

SEP 22-26

AIM for Scale

AI Weather Training Program

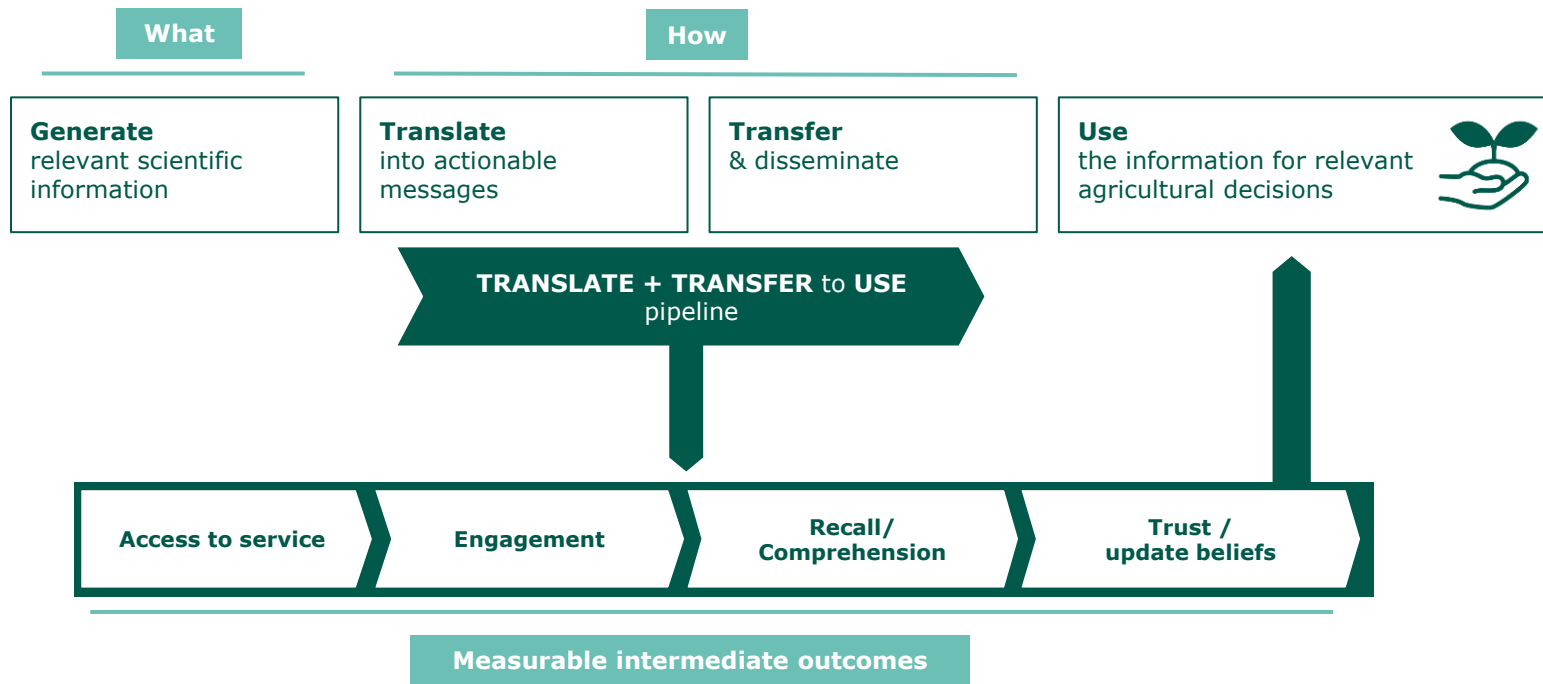
EFFECTIVE TRANSFER

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Chief Executive Officer Precision Development (PxD)



Theory of Change: Farmer-focussed impact-based forecast service



Effective communication (translate-transfer) channels

Key Considerations

- Cost per farmer at scale
- Access
- Familiarity/Literacy
- Interactivity (one-way or two-way)
- Level of customization
- Long-term sustainability (capacity of doer at scale)
- Complexity of information

