



Khushaal Zamindar
A mobile agriculture service by Telenor Pakistan



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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
CAPEX	Capital expenditure
IVR	Interactive voice response - a dial-in menu which allows users to interact with automated messages by pressing the keypad
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 UX-led research to inform the evolution of the service
SMS	Short messaging service - written messages sent to phones with limited character length
UX	User experience - how the user engages with the product, practically and emotionally
VAS	Value added service(s)

Executive Summary

Khushaal Zamindar aims to improve yields and save farmers from disaster

Khushaal Zamindar (*Prosperous Landlord*) is an agricultural value-added service (Agri VAS) launched by Telenor Pakistan in December 2015. The product rollout was supported by a matched funding agreement between Telenor Pakistan and the GSMA through the mNutrition Initiative, which is funded by UK aid from the UK government (DFID). Under the agreement, the GSMA mAgri Programme provided consultancy throughout the product development cycle. By May 2017, 2.9 million customers had registered.

Telenor Pakistan offers a three-layered value proposition to farmers: improve yields, save them from disaster, and encourage greater social recognition. The operator uses outbound dialling (OBD) marketing to explain the service and show users how to sign up. OBD marketing messages target potential users based on Telenor's own business intelligence (BI). One-click registration assigns the user an automated profile (using language preference and location data

extracted from internal Telenor BI). The user profile can be changed through the automated interactive voice response (IVR) menu or by speaking to the dedicated customer support team.

Users dial 7272, numbers chosen because they sound the same as the Urdu words meaning "work together". This number gives users access to various content categories, including wheat, sugarcane, carrots, cattle, alfalfa, buffalo and maize. Content is stylised in the form of short conversations between members of a local farming family. Daily OBD and SMS include weather forecasts and agricultural and livestock advisory, also available through IVR. The IVR channel is also the gateway to weekly live shows, where local experts answer farmers' questions live on air. The service is free of charge for the end user; the first B2B partnership to monetise the service through targeted advertising was signed in December 2016. An additional suite of services providing solutions to agricultural problems is currently under development.



Khushaal Zamindar 7272 banner. Courtesy of Telenor Pakistan.

Key findings

- Pakistan's farmers are sociable and regularly discuss agricultural issues.** Early design research found that socializing with tea and huqqa at the end of the farming day is a typical farmer's favourite pastime. Farmers interviewed were most interested in understanding the impact of on-farm changes on yield. Higher yields lead to higher incomes, higher social status, and personal pride.
- Khushaal Zamindar scaled successfully after a planned engagement period.** The product team used this period to focus on improving the navigation experience (by shortening the time it takes to access content), the content offering (e.g. changing the format and timing of the weather forecast messages), and to perfect the business intelligence-based acquisition model.
- Data-driven OBD marketing to identify rural customers in the Telenor base most likely to be farmers has been a key success factor, and markedly increased the conversion rate.** Telenor's farmer identification model considers thousands of parameters to predict whether a Telenor customer is likely to be a farmer. Telenor targeted potential users with OBD marketing, after A/B testing OBDs to find the most effective messaging. Conversion rates for OBD marketing on other popular VAS are 1% to 2%, whereas targeted marketing for this product has success rates of up to 6%.
- One year after launch, Telenor can already measure tangible indirect benefits of the service.** Users displayed an average revenue per user (ARPU) increase of 3.5% on Telenor core services. SIM churn was 1.8% for users versus 3.1% for a comparable base of Telenor users.
- Most power users are men living below the poverty line.** Two-thirds of power users (active repeat users) are living below the poverty line, compared to only 20% of the population in Pakistan.¹ The GSMA outcomes phone survey was not able to speak to any female service users.
- Power users changed their planting and post-harvest and storage practices and reported higher incomes.** The likelihood of power users making changes to their planting behaviour is 1.7 times that of non-users, while power users were 2.7 times more likely to make changes to their post-harvest and storage practices than non-users. The likelihood that power users will report an increase in income (compared to a decrease or no change in income) is 1.91 times greater than non-users.
- Khushaal Zamindar users see the mobile phone as a key source of information.** Power users cited their phone or 7272 as one of their two most important information sources, more often than non-users (85% versus 56%).

