Digital Green

Farmer centric interventions: *Role of data-exchange as catalyst for food system change*

Creating a world where farmers use *technology and data* to build prosperous communities

BILL & MELINDA GATES foundation

UKaid from the British people

Walmart org

Digital Green

MINISTRY OF AGRICULTURE

KALRO Kenya Agricultural & Livestock Research Organization

JEEViKA Bihar Rural Livelihoods Promotion Society

Digital Green

Impact since 2008

Reach

3.2M

small-scale producers (77%) women

Realize a

17%

increase in farmer income*

Up to

47%

increase in yield

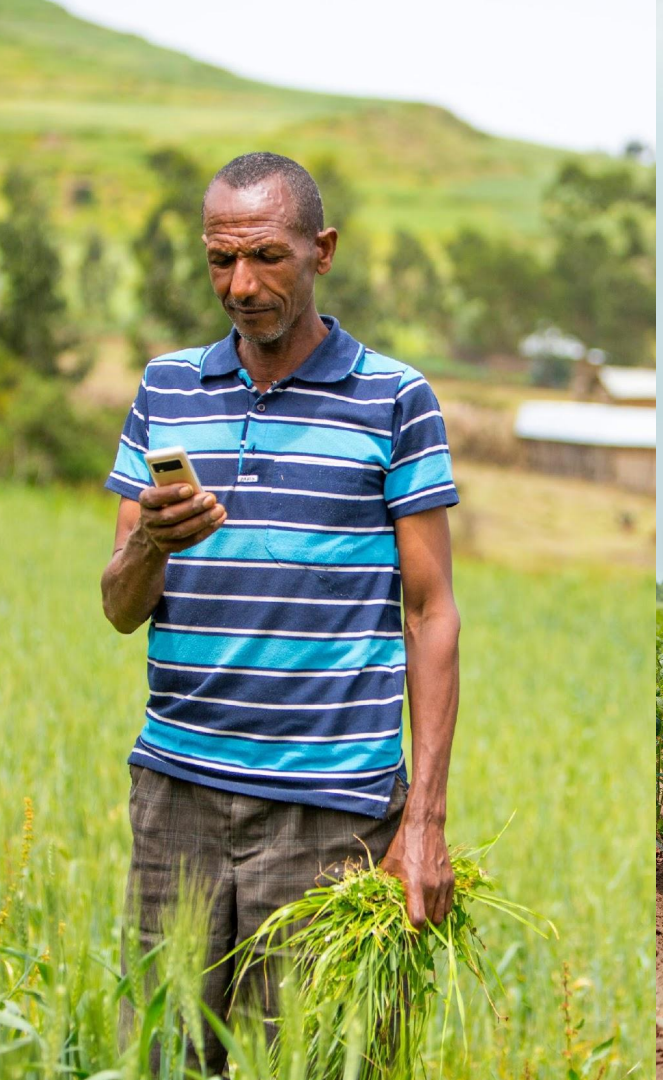
8x

more effective than traditional extension

* As per robust RCT by JPAL

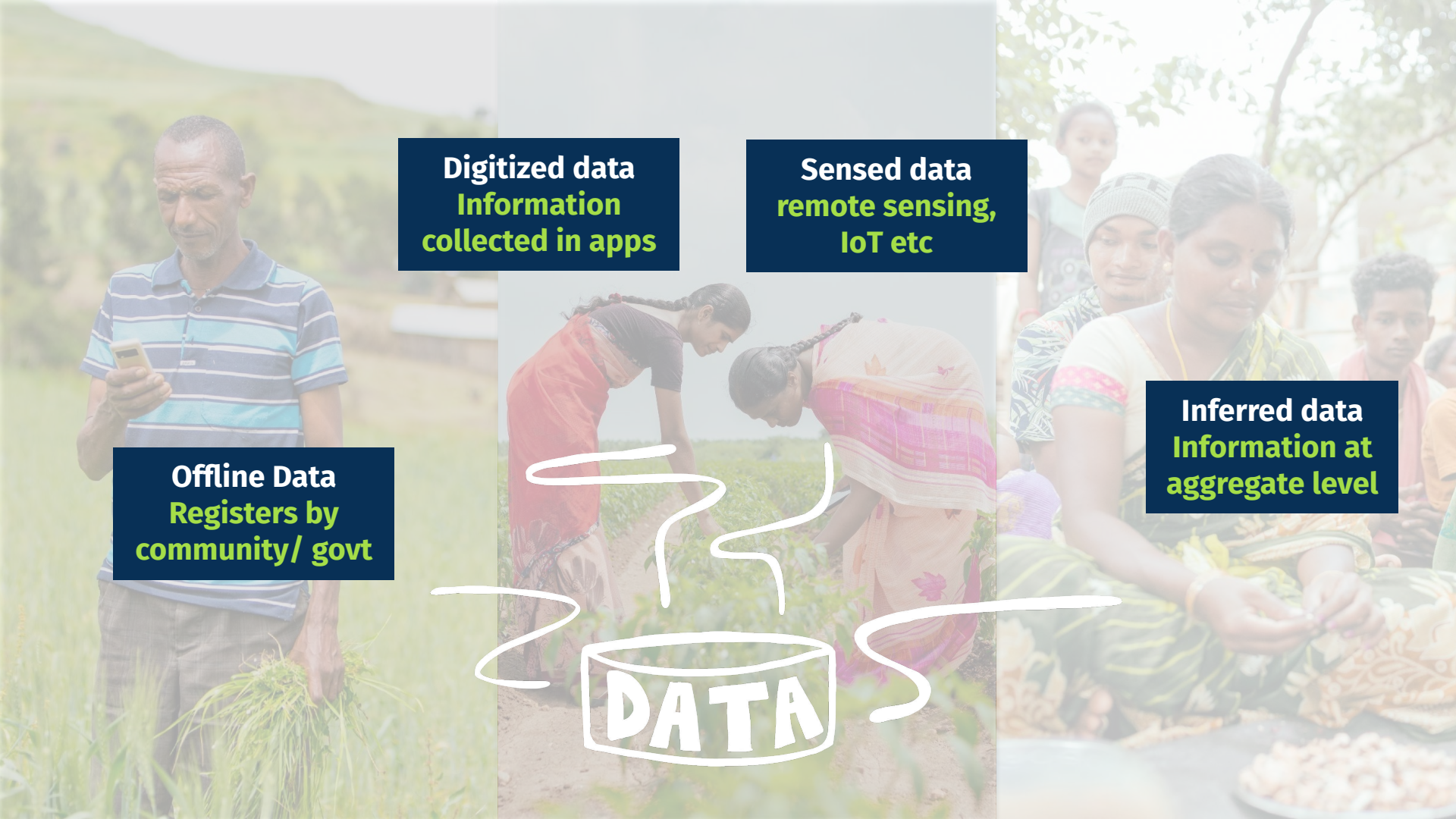
The reflection

What exactly does data-driven agriculture for the farmers, specially small holder farmers?



DATA

Farmers' Data
Personal information
Farm activity
Behavioral information
Farming data
Transaction data
Farm data
Ecological data
DATA


Digitized data
Information collected in apps
Sensed data
remote sensing, IoT etc
Offline Data
Registers by community/ govt
Inferred data
Information at aggregate level
DATA

Farmers' perspective

- Farming is a **business activity** that creates wealth
- Like any business, it is subject to **vagaries** of **market**, **policies** and now more to **climate**
- Farmers have **urgent needs**
  - *"I have got produce and need to sell"*
- What farmers get are **top down services**

Digital Green

Last mile service delivery requires:

1. Awareness
2. Accessibility
3. Affordance

Digital Green

How can data exchange enable farmers to engage on those three requirements while creating win win for other ecosystem actors?

Enablers for small scale producers

- Data about farmers to create awareness
- Digitization to enable ease of timely access
- Collectivization to unlock affordability