Potential Tools



Successful Build-Operate-Transfer with Ama Krushi (now Krushi Samruddhi)

BUILD

2018. Conceptualized with & funded by the Gates Foundation

Service co-designed with the Gov of Odisha (GoO); GoO pays implementation costs



OPERATE

2018-2022. Program reaches 2.7M farmers at time of transfer to GoO

20+ value chains
Two-way voice, Radio, SMS, Extension workers



TRANSFER

~2025. Program continues to scale, now reaching 7M+ farmers, entirely owned and funded by GoO

Building AI tools on this foundational system



Preventive Measures



Real-time Weather Alerts



Post-Event Mitigation Advice



Increased Productivity, Incomes, and Climate Resilience



Reduced likelihood of severe crop loss



Increased productivity & production



\$1 invested in the service yields \$12-19 in additional income for farmers

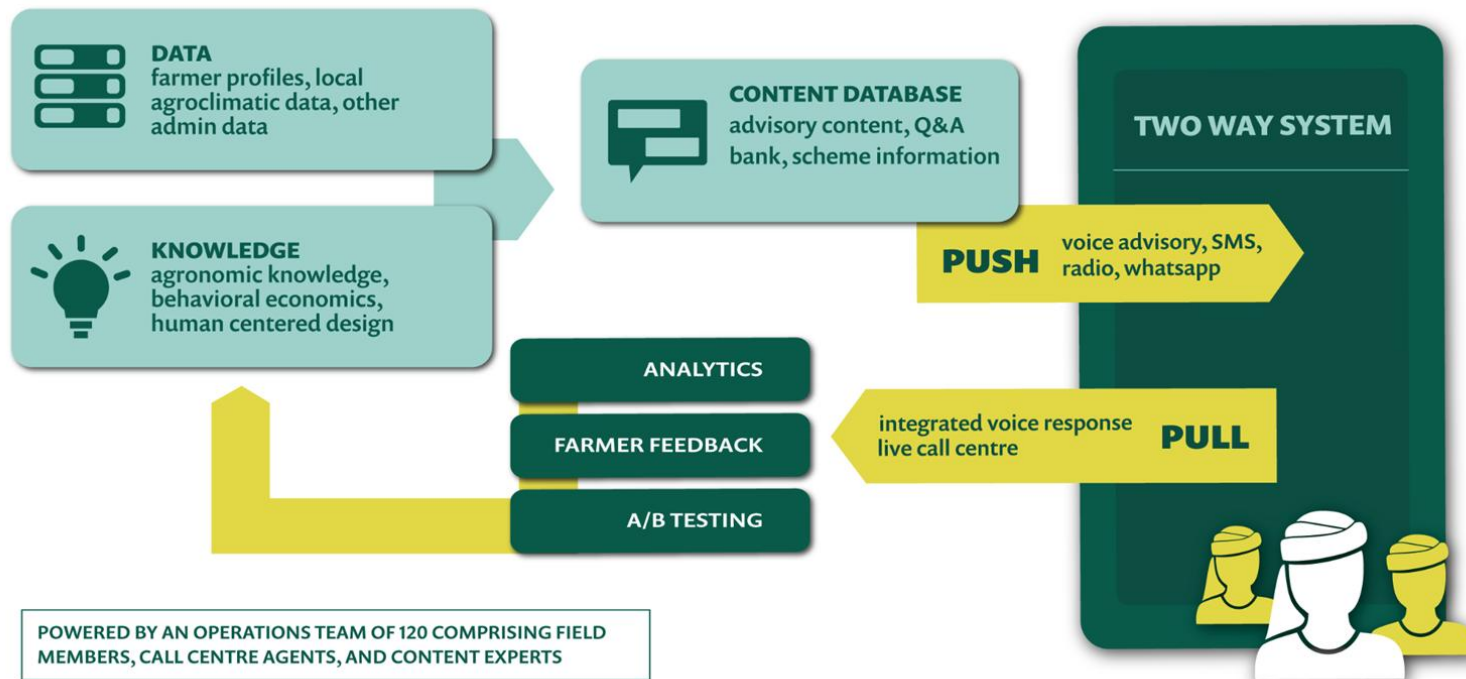
This can increase over time and with scale