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

Country context

Telenor aims to strengthen their presence in Pakistan's breadbasket regions

Telenor is the second largest of four operators in Pakistan. As a relative latecomer to the market (March 2005), Telenor has focused outside the already saturated cities and had built a large rural presence before launching Khushaal Zamindar. Approximately 85% of Pakistan's territory is covered by mobile networks. However, unique subscriber penetration is relatively low compared to other countries in the region at 47%. South Asia also has the world's widest mobile gender gap,² a reflection of a strong patriarchal culture in some countries, leaving women with little control over the purchase of a mobile phone.

More than half of Pakistan's population (111 million people) live in rural areas, more than 66% of whom depend either directly or indirectly on subsistence farming for their main source of income.³ This signalled

a strong opportunity for Telenor to reach out to rural subscribers with an agricultural service.

Pakistan's main crops by output are sugar crops, wheat, and cotton.⁴ Most (90%) of Pakistan's wheat crop is grown in the provinces of Punjab and Sindh, where Khushaal Zamindar launched. These regions have adequate irrigation and favourable weather conditions.

Almost half (47%) of Pakistan's women are malnourished, with 40% of pregnant women suffering from iron-deficiency anaemia. The malnutrition profile is worse for younger generations, with just 12.9% of children under five not classified as underweight, stunted, or wasted (over a third of whom are overweight).⁵

TABLE 1

Pakistan country context at a glance

Number of active Agri VAS (2016) ⁶	4
Mobile penetration (Q4 2016) ⁷	47%
% of population living in rural areas (2015) ⁸	61%
% of GDP contributed by agriculture (2015) ⁸	25%
% of the labour force working in agriculture (2013) ⁸	44%
% of the female labour force working in agriculture (2013) ⁸	76%
Country population (2016, millions) ⁸	188
Target market (2016, millions) ⁹	2.15



2. GSMA, 2015, "Bridging the gender gap: Mobile access and usage in low and middle-income countries", <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Connected-Women-Gender-Gap.pdf>.
 3. USAID, March 2009, "Pakistan's Food and Agriculture System", http://pdf.usaid.gov/pdf_docs/Pnado507.pdf.
 4. 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/mobilefordevelopment/programme/magri/market-size-and-opportunity-in-digitising-payments-in-agricultural-value-chains>. Please contact mAgri@gsma.com for the full methodology.
 5. World Health Organisation (WHO), Nutrition Landscape Information System (NLIS): Pakistan country profile, <http://apps.who.int/nutrition/landscape/report.aspx?iso=pak>.

6. mAgri Deployment Tracker (currently offline). Please contact mAgri@gsma.com to receive the full list.
 7. Unique mobile subscribers in Pakistan at the end of 2016 as a percentage of the total market population. GSMA Intelligence.
 8. The World Bank DataBank
 9. The number of agricultural workers in Pakistan with mobile phones likely to pick up VAS. For the full methodology, see GSMA, 2015, "Market size and market opportunity for agricultural value-added services (Agri VAS)", <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

An enabling internal environment and strong partnerships fuelled success

The platform for Khushaal Zamindar is provided by VAS aggregator/tech provider, Planet Beyond, which also has an in-house recording studio for creating stylised service content. The existing relationship between Telenor and Planet Beyond has been beneficial for service development. CABI Pakistan provided agricultural content for the service with support from global content partner, ILRI.¹⁰ Abacus houses the call centre, which is dedicated to this product and largely used to collect user feedback.

Within Telenor, the product began with a small crossfunctional team (product manager and user

experience (UX) lead) in the VAS department. The UX work stream was supported by the global design partner for the mNutrition initiative, frog design.¹¹ In December 2015, the service moved to a new vertical, focusing specifically on mAgri as a commercial prospect.

The development and scaling up 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, BI, monitoring and evaluation, and content support.

FIGURE 1

Telenor contracted partners on Khushaal Zamindar



10. For more on the global partnership, see GSMA, 2017, "Creating scalable, engaging mobile solutions for agriculture", <https://www.gsma.com/magri/creating-scalable-mobile-solutions>

11. The team had some training and support from frog design, <https://www.frogdesign.com/>. Frog design are the mNutrition global UX partner (contracted by the GSMA to ensure user needs and experience were prioritised), however, UX capacity was largely in-house. The contribution of the frog design team in Pakistan was less than other services in the mAgri mNutrition initiative portfolio due to contractor travel restrictions.



