan farmers about the dangers of overusing chemicals.

“The service informed us that we can get a better income if we cultivate good paddy types. [...] The change of seed paddy type increased the harvest. I was able to gain a bit higher income as a result. [...] I now believe that doing changes to the traditional ways of cultivating can improve our farming and increase our harvest.”

Govi Mithuru user, male, 23, Stuck, Anuradhapura district

“The plants and soil became fertile. The earthworms did not die. There was no need of spending money for weedicides and chemical fertilisers. The required quantity of seeds paddy reduced. The harvest increased. We got nutritious and healthy food for the consumption.”

Govi Mithuru user, male, 50, Established, Anuradhapura district

Power users were also significantly more likely to report changes to their planting habits (3.3 times) and their harvest and storage practices (2.2 times) than a matched group of non-users.

FIGURE 6

Behaviour changes and outcomes

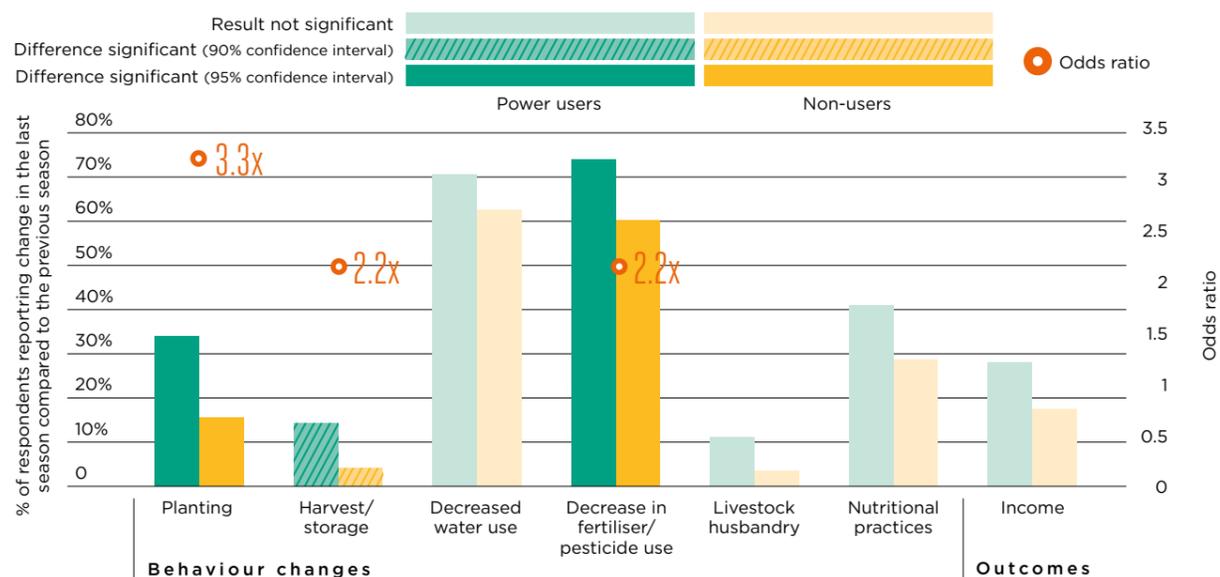


Figure 6: Behaviour changes and outcomes in a matched subset of power users (125) versus non-users (178). Results are highlighted and odds ratios (the odds that the change/outcome will occur given exposure to the service compared to the odds of the outcome occurring in the absence of that exposure) where a significant result was found. Statistical significance is affected by the sample size and the magnitude of difference between proportions.

16. Statistically significant at the 95% confidence interval



Spotlight

Dialog is helping farmers to kick chemical inputs

For four decades, the Sri Lankan government has subsidised chemical fertilisers to increase domestic paddy production and help the country become self-sufficient in rice production. In 2016, budgetary constraints led to a significant reduction in subsidies for chemical fertilisers, increasing smallholder farmers' production costs and weakening their ability to make a sustainable living out of paddy farming.

Sri Lanka uses more chemical fertilisers than almost anywhere else in South Asia: its consumption of fertiliser in 2014 was 245 kilograms per hectare of arable land, which was 50% higher than in India.¹⁷ The resulting health and environmental hazards, including high incidences of chronic kidney and lung diseases in major rice-growing districts, are recognised by the FAO.¹⁸ Sri Lankan farmers said they were aware of these hazards, but they had received little instruction on how to reduce the use of such inputs while managing their production costs.