Summary insights from the impact evaluation of
our flagship initiative Ama Krushi

**Ama
Krushi**



Example: PxD - GoO advisory service in Odisha



How transfer channels influence effectiveness

Two-way systems can help with early warnings:

Rise in questions on Brown Plant Hopper (BPH) for paddy farmers, Krushi Samruddhi pushed preventive alerts at district-level in mid-August, official declaration from government in early September

Scaling can maximize benefits, hard to know ex-ante which information is most useful

- Managing weather shocks: 9.4% increase in harvest in areas hit by excess rainfall, and 21% reduction in crop loss in areas of inadequate rain.
- Gains among below-median productivity farmers are significantly higher.

Multimodal, flexible channels can be critical to effective reach:

Extreme weather alerts developed for voice dissemination also repurposed through SMS groups, radio, and extension workers to amplify content

Simple, flexible, repeatable architecture ensures long-term sustainability AND continued innovation:

Foundational system scaled from 2.3 million (in 2023) to 7 million +; AI chatbots trained on the same content.

Insights on effective transfer

01

Meet the farmer where they are

02

Design scalable, flexible systems:
analytics, feedback loops,
interoperable, multimodal

03

Trade-offs between scale and
complexity

04

Institutionalize within existing
systems, identify pathways to long-
term sustainability

Day 3 Slides: Session 2

AB Testing w/ Amir

Objectives

Introduce the use of experimentation, or A/B testing, in designing and improving weather forecast services.

- | | | | | | |
|-----------|---|-----------|---|-----------|---|
| 01 | Why design testing and what is A/B testing? | 02 | Examples of A/B testing in large-scale services | 03 | Step-by-step process and considerations |
|-----------|---|-----------|---|-----------|---|

Why design testing?

01

Agricultural or climate information can be difficult to communicate precisely

02

Small design tweaks matter

03

Farmer reactions are context-specific

The 2024 monsoon rainfall (Jun-Sept) in India is expected to be above normal (106% of average $\pm$ 5% error).

Too technical

Latest forecast: The monsoon seasonal rainfall in India this Kharif season is expected to be 6% above normal.

Less information, but farmers can understand

A/B Testing: A Smart, Simple Way to Improve Services

What it is

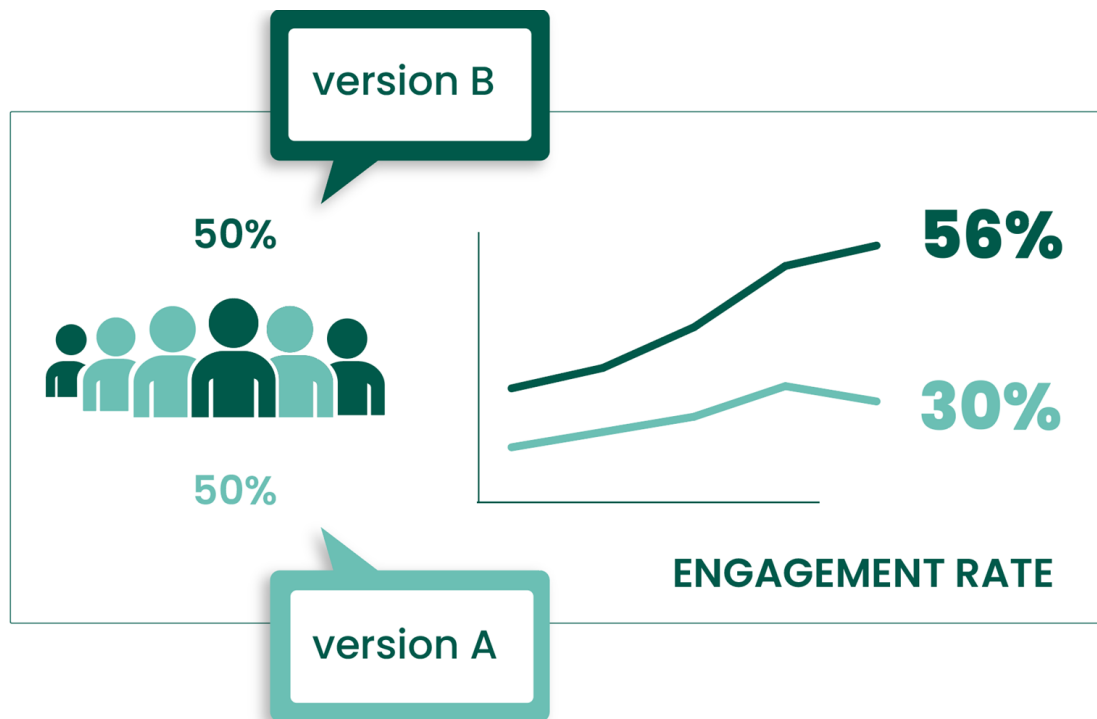
Send two versions (A and B) of a message or service to randomly selected users.