COURTESY OF FROG DESIGN

Product timeline

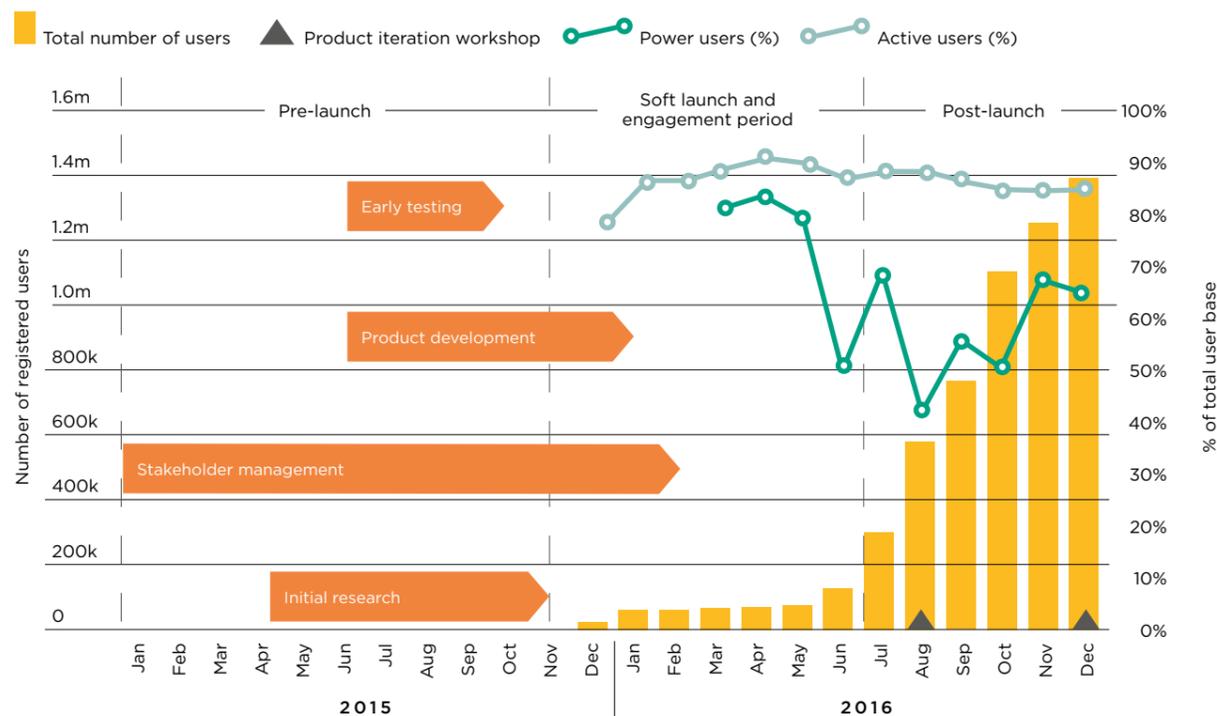
Khushaal Zamindar scaled successfully after a planned engagement period

The product team used a five-month engagement period to improve the navigation experience by shortening the time it takes users to get to content. They moved the daily forecast with relevant crop tips before the options menu, making this the first thing a user hears after dialling 7272. They also modified the content offering to ensure it was meeting customer needs, for example, changing the format and timing of the weather

forecast messages. The BI-based acquisition model, which used the usage patterns of existing mobile users to identify other likely farmers in the Telenor base to target with marketing messages, was also perfected during this period. The average number of minutes consumed by each user increased over the period from five minutes per month in December 2015 to almost ten minutes per month a year later.

FIGURE 2

Khushaal Zamindar 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 multiple times on the service
Product iteration workshops: quarterly workshops where service data is reviewed and changes planned

Telenor and Planet Beyond went into the field for research in Q2 2015. The team conducted in-depth interviews with more than 30 farmers, middlemen, and input suppliers. They mapped the farming journeys and trusted information sources to understand firsthand the needs of the customers they aimed to serve.¹²

Key insights from the field:

- **Farmers are sociable and regularly discuss agricultural issues.** Socializing with tea and huqqa after the farming day is done is a typical farmer's favourite pastime.
- **Middlemen play a key role in the ecosystem as investors.** Having a middleman involved in the product would distribute risk and introduce more convenience.

- **Know my field, then my yield.** To acknowledge that an Agri VAS may be useful, farmers expect a high level of understanding of their land. How can you give me advice without conducting soil and water analysis? They are primarily concerned about the impact of changes in yield. Higher yield leads to higher incomes, social status, and personal pride.

