

# Implementation of a Mobile-based Customised Advisory Service for Farmers of Odisha, India

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**Precision Development (PxD)**  
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A close-up photograph of a hand gently touching a wheat stalk in a field. The background is a soft-focus field of wheat under a bright sky. The text is overlaid on the left side of the image.

→ **PxD overview**

→ **Odisha**

- ◆ **Introduction to BOT**
- ◆ **Building the service**
- ◆ **Operating the service**
- ◆ **Transitioning the service**

A world map with a light green background. Several countries are highlighted in a darker shade of green. In Latin America, Colombia and Venezuela are highlighted. In Africa, Nigeria, Kenya, and Ethiopia are highlighted. In Asia, India is highlighted. The rest of the world is shown in a very light green color.

**Our mission is to provide actionable information and other scalable services to people in poverty to empower them to sustainably improve their well-being**

**PxD reached 5.7 million users in Q4 2021**

**4.9 million** users reached across active programs in nine countries. **0.8 million** graduated users\*

\*Graduated users are supported by services that PxD built or contributed to in the past, but which are now managed by partners without PxD's direct involvement.

# Challenge

Unfortunately, many smallholders are far from their full potential. They are stuck in a poverty spiral!

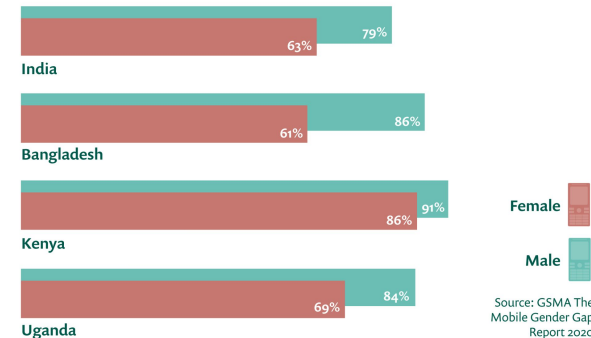
*On top of tangible deliverables for helping farmers, improved information access has the ability to deliver meaningful changes in farmer behaviours & farm outcomes*

*High quality information exists, but farmers simply do not have adequate access*

# Opportunity

Mobile phones enable access at scale, and farmer-level data enables customization

Mobile owners as percentage of total adult population



# Key Elements Differentiating PxD's Model

Low-cost communication

Iteration & learning (A/B tests, RCTs)