How it works

Track which version leads to better outcomes (e.g. message recall, comprehension).

Why it's useful

- Data-driven insights
- Generates clear evidence between design choice and outcomes
- High returns, low cost



Examples from PxD

Case Study 1: 8028 in Ethiopia

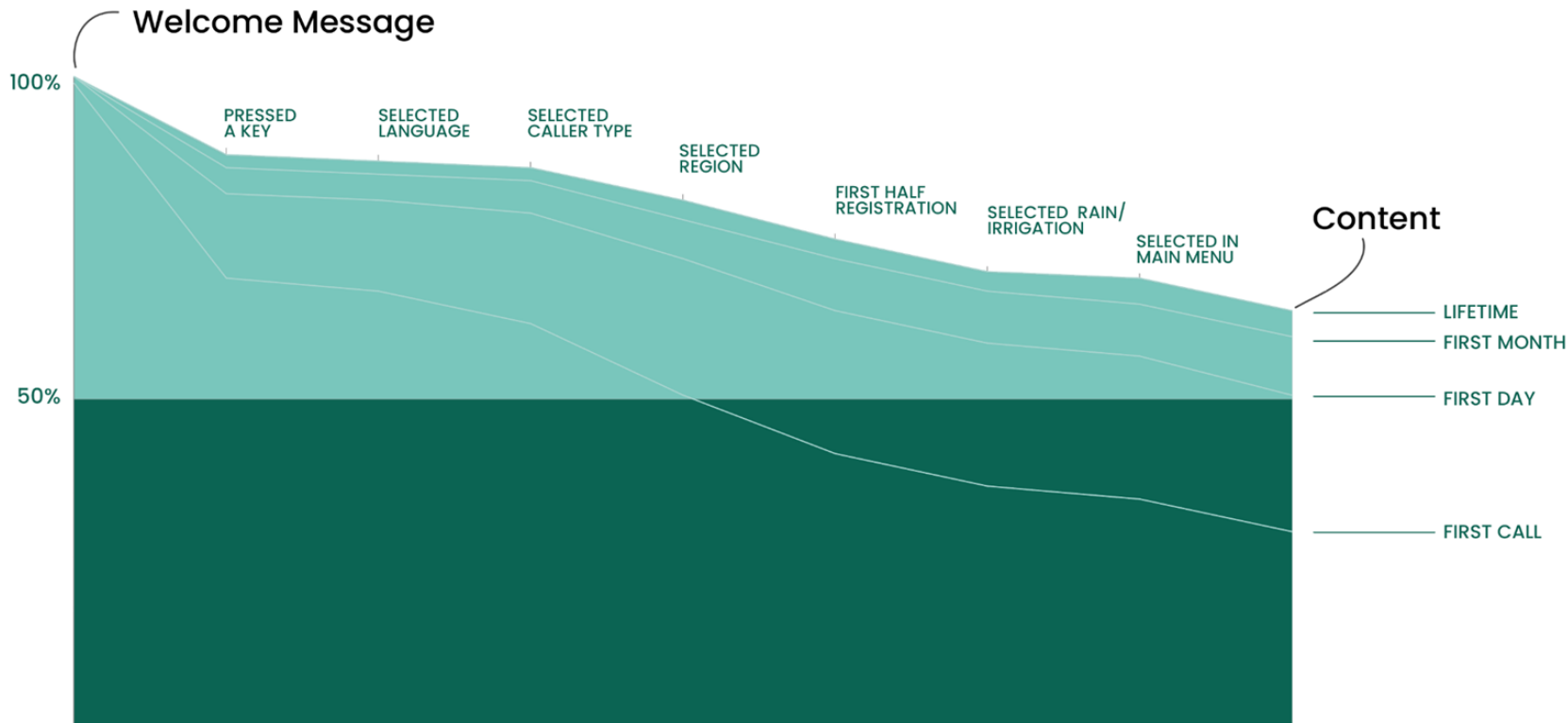
Agricultural Transformation Institute

- A public institute within the MoA
- Established to promote agricultural sector transformation in Ethiopia