Incentives for Ag Service Providers

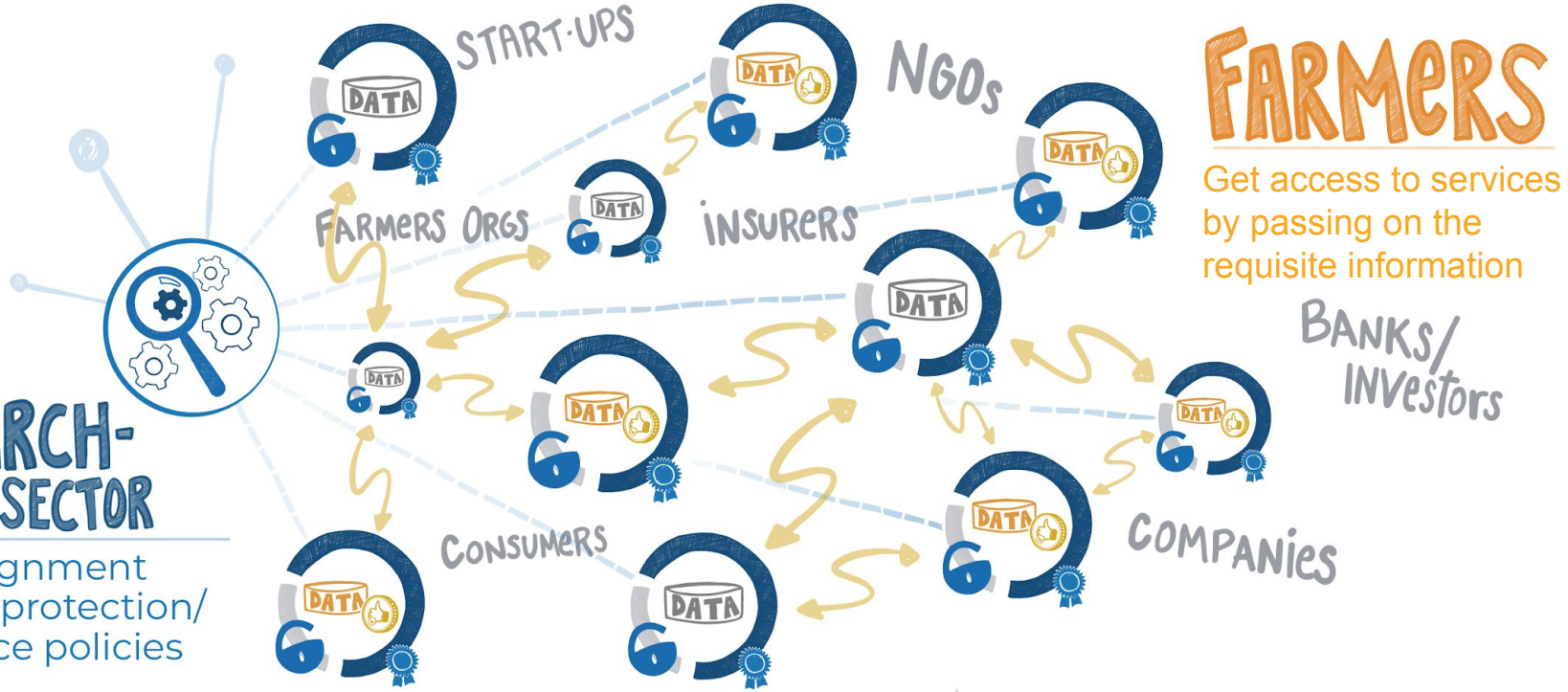
- Decreased cost/ effort of onboarding farmers
- Offer bundle of services to enhance trust

Role of Government/Research

- Enabling active ag ecosystem to help farmers
- Ensuring data policy related compliance

Digital Green

Ag Data Exchange: *Roles of Ecosystem Actors*



FARMERS

Get access to services by passing on the requisite information

RESEARCH-PUBLIC SECTOR

Ensure alignment with data protection/ governance policies

PARTICIPANTS

Securely exchange data directly on their own terms

Digital Green

What are the key technology elements needed to build the information exchange platform ?

Digital Green

What we know is....

Farmers' side

- Only farmer knows **what is being done** on the farm
- **Collecting data** from the farmers **difficult** at multiple levels
- Farmers **trust** the local **community people** they know well

