

# SMART INDIA HACKATHON 2025



- **Problem Statement ID** – 25270
- **Problem Statement Title** –  
AI-Enabled Value Chain Platform for  
Oilseed Self-Reliance
- **Theme** – Agriculture, FoodTech and Rural  
Development
- **PS Category** – Software
- **Team ID** – 86813
- **Team Name** – Team Lumora



Team Lumora



## PROBLEM:

### Fragmented Supply Chain

#### Fragmented and Inefficient Value Chain

India's oilseed sector faces a fragmented supply chain with siloed stakeholders and poor data integration.

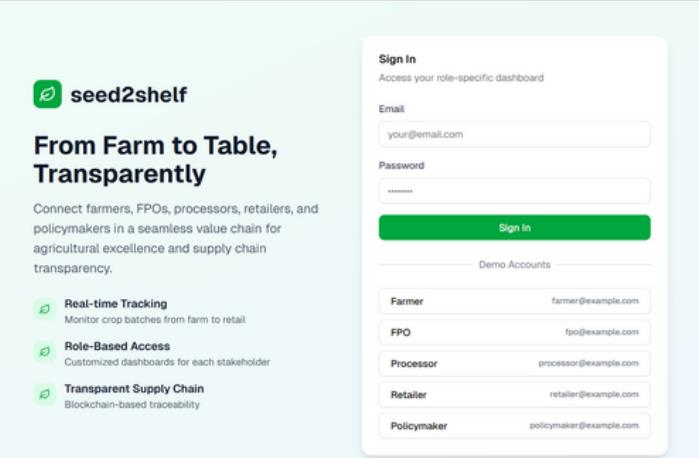
#### LACK OF DECISION SUPPORT

Agricultural decisions rely on outdated data, leaving policymakers reactive and farmers without real-time insights.

#### Absence of End-to-End Traceability and Consumer Trust

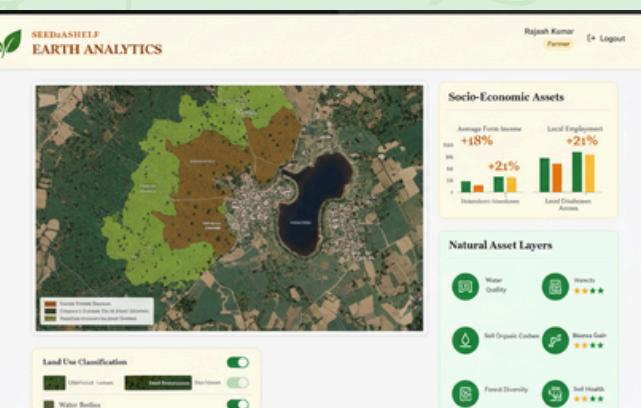
No system tracks oilseeds from farm to fork, limiting consumer verification and complicating exporter compliance.

# SOLUTION?



#### KisanSetu Platform

*Seed2Shelf: The digital platform for India's oilseed economy, connecting stakeholders for reduced loss and higher profit.*



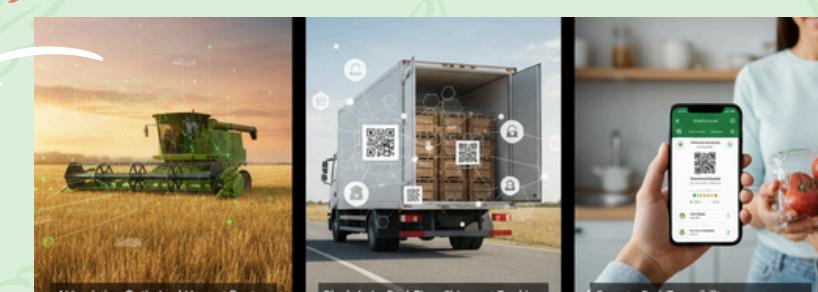
#### Smart Logistics & Traceability

- AI-powered logistics minimize harvest losses, and blockchain ensures complete farm-to-fork tracking for consumers.