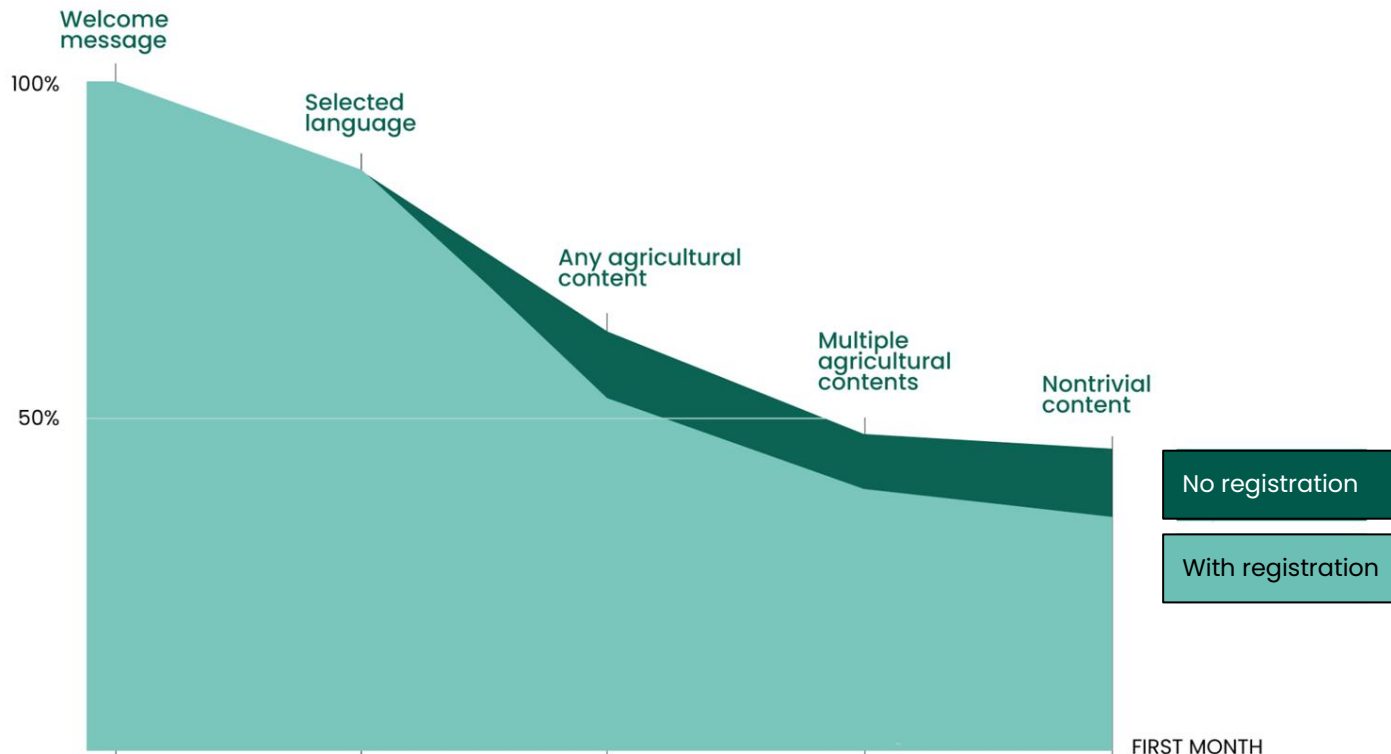
8028 farmers' hotline

- Launched in 2014
- 21 crops, 4 livestock, financial literacy
- 67M calls & 6.96M callers
- 1.04M calls from 241K users in 2024