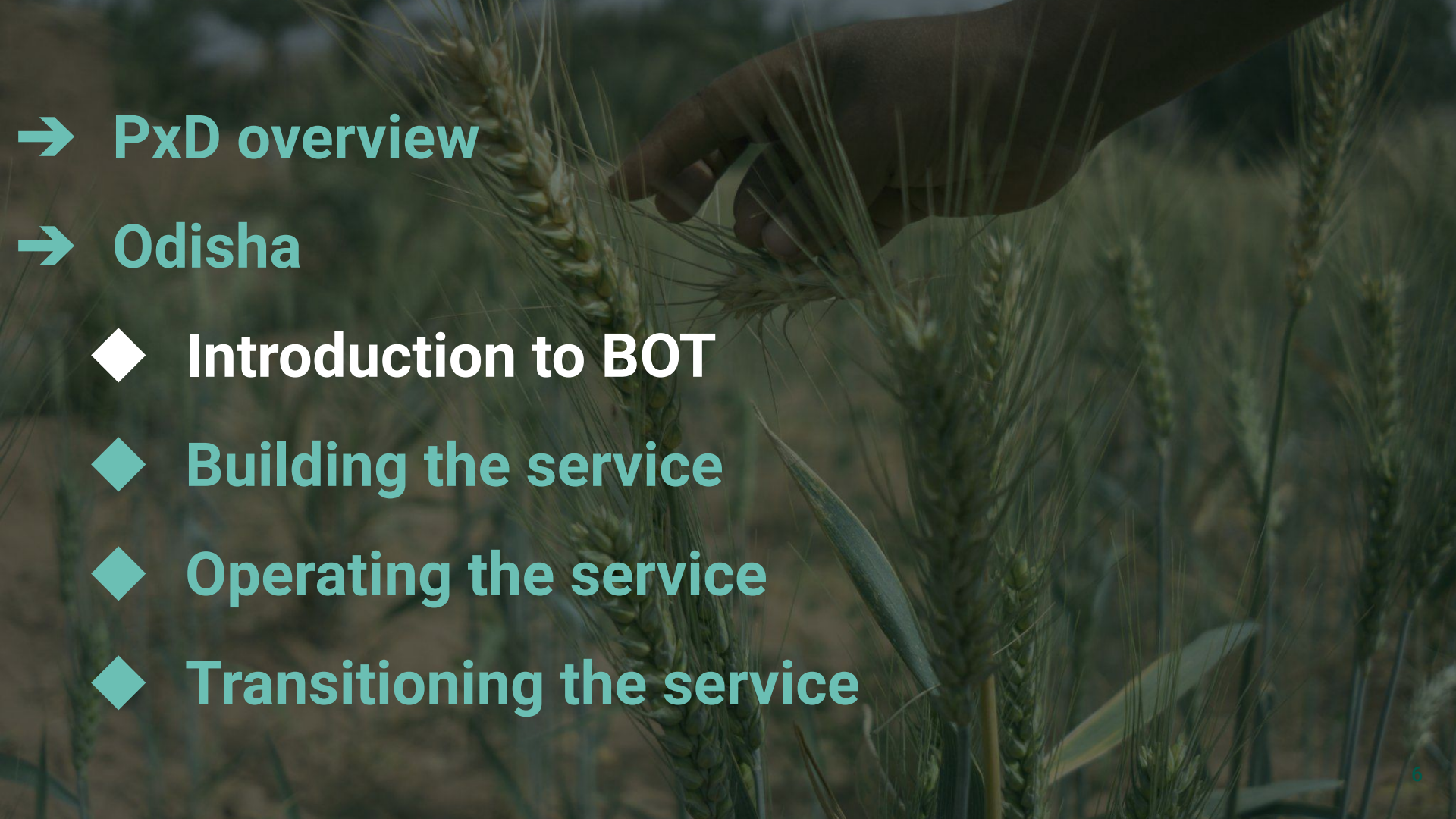
Human-centered design

Data science

Customization & targeting

Free to the user



A close-up photograph of a hand gently touching a wheat stalk in a field. The background is a soft-focus field of wheat under a bright sky. The text is overlaid on the left side of the image.

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# 69%

of farmers in the state of Odisha, grow rice in one or more agricultural seasons.

- Average rice yields in Odisha have been found to be 25% lower than the national average\* and only 50% of the potential yields \*\*
- Farmers found to be lacking knowledge on the latest and most appropriate seed varieties as well as on best practices
- For the small fraction of farmers whose knowledge is supplemented with advice, that information may be a) not timely, b) too infrequent, c) not relevant, or d) not trusted.

\* Das, S. (2012). Rice in Odisha. Metro Manila, Philippines: IRRI

\*\* Statistics, D. o. (2015-16). State of Indian Agriculture. New Delhi: Government of India

# Ama Krushi: A customized two-way IVR helpline available to farmers 24x7

## Model

Build - Operate - Transfer programme with the State Govt of Odisha (GoO); 2018 - 2022