Service providers' side

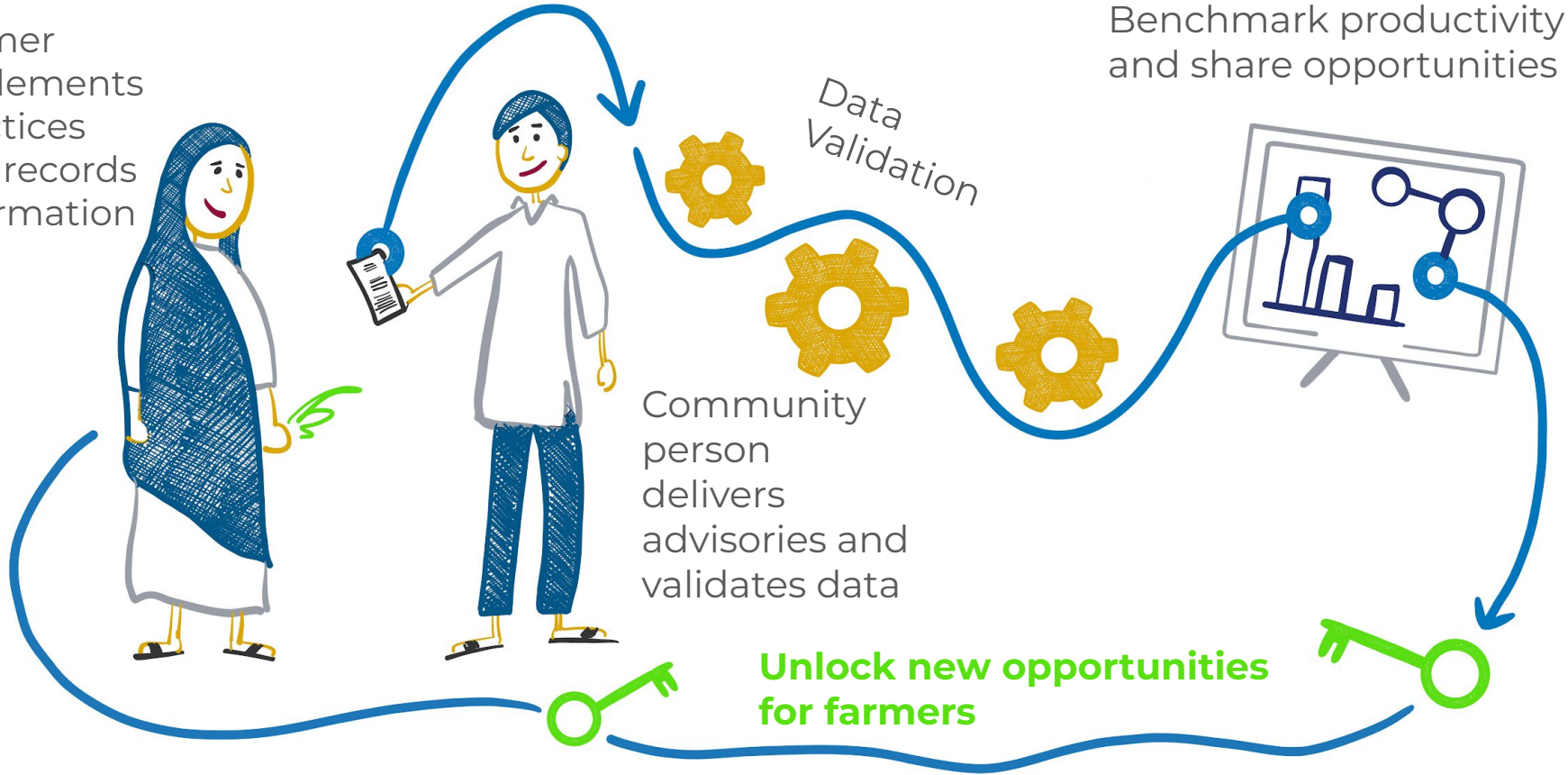
- Every org wants data about farmers but in a **certain format**
- Every org wants **validated quality data** for it to be of any use
- Orgs collect data for their business goals – need a **trusted framework**