User data analysis (1): < 50% of first-time callers reach agricultural content



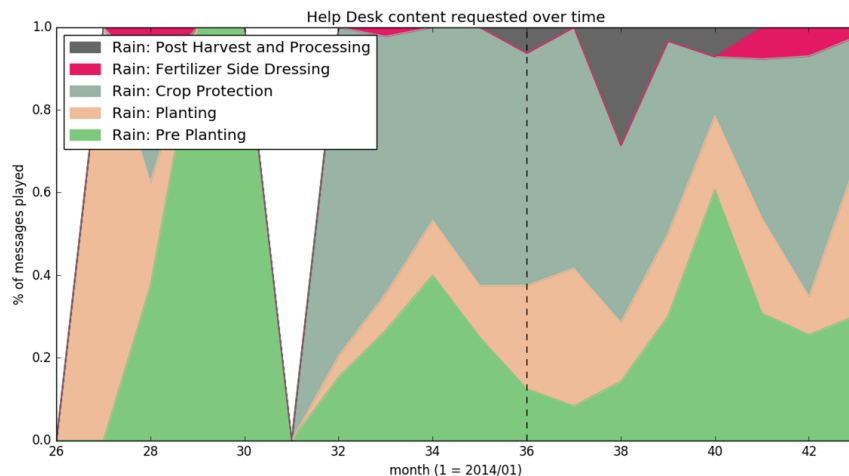
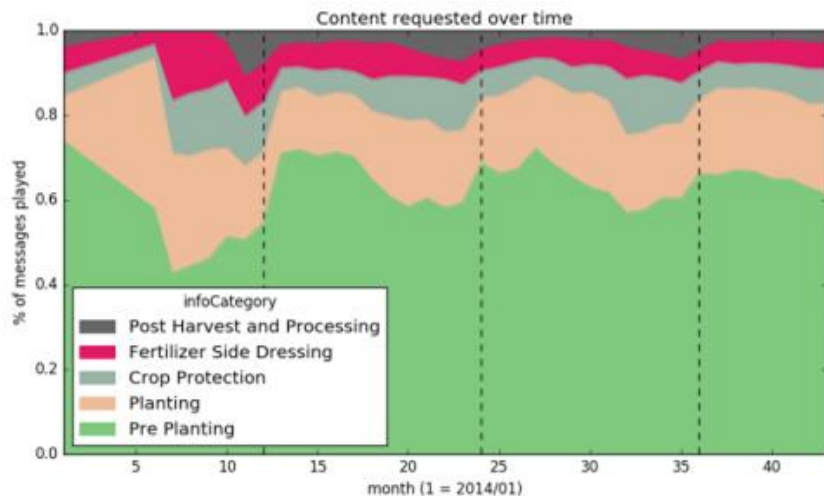
A/B testing (1): Postponing registration increases users' content access from 52% to 63%