## Reach

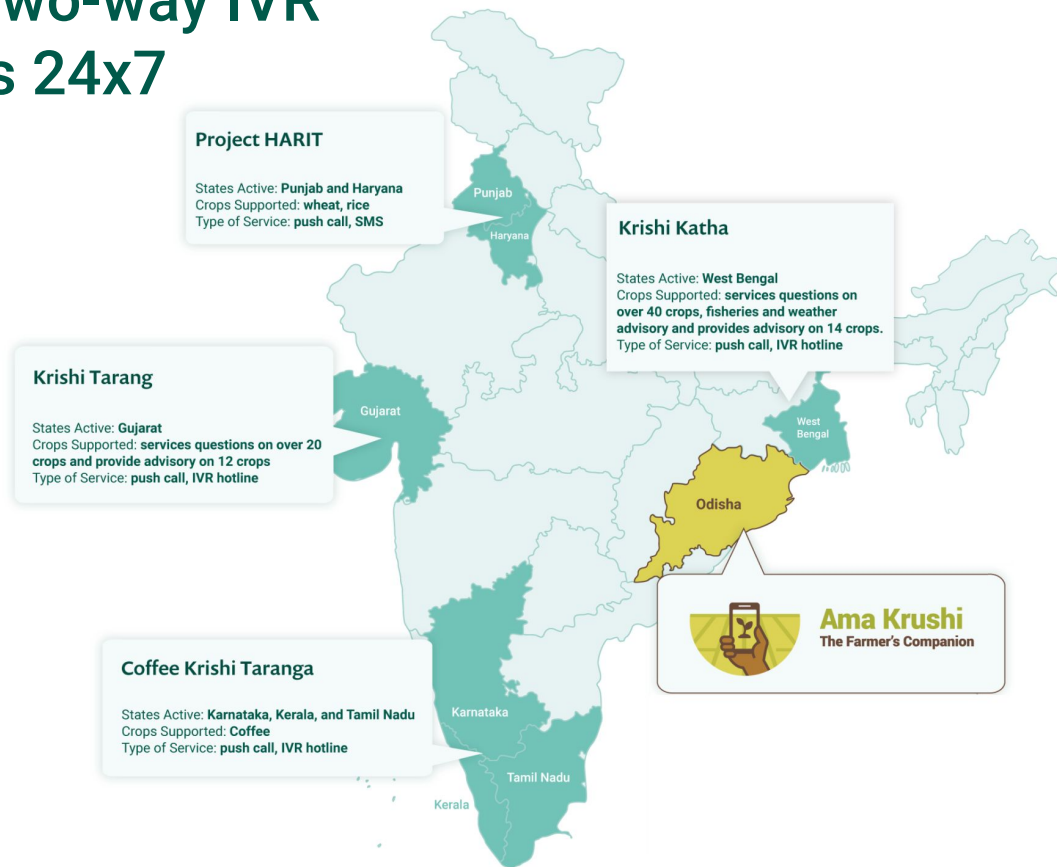
Serving **2.2 million farmers** across all 30 districts in Odisha & growing