To help address this information gap, Govi Mithuru has been teaching new techniques that can help reduce the use of chemical inputs and simultaneously decrease their production costs. Some farmers are applying techniques to produce their own compost in place of chemical fertilisers. Farmers shared how making their own natural fertilisers can make up for the shortage in government subsidies.

“Since I have minimised the usage of weedicides and fertilisers it is economically beneficial to me. The chemical fertiliser and weedicides are very expensive... I could save money that was to be spent on chemical fertiliser, weedicides and pesticides. Though I minimised the usage of fertilisers and weedicides I could reap the same harvest and it didn't have a negative impact.”

M.P. Sunitha Padmini, Govi Mithuru user, female, 37, Pollonnaruwa

“Earlier we used lot of fertiliser for the cultivation. I used to apply one bag of fertiliser for my paddy cultivation. But now I apply only half a bag of fertiliser. Listening to those messages, I understood that we are applying excessive amount of fertiliser. We tend to think that the more we use fertiliser, the better it is for the cultivation. But the service helped us to understand the amount of fertiliser required for paddy.”

K.G. Nawarathna Bandara, Govi Mithuru user, male, 52, Pollonnaruwa

17. The World Bank DataBank, 2014, World Bank data for fertiliser consumption, <http://data.worldbank.org/indicator/AG.CON.FERT.ZS>.

18. Weerahewa, Kodithuwakku, and Ariyawardana, 2010, “Case Study #7-11, The Fertiliser Subsidy Program in Sri Lanka”. In: Per Pinstrup-Andersen and Fuzhi Cheng (editors), *Food Policy for Developing Countries: Case Studies*, p. 12, <https://cjp.cornell.edu/DPubS?service=UI&version=1.0&verb=Display&handle=dns.gfs/1289505412>.

Overall, 90% of power users reported making at least one on-farm change during the last rainy season compared to the previous one. In the non-user group, 81% reported changes. Users reported changes across other on-farm areas and nutrition in response to the service, but the differences between user and non-user groups, while positive in favour of users, were not found to be statistically significant (Figure 6). Fieldwork respondents made reference to on-farm changes, home gardening content and new recipes from the service, relating these changes to improved and healthier food consumption.

“After first ploughing I irrigated the field based on the instructions of Govi Mithuru. I also maintained the water level in paddy field as it was advised. [...] It helped to control the weeds.”
Govi Mithuru user, female, 37, Stuck, Anuradhapura district

“I do not say that Govi Mithuru was the reason for us to start cultivating maize [...] But getting information from Govi Mithuru on how to cultivate maize was very helpful for us as we had no prior experience in that.”
Govi Mithuru user, female, 40, Stuck, Kurunagala district

“There was some information regarding home gardening and why it is useful to have our own home garden at home. This provoked me to start cultivating vegetables at home. [...] We do not know what sort of chemicals are used for the vegetable that are in the market.”
Boundary user, male, 36, Stuck, Polonnaruwa district¹⁹

Although service users reported increases in income more often than non-users, the service was not found to have a significant effect.

The effect of the service on increased incomes was found to be positive, but not statistically significant.

Fieldwork respondents experienced an increase in production quality and quantity, and increased sales returns in the last harvest. They often reference the service and the adopted practices as a contributing factor.

“There was an increase of income after using Govi Mithuru service. I have received around 350 bushels of paddy per 2 ½ acres during previous season. [...] During last season I received 425 bushels per 2 ½ acres.”
Govi Mithuru user, male, 38, Established, Anuradhapura District

“My harvest increased compared to previous season. I learned many new things on paddy cultivation from Govi Mithuru. I received 2,500 kg to 3,000 kg before I joined Govi Mithuru. After registering to the service my harvest increased to 4,000 kg to 4,200 kg.”
Govi Mithuru user, male, 57, Stuck, Anuradhapura district

Power users are much more likely than non-users to cite their mobile phone as a key source of agricultural knowledge. The main sources informing changes in farming practices among both power users and non-users were farmer groups (47% and 78%, respectively) followed by mobile phones (92% and 64%) and family members (13% for both groups).

The overwhelming majority of power users interviewed (33 out of 34) find the messages very useful and motivational. Fieldwork also revealed a high level of trust in the validity of the messages, with 30 respondents saying they trust the message sent by the service.