User data analysis (2): Majority access pre-planting advice throughout the season

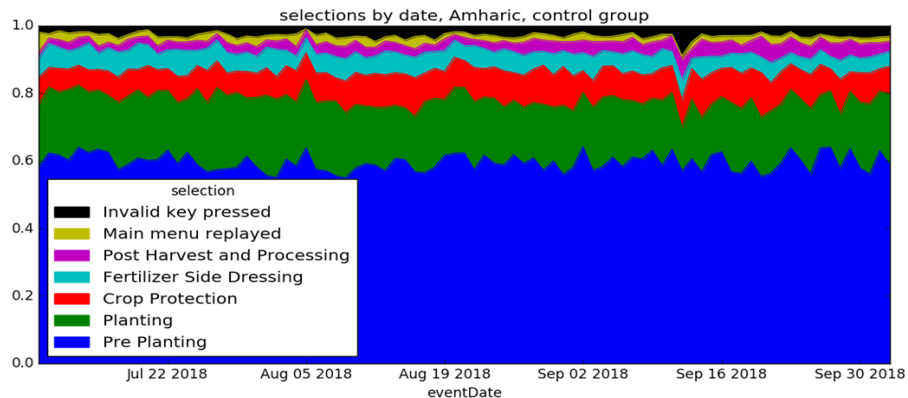
Users mostly choose preplanting (press 1) regardless of the season

Help desk content illustrates what seasonal variation should look like

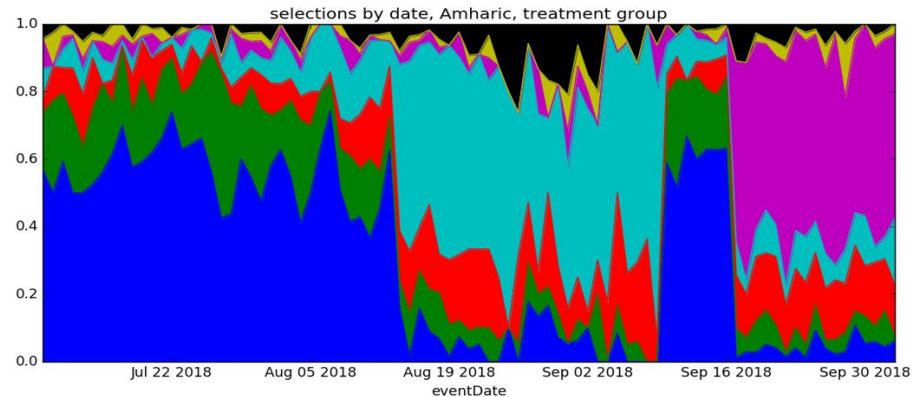


A/B testing (2): Rotating menus increase access to seasonally relevant content

No rotation



Seasonal menu rotation



Examples from PxD

Case Study 2: Weather Services for Coffee Farmers

Context

- Digital advisory service by the Coffee Board of India - Coffee Krishi Taranga (CKT)
- Nearly 50K coffee farmers in Karnataka
- Weekly forecasts for 5-day cumulative rainfall

Design choice

- Deterministic forecasts: easier to communicate but doesn't indicate uncertainty levels
- Probabilistic forecasts: more complex, but useful information on uncertainty levels

A/B testing

Welcome to the CKT weather forecast service! For the next 5 days, in your village...

Version A

Average rainfall of 1.2 inches is expected...

Version B

There is a 60% chance of 1 inch or more of rain. On average, rainfall of 1.2 inches is expected...