## Content

Content across 20+ crops, livestock & fisheries

## Partners

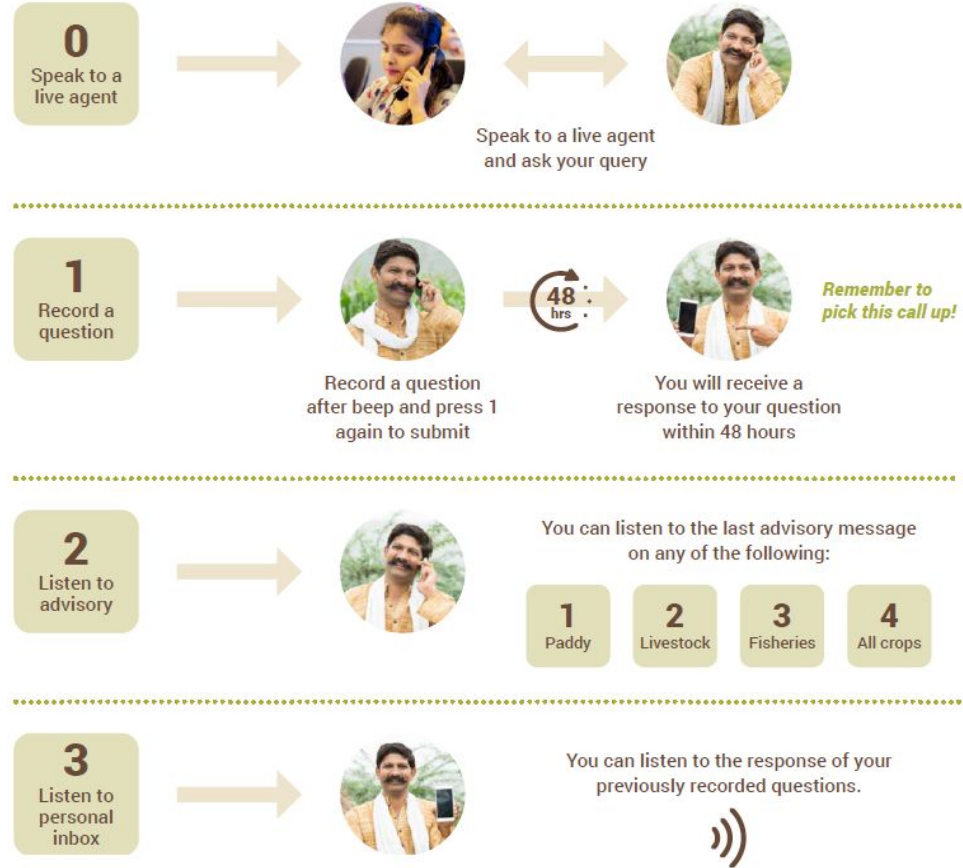
GoO, PxD, BMGF and JPAL-South Asia






# What do farmers get when they access 155 333?

- **Customized weekly advisory voice calls** with content tailored to farmer crop, agronomic conditions and location in local language
- **Timely reminders** to encourage adoption of the right practices
- **Access to an inbound hotline** to ask questions, listen to agronomic advisory or prices



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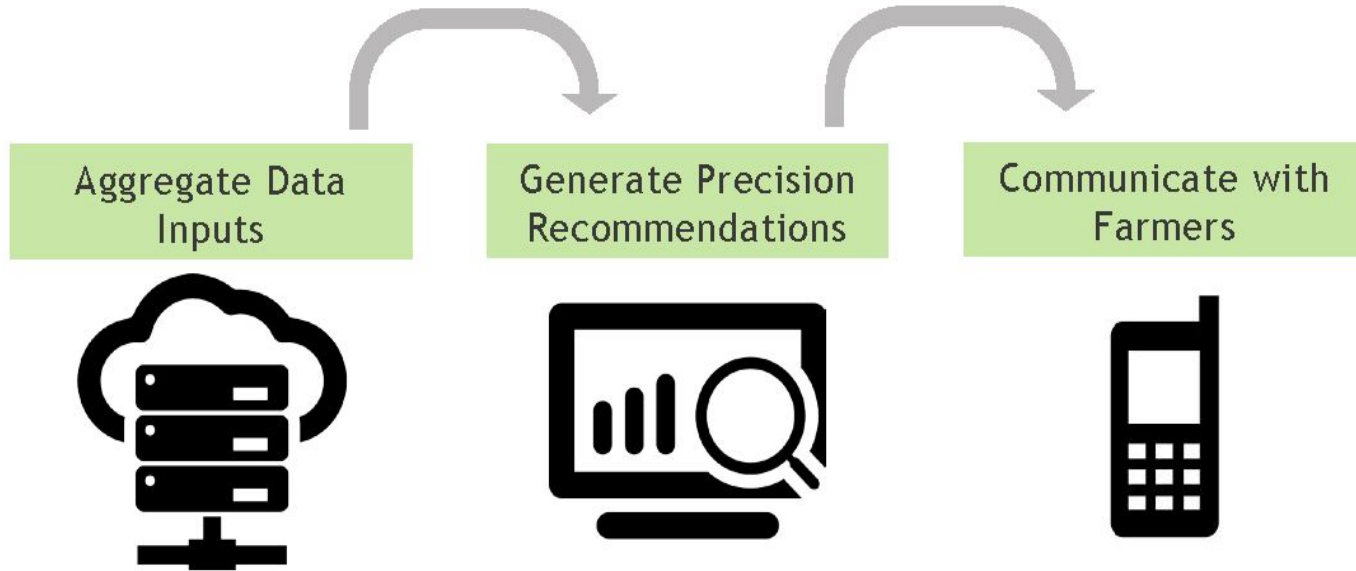
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# Building the service

Farmer characteristics through profiling (location, dialect, crops); agronomic data (soil, weather)

Agronomic information (input recommendations, farm management advice), behavioral economics

Outbound voice calls, SMS & WhatsApp.  
Inbound calls via agents & IVR



# Building the service

Farmer characteristics through profiling (location, dialect, crops); agronomic data (soil, weather)