19. Boundary users are those who benefitted from information shared from Govi Mithuru by power users, but who are not personally registered. Four boundary users were interviewed during the fieldwork.

Most Govi Mithuru power users are male. They are more likely to live below the poverty line than the national average.

A third of power users are women. A recent survey found that 32% of power users were female. Previous phone surveys had found as many as 53% female users in the overall user base. Female users are likely to be attracted by the home gardening content, which was specifically targeted at housewives. Female power users are no less likely to report making on-farm changes than their male counterparts.

Field research revealed some interesting differences between male and female users:

- Women made remarks about joining the service independently without seeking advice from their husband. However, wives were often consulted by men before joining the service.
- Women organise themselves in farming associations, mother groups or similar. In one instance, the service seemed to have inspired the creation of a women's farmer society (interestingly this was voiced by a male interviewee). Knowledge sharing seems to work well in these respective groups.

“I was inspired by Govi Mithuru service to form women's farmer society. Lady Agricultural Inspector, who came for the meeting trained us to make pumpkin chutney, mushroom curry and green gram salad. [...] My wife is also a member of the farmer group. [...] Govi Mithuru service also provided the information on how brinjal chutney could be made.”

Govi Mithuru user, male, 50, Established, Anuradhapura district

Govi Mithuru is effectively targeting smallholders living below the poverty line. An estimated 17.2% of Govi Mithuru subscribers are living below the poverty line.²⁰ This is higher than the national average for Sri Lankans living below the poverty of 6.9% (2012).²¹

Overall, 56% of power users draw their entire income from farming. Two thirds (64%) farm less than two acres. Rice is the main crop grown by the group surveyed, with maize the second crop. Less than a quarter of service users are less than 24 years old.²²

No differences were found in the propensity to report behaviour changes or benefits to livelihood because of gender or other factors. The study design controlled for key independent variables of sex, age, income, and land ownership.

20. The progress out of poverty index (PPI) has been used to calculate the poverty outreach of the Dialog service. The definition of poverty used here is the international 2005 PPP USD 2.50/day line. Grameen Foundation, 2016, <http://www.progressoutofpoverty.org/country/sri-lanka>

21. The World Bank, PovcalNet, <http://research.worldbank.org/PovcalNet/povOnDemand.aspx>

22. There are significant differences between service users and non-users in terms of age and farm size. This is the reason for applying a matching technique to better judge the effects of the service.

The customer journey

Close attention to UX design at all stages of development has created a strong service.

"I really like the content. It is communicated in a very friendly way. It is easy to understand."