Note: This A/B test was run in collaboration with V.Surendra

India: Testing weather forecast messages (preliminary results)

Trust forecasts



Shared forecasts with others



Relied on decision making

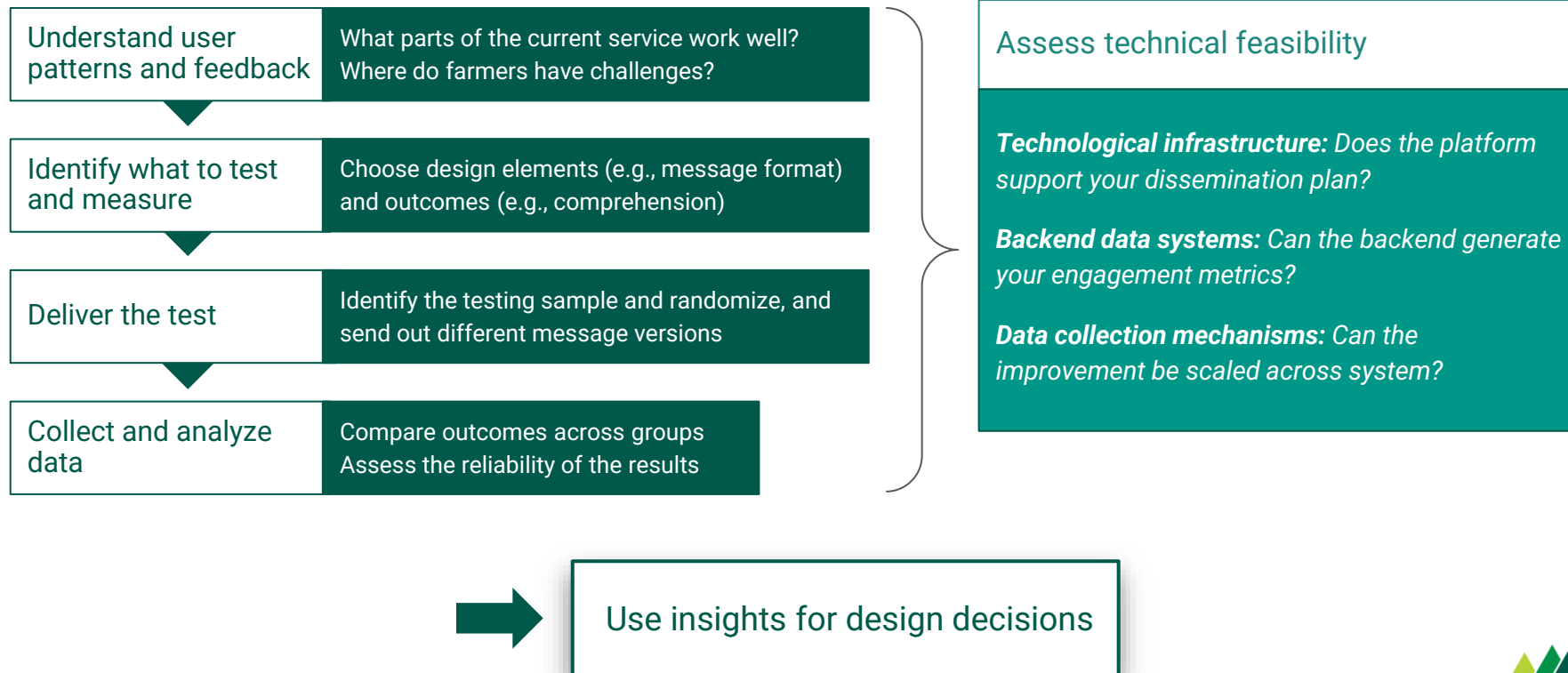


DETERMINISTIC FORECASTS

PROBABILISTIC FORECASTS

Note: This A/B test was run in collaboration with [V.Surendra](#)

How do we incorporate A/B testing?



Key messages

01

Design choices matter — Small tweaks can have big impacts

Even minor changes in wording, timing, or delivery can shift engagement and behavior significantly.

03

A/B testing can be low-cost, high-return

Large samples and use of administrative data allow cost-effective learning

02

Our priors can be wrong — Test, don't guess

What “should” work doesn't always; Experiment helps identify what actually works

04

Platform, backend and monitoring systems need a lot of attention!

Sustainability of data-driven learning depends on the capabilities of backend and monitoring systems