After launch, two product iteration workshops (PIWs) were held with Telenor, Planet Beyond and GSMA as well as other partners. PIWs aimed to review data collected from BI, user feedback from phone surveys, and UX research. Pain points along the customer journey were identified and solutions 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	Aug 2016	System's ability to handle concurrent calls needs to be enhanced to deal with a high influx of IVR accesses as the service scales.	Increase concurrent call capacity.	Yes
		Weather conditions at certain times merit crop advisory relevant to that particular situation (e.g. high rainfall).	Link advisory to weather forecast.	No
2	Dec 2016	Weather forecasts are recorded every morning. The number of different reports increases with the number of districts, which means weather content is not ready to be sent out until the afternoon. However, farmers want to receive weather forecasts very early in the day.	Automate the weather advisory by using prepared snippets of audio content.	Yes
		Improve profiling of users to learn more about subscribers, improve the service, and improve the KYC (Know Your Customer) process for future monetisation.	Use OBDs to profile the size of farmers' land, crop preferences, etc.	Partially implemented

12. For more information on the tools used and stories from the field, see GSMA and frog design, 2016, "mAgri Design Toolkit", <http://www.gsma.com/mobilefordevelopment/magri-design-toolkit>.

Commercial sustainability

In Q4 2015, Telenor Pakistan set up an adjacent business vertical, headed by a director, to capture the opportunities around mobile agriculture. Setting up mAgri as a separate business unit, whose director reports to C-level management, ensured organisational backing from the CEO and across other departments.

Four months of extensive focus on post-launch service improvements and subsequent analytics-led marketing campaigns were the backbone of the service's success. Khushaal Zamindar added 50,000 users within six weeks of pilot launch; the product team then stopped marketing and focused on service improvements using human-centred design principles. Improvements made during this time included perfecting one-touch registration and obtaining profiling data (especially location) from other internal sources, and improving user experience on the IVR menus. An improved product relaunched in June 2016. A year after launch, Khushaal Zamindar had reached 45% of the identified target market in Pakistan.¹³ Telenor estimates more than 60% of users who sign up to the service first heard about it through word of mouth from friends and family.

The service required limited capital expenditure (CAPEX) as Telenor leveraged its existing internal technology and that of its vendor. The low-cost OBD and accompanying word-of-mouth marketing resulted in extremely low acquisition costs of USD 0.09 per user through the life of the service.

The service is free for end users, with Telenor finding monetisation options through B2B partnerships. The service did not generate any revenue in 2016. However, in December 2016, the product team ran an advertising campaign for a fertiliser company, targeting subscribers of the service in selected districts. The positive response led to interest from other agribusinesses to advertise to segments of Telenor's base, paving the way for monetisation and sustainability. Telenor has also partnered with a provincial government to provide app-driven extension services to farmers, which will generate additional revenue for the mAgri unit.

One year after launch, Telenor can already measure tangible indirect benefits of the service. By December 2016, users contributed to an ARPU increase of 3.5% on Telenor core services compared to non-users, while monthly churn was 1.8% for users versus 3.1% for a comparable base of Telenor users.

13. Target market is defined as the number of agricultural workers in Pakistan 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 services (Agri VAS)", <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/02/Market-size-and-market-opportunity-for-agricultural-value-added-services-Agri-VAS.pdf>.

Who uses Khushaal Zamindar?

The Telenor product is reaching a broad range of farmers, with the possible exception of more traditional farmers.

Human-centred design research conducted in Q2 2015 identified farming archetypes in Pakistan. This research indicated that 'Receptive' and 'Progressive' farmers would be the early adopters of this service. Users interviewed during the fieldwork were mostly likely to be Receptive (8), Progressive (7) or 'Experimenters' (7).¹⁴ No 'Traditionalist' users were interviewed;

Traditionalist farmers are more likely to benefit at a later stage from the trickle-down effects of their influencers benefitting from the service. Experimenters and Progressive farmers seem to be more likely to report a positive behaviour change than Receptive farmers. However, a decisive analysis is not possible given the qualitative data available.

FIGURE 4

Farming archetypes in Pakistan

	Traditionalist	Stubbornly attached to generational knowledge while blindly following influencers.
	Experimenter	Self-reliant while sticking to traditional practices. Risk taker when faced with new events.
	Receptive	In search of latest and reliable information sources. Understands the need and value of adopting new ways. Due to lack of resources, evaluates options before acting.
	Progressive	Ready to try new techniques in coordination with experts and latest trends. Resourceful and independent and can afford to try out new options.