Aggregate Data  
Inputs



## Availability, form and quality of farmer data

*Are you starting from scratch?*

*Are there systems that you can take advantage of?*

*What do your start up costs depend on?*

# Building the service

Farmer characteristics through profiling (location, dialect, crops); agronomic data (soil, weather)

Agronomic information (input recommendations, farm management advice), behavioral economics

Aggregate Data Inputs



Generate Precision Recommendations



## Advisory landscape & partnerships

*What are the existing extension systems and what synergies can be built?*

*How much is known of farmer information gaps and how they relate to productivity?*

# Building the service

## Technology landscape and it's opportunities

*What technology is available to you?*

*Are there legal frameworks to keep in mind?*

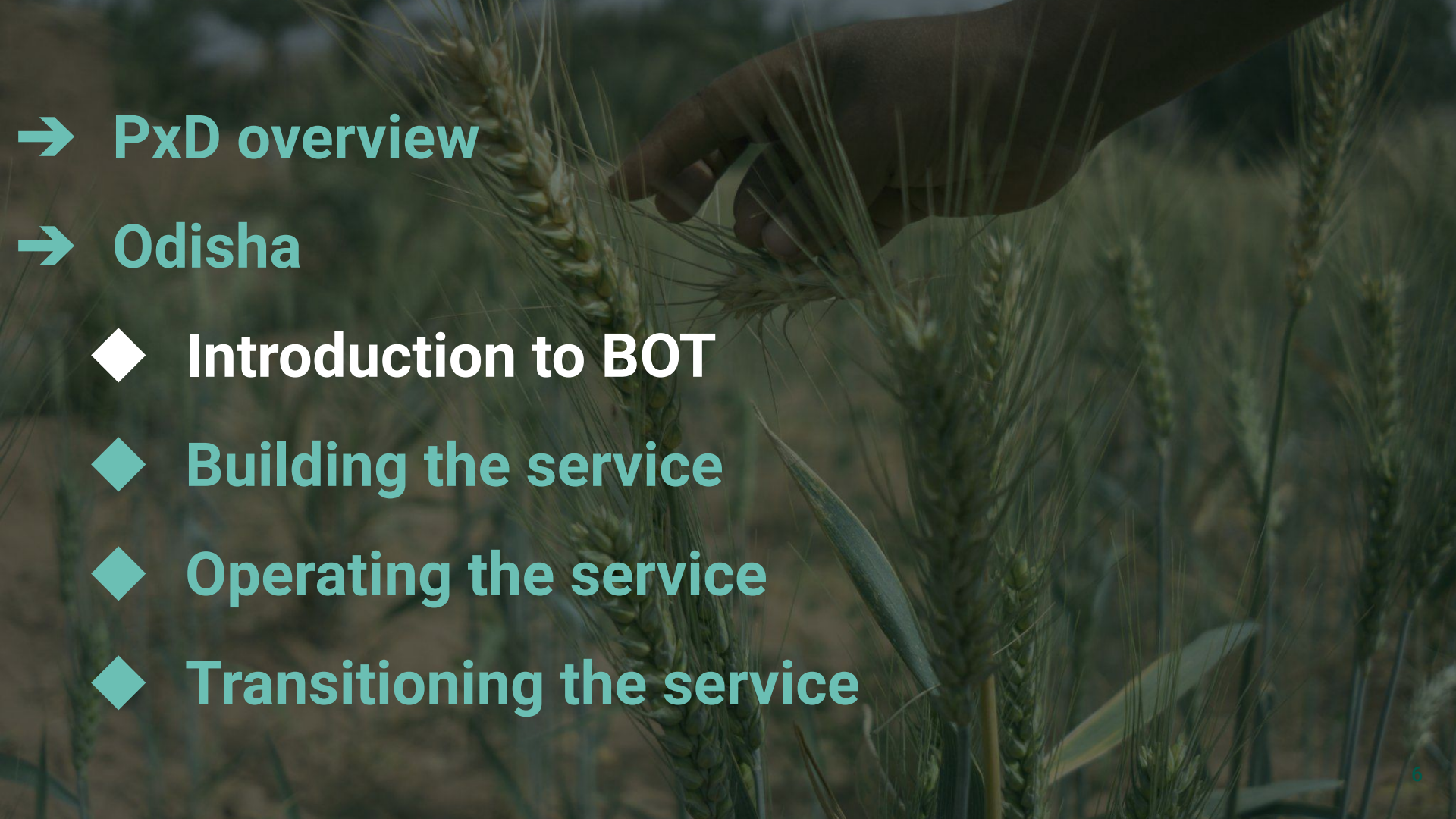
*Are farmers aware of your service, can they use it without too much trouble?*