#### AI Forecasting & Crop Advisory

AI predicts market demand and gives farmers personalized sowing advice, while blockchain records production plans for the entire value chain



#### Smart Finance & Live Dashboards

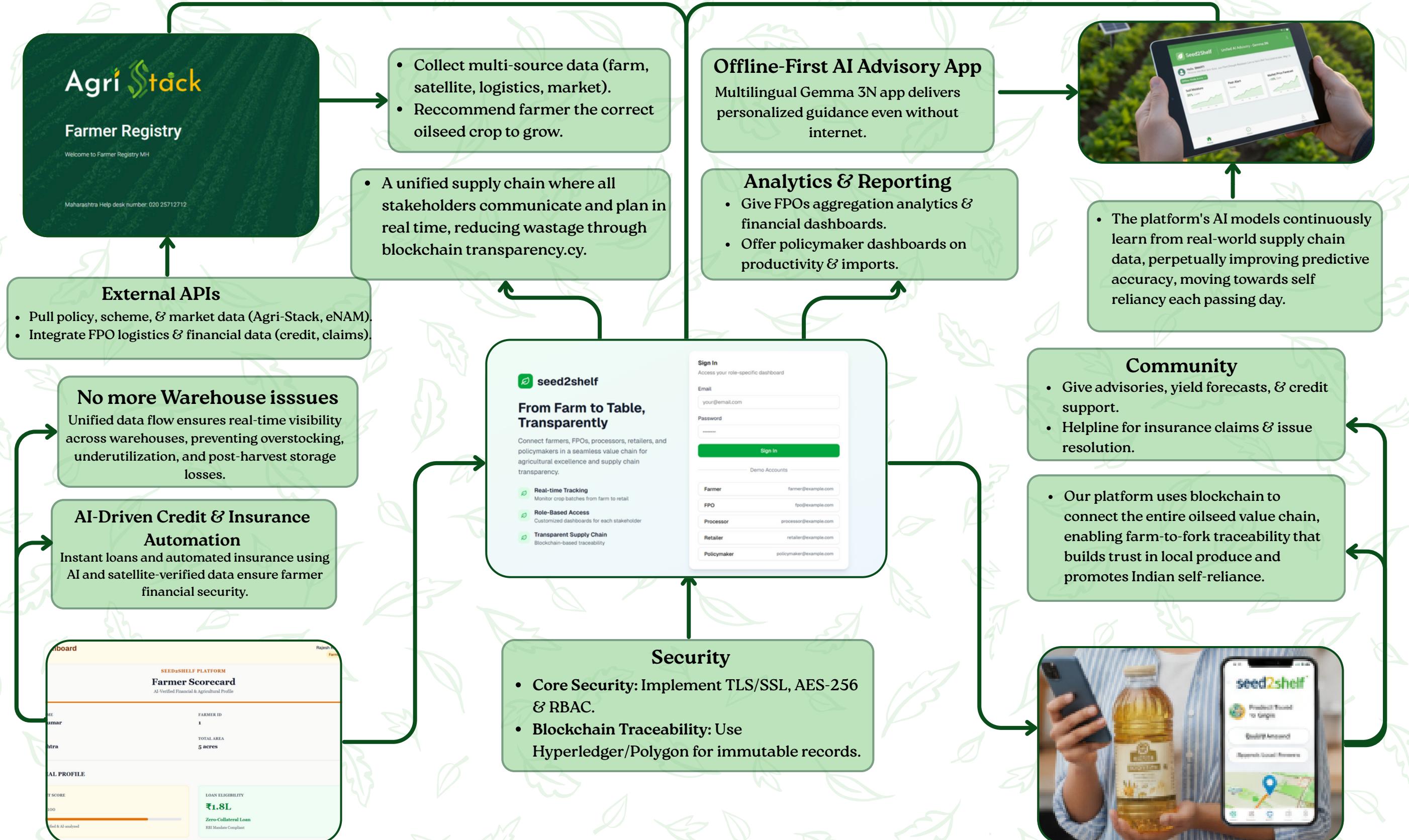
AI models classify land use, detect water bodies, and map forest resources. Builds accurate socio-economic and natural asset layers.