14. Based on a qualitative assessment by the field researcher.

Benefits for users

Phone surveys and field work to understand the benefits of Khushaal Zamindar for users were conducted in January and February 2017. This study was performed only 12 months after service launch, so changes to farming behaviour (as indicators of possible future benefits) are tracked alongside improvements to on-farm production.

A Telenor Pakistan contracted call centre surveyed a treatment group of 398 power users and 155 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 23 respondents interviewed for the qualitative study were selected to provide a broad set of insights into the experiences of power users.

FIGURE 5

Khushaal Zamindar outcomes pathway



Percentage of power users making on-farm changes. Results for specific changes are significantly different for power users and non-users at the **95% or *90% confidence interval.

15. Power users are those who registered at least six months before the survey and had picked up at least one OBD or pulled information from the IVR channel each month. Non-users are those who had registered for the service in the 14 days prior to the launch of the survey.

Power users were more likely to make changes to planting and post-harvest practices

The likelihood of power users making changes to their planting behaviour is 1.7 times that of non-users, while power users were 2.7 times more likely to make changes to their post-harvest and storage practices than non-users. Changes in water use were also close to being statistically significant. A larger sample size may find a significant effect in this area. Fieldwork respondents also reported making changes to land management practices, including the use of better quality seed and herbicides and sticking to set schedules for watering, spraying, and harvesting. Farmers mentioned Khushaal Zamindar as a reason for behavioural change.

"... The crop used to go bad when we used to store it and it had major losses. Now [...] we have tried to ensure that we dry it and then store it and it has been very useful for us."

Khushaal Zamindar user, male, 49, Experimenter, Faisalabad district

"We have improved the seed buying and now buy seeds that are better quality also the sprays we are using regularly now, so we don't lose our crops. They tell us about the types of disease and how they are affecting the plants."

Khushaal Zamindar user, male, 35, Progressive, Faisalabad district

"...we listen to the 7272 advice and then make changes like now this year we have been very conscious of the time for the watering of the crops."

Khushaal Zamindar user, male, 66, Experimenter, Faisalabad district

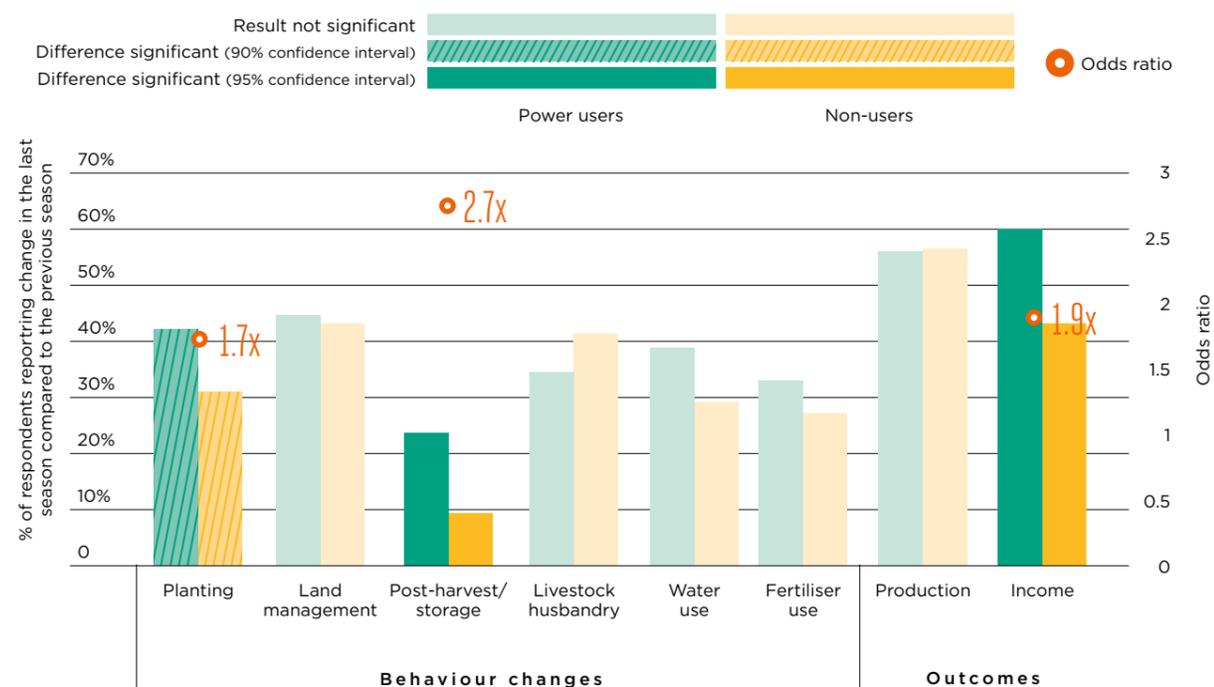
"7272 has been useful about the weather mostly or pesticides. I did not know about sugar cane, that [...] the greater the yield if you are harvesting in time and sowing in time also."