Outbound voice calls, SMS & WhatsApp.  
Inbound calls via agents & IVR

Communicate with  
Farmers





A close-up photograph of a hand gently touching a wheat stalk in a field. The background is a soft-focus field of wheat under a bright sky. The text is overlaid on the left side of the image.

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**Technology is effective when it is user-centric, dynamic and iterative**



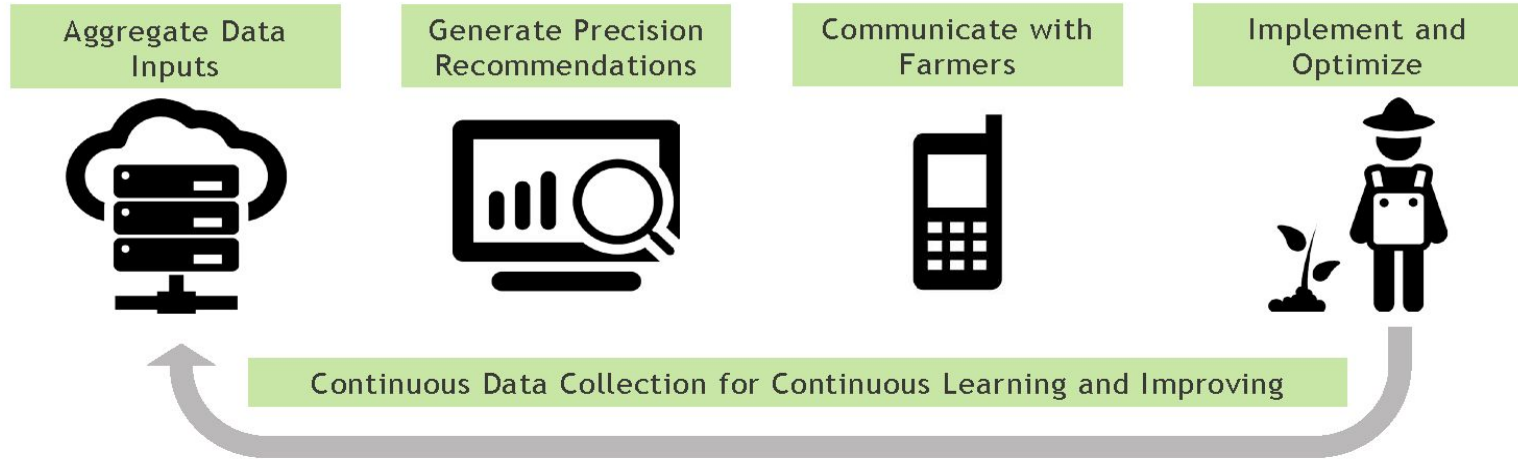
# Operating the service

Farmer characteristics through profiling (location, dialect, crops); agronomic data (soil, weather)

Agronomic information (input recommendations, farm management advice), behavioral economics

Outbound voice calls, SMS & WhatsApp.  
Inbound calls via agents & IVR

A/B tests, Randomised Control Trials, Field & remote polling





# Lenses of iteration

## User Experience

- Menu design
- Usability
- Service up rate
- Reach

## Delivery

- Time of day
- Frequency and length
- Order of menus
- Jingles

## Content

- Framing
- Reminders
- Language
- Comprehensibility

Cumulatively these can make the difference between communications with no impact, and communications with high impact.

# Simple, targeted messages can impact knowledge & adoption of sustainable practices

Flood tolerant (FT) seeds are evidenced to increase farmers' investment and yields in low lying areas of Odisha, India. Yet, adoption remains low.