# DIFFERENT? ONE OF A KIND

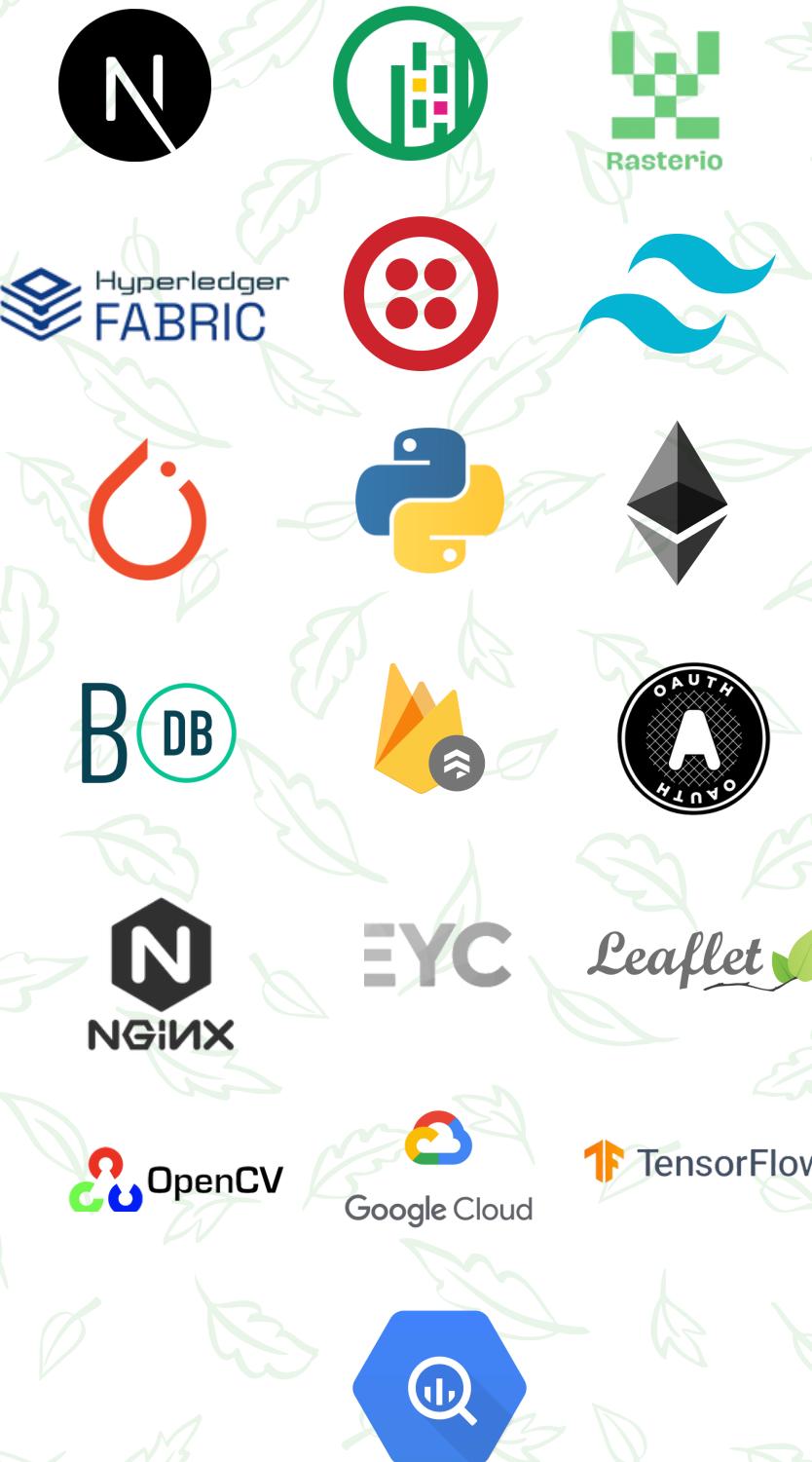




# Implementation



## Technologies Used



# OVERCOMING HURDLES

## STAKEHOLDERS

## CHALLENGES

## SOLUTION

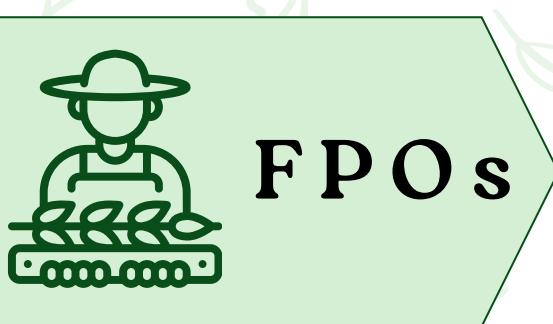


Farmers

Farmers' lack of access to fair credit without collateral drives them to switch from oilseeds to more profitable crops.



Zero-collateral loans with satellite-backed scoring and instant insurance.



F P O s

Farmers distrust digital tools, and poor connectivity hinders data flow and transactions.



FPOs act as co-entrepreneurs, offering local training and trusted on-ground support



Processors

Lack of supply chain transparency makes quality loss and theft untraceable.



Blockchain-based digital passports track each batch's logistic events from farm to mill.