Khushaal Zamindar user, male, 30, Progressive, Zilla district



FIGURE 6

Behaviour changes and outcomes



Behaviour changes and outcomes in the matched subset of 226 power users and non-users. 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) shown where a significant result was found. Statistical significance is affected by the sample size and the magnitude of difference between proportions.

Most users reported some kind of on-farm change. 77% of power users reported making at least one type of on-farm change compared to 71% of non-users. Changes across all behaviour change areas were positive in favour of power users, with the exception of changes to livestock practices.

Khushaal Zamindar is associated with an increase in farming income

Power users were almost twice as likely to report increased income in the last season compared to the previous season than non-users. After controlling for key independent variables (age, income source, and farm size), the likelihood that power users report an increase in income (as compared to a decrease or no change in income) is 1.91 times greater than for non-users. Users interviewed in the field spoke more about higher yields than increased income.

“The growth of the crops has improved and now we get more to sell in the market. Last year it was approximately 25 mun (1,000 kg) and now it is 40 mun (1,600 kg) of sugar cane this year. God has been very kind to us, let’s see how this sells in the market.”

Khushaal Zamindar user, male, 34, Progressive, Faisalabad district

“We have improved yield, we know now what to do. Wheat they tell you when to water and when to harvest also they tell you. If you follow the ways and care for it, it helps with the fertilizers also.”

Khushaal Zamindar user, male, 36, Experimenter, Zilla district

Khushaal Zamindar users see their mobile phone as a key source of information. Users cited their mobile phones or 7272 as one of their two most important information sources, and do so more often than non-users (85% versus 56%). Family or neighbours were also important sources for both (26% versus 18%). Users interviewed said they also get information from shopkeepers, radio, television, and extension workers. All respondents questioned on the topic owned a mobile phone. These phones were their own, and were feature phones. 12 out of 22 respondents said they use mobile financial services.



Most service users are men living below the poverty line

It is unclear whether women are benefitting from the service. No female power users were reached through the phone survey. Previous surveys have found a negligible number of female users accessing Khushaal Zamindar (3%). However, there are strong cultural barriers which may be preventing women from picking up calls from an unknown number in rural Pakistan, calling into question the reliability of random sampling in this instance. Judging by BI investigating the behaviour of mobile users, Telenor estimates that 20% of the user base was female in January 2017. Understanding female users, and ensuring they also use the service or access a 'sister' service aimed at women, is a key objective for Telenor in 2017. The product team has hired a gender specialist to address the ongoing issue of targeting women during research and to lead the service towards gender inclusivity.

The service is effectively targeting people living below the poverty line. According to data analysed using the Progress out of Poverty Index (PPI), an estimated 65% of Telenor subscribers (power users and non-users) are living below the poverty line.¹⁶ World Bank statistics estimate that, in 2013, 20% of Pakistan's population was living below the poverty line.¹⁷

The captured audience overwhelmingly relies on agriculture. Farming is the main source of income for 97% of users. In terms of land cultivated, 10% of service users farm up to two acres of land, 30% farm two to five acres, and most (60%) farm more than five acres. However, respondents were in some cases renting land from others. Many of the farmers interviewed in the field said that having small landholdings was a major issue and that larger owners were in real control and earn big profits by renting land.

For many respondents, farming meets their essential needs. Farming feeds their families, allows them to earn an income to pay for other expenses, and to afford to send their children to school. Only one respondent considered farming a business, and they were engaging in exports. Other respondents saw a link between farming as a business and the amount of money and land available to an individual.