Two voice messages focused on highlighting the benefits of FT seeds significantly increased adoption and knowledge among farmers with low land:

- 25% increase in adoption
- 7.5% increase in knowledge
- Est cost-benefit ratio of 17: 1
  - Estimated income increase of 72 INR per hectare against a marginal cost of 4.1 INR

# The volume and framing of messages are important for influencing behaviour

Last Rabi season, we tested sending farmers fewer messages.

Messages were:

1. Focused on high-impact practices
2. Framed using a standardized, logical template

Preliminary findings:

- 5.5 pp increase in pick-up rates
- 1.8 pp increase in listening rate
- 7.6 pp increase in adoption of seed treatment



# Institutionalisation within the Department of Agriculture & Farmers' Empowerment (GoO)

## Capacity Building

Ama Krushi training sessions conducted at block-level **with extension workers & community leaders** (“training the trainer model”); extension officers involved in farmer registration

## Content Design & Validation


Content designed in collaboration with local university & dept experts (**Weekly Content Review Committee for livestock & agriculture**); integrated messaging across different bodies

## Data for Decision-making

**Farmer engagement data shared weekly** (e.g. in Crop Weather Watch Group meetings attended by policy makers at various levels within the government); Participation in government pandemic response

## Supplementing GoO's gender and inclusion strategy

Collaborations with **SC & ST department, Pradan** (a GoO partner), **FARD** to serve the diverse needs of farmers and provide targeted outreach (eg: through designated community resource persons)

A close-up photograph of a hand gently touching a golden wheat ear in a field. The background is a soft-focus field of wheat under a bright sky.

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# Transitioning Ama Krushi

The Ama Krushi Service was conceived as a **Build-Operate-Transfer** Model. We are currently working to **completely handover management & operations of the service** to the Government of Odisha & it's designated partner

Outlined below is our three-dimensional approach to enable a robust functional transfer.

## Dimension A

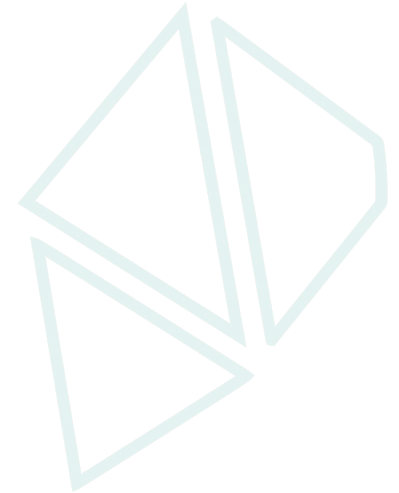
**Internal Activities:** Internal looking and encompasses two phases: *transition management* planning as well as *process codification and knowledge management*.

## Dimension B

**Inter-Party Activities:** Focuses on the inter-party aspects of the transition and encompasses two phases; *resource identification* as well as *capacity building and function transfer*

## Dimension C

**Handover Learning Agenda:** Focuses on Monitoring, Learning, and Evaluation (MLE) of the transition. It is also undertaken in two phases; *planning for transition learning* and *handover monitoring & reporting*.



*What is a successful transition?*

*What is the ideal pace of transition?*

*How portable is your technology really?*

*Who does what?*

*What about those that you leave behind?*

Post the handover, PxD plans to monitor the service for a year.

We will **release key transition findings as a Whitepaper** to help inform similar transition efforts both internally and for other organizations.

# PxD'S Future Plans

## Scale and Impact

Reach 100 million users, iterate and improve impact per farmer, and refine evidence base

## New Technologies

Communications: WhatsApp, Telegram, photos, videos, chatbots, AR, VR

Data: weather forecasts, remote sensing, satellite, drone imagery, machine learning

## New End Users

Extension workers, input suppliers, crop off-takers, etc.

## New Sectors

Addressing information poverty more broadly, including education, nutrition, gender, etc.

## Commercial Partnerships

For-profit agro-businesses (without excluding the poorest, or losing farmers' trust)

## Geographic Expansion

Africa (additional states in Nigeria; DRC, West Africa, North Africa, etc.)

South Asia (additional states in India, Pakistan, Bangladesh; Afghanistan, etc.)

Latin America and Caribbean (Brazil, Colombia, Mexico, Peru, etc.)

Southeast Asia (Indonesia, Vietnam, Thailand, Myanmar, Philippines, etc.)





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