Govi Mithuru user, male, 54, Stuck, Anuradhapura district

	Marketing, sales, and distribution	On-boarding	Navigation and content	Payment
Current product description	Govi Mithuru is marketed under the tagline 'Secure crop and family health'. Targeted OBD campaigns outline the value proposition and pricing model, including a free 30-day trial. Five million Govi Mithuru branded airtime scratch cards have been distributed to rural stores – these include the usual scratch panel for air time top-up and a second panel revealing a code for a one-month free trial.	Registration is a one-step process. In response to interactive OBD messages, potential users choose their preferred crop from a list of eight. Alternatively, they can dial 616 to access one-step registration. New users are given a default crop profile. Interactive OBD are sent over the first weeks of service use to capture more details (e.g. seed type, irrigation type) to improve the accuracy and relevance of the content delivered.	Two to three OBD messages are sent per crop per week in Sinhala or Tamil. Users can call the IVR menu (616) to access the last message sent and scroll back to hear earlier messages. Paddy (rice) and home gardening are the most popular topics. High-quality content from CABI Sri Lanka covers eight crop topics from preparation to post-harvest with a particular focus on reducing dependence on chemical inputs.	Users pay LKR 1 (USD 0.007) per day per crop. The charges entitle users to OBD push messaging and access to the IVR menu to replay the content. The payment scheme has been in place since service launch. A 30-day free trial period was introduced before purchase in November 2016.
Customer journey ²³	35% of the target audience registered	87% of registered users accessed content	86% of content accessing users became repeat users	75% of active users paid for the service²⁴
Key findings	<ul style="list-style-type: none"> Using BI to target OBD has doubled or tripled conversion rates. Dialog A/B tested different approaches to OBD marketing and opt-in rates were compared. OBDs targeted to the social network of existing paddy service users led to a 4%–5% opt-in rate. Dialog customers segmented as housewives through BI analysis and phone location were targeted with home gardening content (5% opt-in). The conversion rate for non-targeted OBD was less than 2%. Sri Lankan farmers are more 'mentally free' in the evenings. UX research found that farmers are less busy and more open to new ideas after they have finished in the field, so OBD marketing was targeted between 6 pm and 8 pm. An early radio campaign was expensive and did not lead to many acquisitions. The decision to advertise on a music radio station was not geared towards the target market. Agents from the radio station were also engaged to lead door-to-door engagement at the village level, but incentives were difficult to get right and agents had to spend too long educating each potential user. The scheme was eventually phased out. 	<ul style="list-style-type: none"> Four-step registration was too complicated for the target market. In June 2016, 66% of potential users who dialled in to register failed. In response, the registration process was shortened to one choice (crop preference; language was inferred from the response to an OBD in that language). This change in August 2016 corresponded with an uptick in users on the service. OBD callbacks for profiling had to be carefully managed. UX found that users became irritated by receiving too many OBDs for profiling. Messages were modified and rescheduled to improve customer satisfaction. Early attempts at a dedicated mAgri agent network were high cost and low impact. Support from the Dialog Sales and Distribution team was too expensive for the number of users added. A physical calendar, designed as an aid to the service, was dropped due to challenges in distribution. Missed calls to improve personalisation were not understood. Early versions of the service included an option for users to give the service a missed call (which UX research found was a popular form of communication in Sri Lanka) when they planted their seeds so that the service could run on their specific dates. Few users took advantage of this function. 	<ul style="list-style-type: none"> Providing a personalised service is key to success. UX research found that farmers want timely information that follows the crop calendar. Software was created to meet this expectation. Further research found users are happy with the timeliness of messages. Push channel allows easy, ongoing engagement. OBD messages are stylised in response to UX research – the service jingle plays, then the message, in an authoritative voice using colloquial language. Home gardening content is delivered by a female character. Potential users did not want more dramatised content as has been popular elsewhere. People do not know there are multiple crops or how to register them. Messages are being created to try to drive use to other content options. Targeting home gardening content to women has led to high female engagement. In November 2016, 53% of those contacted in a random user survey were women. Broadening the content offering increases the target audience. Before June 2016, only paddy content was available, which limited the appeal of the service. No major drop in engagement has been noted between seasons. Sri Lanka has two annual growing seasons, so agricultural content is usually relevant. 	<ul style="list-style-type: none"> The payment scheme is simple and in line with user expectation in Sri Lanka. LKR 1 per day is a minimal cost and easy to understand; it is the standard cost of VAS in Sri Lanka. UX research has found that users are happy to pay this amount. Most people interviewed for the fieldwork (29 out of 34 users) were aware of the service costs, and 26 out of 27 respondents asked said that the service was good value for money. Among respondents who did not know about costs, four out of five said they would be willing to pay for the service in the future. 30-day free trial periods allow potential users to experience the service. The resubscription rate for OBD subscribers (who had to respond positively to paying for the service at the end of the period) was around 6%. People who signed up through the branded scratch cards agreed to the payment scheme when they first signed up and the conversion rate was much higher, close to 40%. Early users didn't know they weren't going to be charged to call back on the IVR. The end of each OBD message now tells users they can dial 616 for free.

23. Based on platform data for December 2016. The target audience is defined as the number of agricultural workers in Sri Lanka with mobile phones who are likely to pick up VAS. For the full methodology, see GSMA, 2015, "Market size and market opportunity for agricultural value-added service".

24. Data from October 2016 (last available)

Future roadmap

In the coming year, the Govi Mithuru offering will be enhanced with the addition of new crops to suit all types of farmer communities in the country, as well as services such as daily weather alerts and market price updates. The service will also expand to smartphones with the introduction of farmer-friendly mobile apps.

In the long run, the team aims to connect buyers and sellers of agricultural produce to create a more efficient and interactive marketplace, and explore agriculture-related opportunities with the evolution of the Internet of Things.





For case studies on five other services in the mAgri mNutrition portfolio and analysis across all six services please visit <https://www.gsma.com/magri/creating-scalable-mobile-solutions>

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