With regard to education levels of fieldwork respondents, 10 had a secondary school education, 10 had a primary education, two had 'other' or no education, and one had a university degree. Many respondents mentioned that they became farmers because their parents were farmers. However, the majority of these respondents do not want their children to become farmers and use their farming income to fund their education.

Most fieldwork respondents (19 out of 23) value the service and the content, and all respondents who answered the question (13) trusted it. They say the information is useful and consider the service as a source of learning. Most respondents say they have shared information from the service with others (20 out of 22 responses). They also see the service as a tool to help strengthen social capital through the formation of small groups of farmers gathering together to listen to the live shows on speakerphone.

16. The PPI (Grameen Foundation, 2009) has been used to calculate the poverty outreach of the Telenor service. The definition of poverty used here is the international 2005 PPP USD 2.50/day line.

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



Spotlight

Khushaal Zamindar's innovative approach to content engages users

Khushaal Zamindar's OBD messages are stylised to replicate conversations in a typical Pakistani rural household, with discussions focused on agriculture, nutrition, and livestock. Almost all (98%) users have heard this content. Similar to radio soap operas (widely used to communicate key messages and influence behaviour change in rural communities), the mobile messages replicate a scene from a typical Punjab community, including background noise and traditional music. Weekly live shows called "Zarae Baithak" are also part of the service, during which users can call in and receive expert advice on specific agricultural topics.

The stories involve four main characters. Dashir, a male farmer, is ready to adopt innovative methods to increase his yield. Naik Bakht, his wife, is always asking questions, a deliberate choice to encourage women to follow suit. Their son Akram is an agricultural student, a character created to encourage farmers to send their children to school. Karambah, the great uncle, represents the older generation, sharing his traditional knowledge and providing important agricultural information based on his experience and heritage.

UX-led research found that users often reference the characters when talking about the service. Most IVR users (95%) report relating to one of the characters from the stories.¹⁸ Interviews with male farmers¹⁹ in Punjab revealed that users are receptive to the characters, although some responses hinted at the patriarchal culture of agriculture in rural Pakistan.

"I like Naik Bakht and Akram. Naik Bakht talks about weather and crops and Akram talks about farming also. He knows a lot. I [listen] more to Akram because Naik Bakht is a woman and she just talks about the weather mostly."

Muhammad Ashraf, Khushaal Zamindar user, male, 35, Vehari district

The live shows, attended by around 35% of users, are appreciated as an entertaining source of expert advice. Some reported getting together with other farmers to listen to the shows.

"I listen to the shows for advice and entertainment purposes. It is a lot of fun when they also talk to each other and make jokes as well. I can also directly call and ask about specific things."

Safi Ul Rehman, Khushaal Zamindar user, male, 40, Faisalabad district

18. 'Rapid feedback' phone survey, November 2016 (327 IVR users)

19. Unfortunately, it was not possible to interview female users due to strict socio-cultural norms.

The customer journey

Telenor used a targeted marketing approach to scale the service. The post-pilot engagement period allowed the MNO to refine the on-boarding process and content navigation mechanism.

“We get the messages every day and then we look at the forecast for the weather report and use the spray accordingly. It really helps because good weather is God’s blessing and we need to have the right weather for the crops. All the more so for small farmers because our profit margins are very low and we cannot afford to make a loss.”