Retailers

Volatile prices and poor supply visibility make inventory planning risky and erode consumer trust



AI-driven forecasts enable real-time pricing and just-in-time inventory management

# FEASIBILITY ANALYSIS

## Technological



seed2shelf utilizes free, extensive remote sensing data from Indian platforms like Bhoonidhi and Bhuvan to power highly accurate AI models for yield prediction and remote monitoring.

## Trust

seed2shelf builds on the enterprise-grade Hyperledger Fabric to create tamper-proof digital certificates for every batch, guaranteeing provenance and eliminating quality disputes.



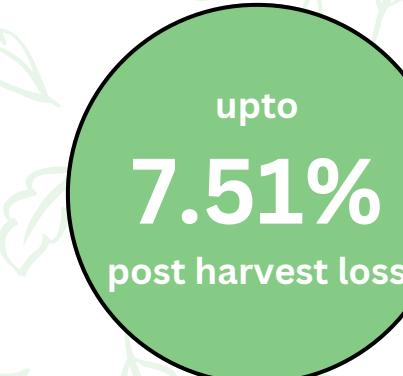
## Data Integrity



seed2shelf is seamlessly integrated with Agri-Stack's verified Farmer IDs and Land Records, providing the high-quality, trusted data foundation required for financial services.



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worth of edible oil imports depleting foreign reserves

unlocked via AI-verified farmer scorecard

due to inefficiencies in storage and logistics

## Benefits of our Solution

### Social

#### Decentralized Decision Autonomy

AI provides field-specific advisories for sowing, pests, and nutrients, replacing generalized advice to empower farmer decisions.

#### Transparent Access to Land Rights

Agri-Stack verifies farmer IDs and land records, creating a presence-less layer for fair authentication and secure access to credit and insurance services.

### Economic

#### Financial De-risking

The platform's Satellite-Verified Scorecard replaces collateral, unlocking unsecured loans up to ₹2 lakh. This reduces risk, boosting farmer profitability.

#### Recovery of Lost Supply Chain Value

DLT quality assurance and real-time tracking recover up to 7.51% of wasted produce by aggressively targeting post-harvest losses.

# seed2shelf

## How we make a change!



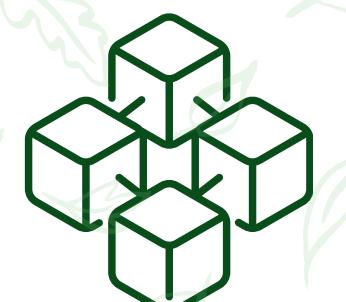
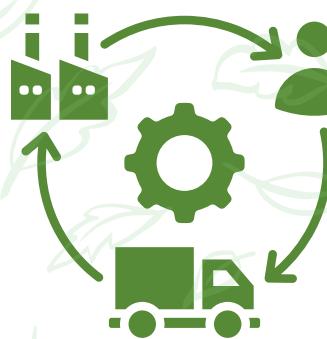
### Personalized AI Coach for Every Acre



**Predictive and data-driven** farming model for farmers, which would offer real-time, personalised advice. An AI-Powered assistant using satellite imagery (NDVI) to forecast **farmer's yield** in real time and even advise farmers on the **best time to sell** their produce.

### Seamless Value Chain Unification

Our tools aims to connect a fragmented chain into **one seamless and visible digital flow**. A single platform linking all stakeholders together seamlessly and providing batch details in **real time**.



### Tamper-Proof Traceability & Trust

Our **blockchain model** allows stakeholders to see the **exact same** data, eliminating disputes. Each crop batch is given a **unique digital certificate** minted by farmer at sowing which is **updated at each step**. The whole history from **seed2shelf** can be accessed by end consumer.

### Satellite-Backed Financial Trust

Our Geo-AI models accurately forecast expected yield, creating a **Satellite-Verified Farmer Scorecard** that replaces physical collateral. This instantly unlocks **collateral-free credit** (up to ₹2 lakh) and links to **Smart Contract Index Insurance**, guaranteeing instant payouts for climate loss verified by the same satellite feeds.





# Research & References :

- 1 [NITI Aayog - Blockchain in Agriculture Report](#)
- 2 [FAO - Digital Agriculture Transformation](#)
- 3 [Microsoft Research - AI for Earth: Agriculture](#)
- 4 [ISRO - Satellite Imaging for Agriculture Analytics](#)
- 5 [PwC - AI and FinTech in Agriculture](#)
- 6 [Science for a Self-Reliant India - Improving Oilseed Production](#)