Khushaal Zamindar user, male, 34, Progressive, Faisalabad district

	Marketing, sales, and distribution	On-boarding	Navigation and content	Payment
Product description	Targeted OBD marketing and word of mouth have brought on the bulk of customers. NGO partners supported Telenor with an awareness campaign reaching 1,000 villages. Telenor’s rural S&D teams raised awareness of the product by placing Khushaal Zamindar signs outside major markets, bus stands, and SIM stalls.	After listening to the marketing OBD, users press 1 to register for the service with a default profile relevant to their location. Potential users can discover the service themselves by dialling 7272 and completing the self-registration process.	OBD messages sent each morning include daily weather forecasts. Weather forecasts are currently cross-checked with several sources. SMS about livestock production are sent each evening. Users dial 7272 to change their crop preferences, listen to recent content, and tune in to weekly live shows through the IVR menu. Content comes from local partner CABI Pakistan and covers five vegetable and two livestock categories. Content is available across the 36 districts of Punjab in three languages: Urdu, Punjabi, and Seraiki.	The service has been completely free of charge for end users since launch. To monetise the platform, Telenor brought on board their first B2B customer, a fertiliser company, during Q4 2016.
Customer journey ²⁰	45% of the target market registered	100% of registered users received content	84% of users who access content became repeat users	0% paid for the service
Key findings	<ul style="list-style-type: none"> OBD marketing that uses a data-driven approach to identify which rural users are likely to be farmers by comparing the behaviour of mobile users has been a key success factor and markedly increased the conversion rate. Telenor’s farmer identification model considers thousands of parameters to predict whether a Telenor customer is likely to be a farmer. Potential users were targeted with OBD, which were A/B tested to find the most effective messaging. Conversion rates for OBD marketing on other popular VAS is 1% to 2%, while targeted marketing for this product has success rates of up to 6%. Word of mouth was also a powerful acquisition tool as the service went viral. At the peak of the OBD campaign, two out of every three new users were added through word of mouth. NGO partners brought on active customers, but were not cost effective. A local NGO ran rural baithaks (gatherings of farmers), visiting over 1,000 villages. The NGO engagement was not found to be as effective as OBD, so the pilot was closed. 	<ul style="list-style-type: none"> Multi-step self-registration is difficult and time consuming for the user. Initially, call centre agents profiled potential users who had registered their interest, however, with thousands of potential users registering their interest each day, this method was not scalable. Telenor has since used data collected from early users to automate the registration process. Location (essential for sending relevant weather forecasts) is set to the user’s most active cell site and relevant crop profiles are based on location. The call centre is now mainly used for technical support and collecting feedback from users, although users can still call to change their profiles. Selecting a default crop for users remains a challenge. Users are currently auto-assigned the most commonly grown crop in their area (obtained from a government database) and they can then alter their preferences through the IVR menu. The product team has not yet found a way to allow the target audience to easily choose their own crop as IVR literacy is low. 	<ul style="list-style-type: none"> In total, 51% of the user base have used the IVR channel. Pull content users are more likely than push-only users to recommend the service,²¹ so encouraging users to access this content may improve customer satisfaction. IVR menus must be lean so users can reach content. UX research found reaching relevant content was taking too long. After dialling 7272, users now immediately hear up-to-date weather and crop advisory. They then have options to change their profile, listen to other content, or unsubscribe. Navigation prompts were shortened to improve user experience. Daily push messaging keeps the user base engaged. The majority of users (80% to 90%) have been active on the service each month. Weather was found to be the main attraction. Early UX research suggested that forecasts should be comparisons with the previous day (e.g. hotter, colder), however, further tests revealed that farmers need exact temperatures. These fluctuate daily, so the minimum and maximum temperatures are now supplied. Forecasts are now sent early in the day when farmers are waking up and going to the field. 	<ul style="list-style-type: none"> After initially offering the service for free, the product team was reluctant to introduce charging to the end user. They sought out alternative ways to make the service sustainable. Initial feedback suggests customers are happy with the in-service advertising. The advert maintained the same style as the service. It emphasised how you could earn more money and make your life better by using their product. Most customers targeted (78%) wanted to get more information from the company. Calls to the fertiliser business’ call centre spiked after the advert, fulfilling the agreed commercial objective. However, to maintain customer satisfaction, the product team is aware they will need to balance the monetisation of the service with continued positive user experience.

20. Based on Telenor reported data, December 2016. Target market is defined as the number of agricultural workers in Pakistan 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 services (Agri VAS)”, <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/02/Market-size-and-market-opportunity-for-agricultural-value-added-services-Agri-VAS.pdf>.

21. 86% compared to 75%; ‘Rapid feedback’ phone survey, March 2016 (601 users)

Future roadmap

Khushaal Zamindar has been carefully created with its target audience in mind. However, the product team still sees room for improvement. An expanded team will continue to work on the service into 2017, with the live shows in particular singled out for improvement.

Telenor also plans to focus on engaging female users as an organisational objective. The expanded product team will explore how mAgri services can further benefit women, who are often informal labourers in Pakistan. The team now has a dedicated gender specialist with the objective of better understanding

the information needs of rural women to enhance their engagement with the service. A gender engagement strategy will be put in place in 2017.

Going forward, Telenor is aiming to develop a portfolio of data-driven services for farmers, from a social networking portal to irrigation services. The portfolio will incorporate a mobile financial services component, digitising value chain payments, providing an agribusiness portal and connecting farmers directly to markets through an e-commerce portal for their produce.





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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