Digital Green

Local community: *Key to unlock farmer data*

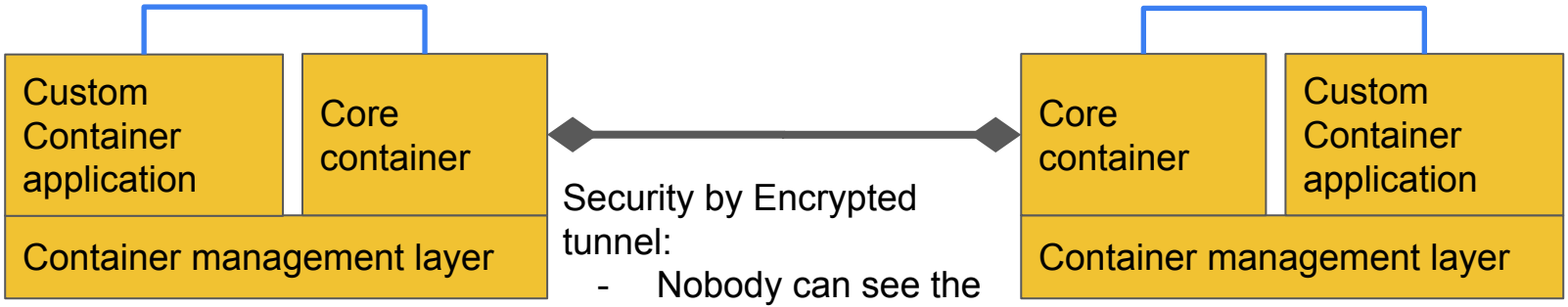
Digital Green

Phygital model: *Product + Service Pack*



Digital Green

FarmStack: *Connectors to Create Data Pipelines*

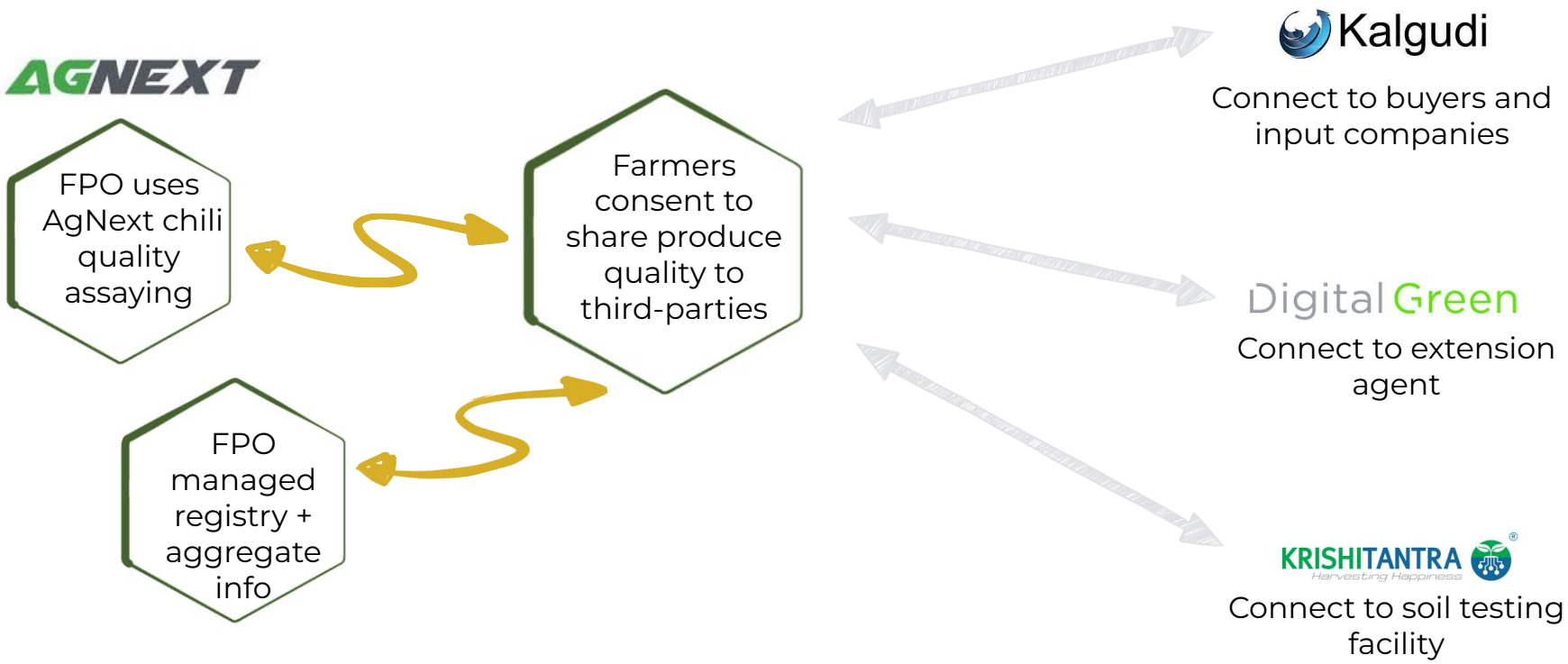


Security by Encrypted tunnel:

- Nobody can see the data being transferred
- Connectors are authenticated, so it is being shared to a known certified entity (connector)

Digital Green

Data sharing network: *example from India with WEF*



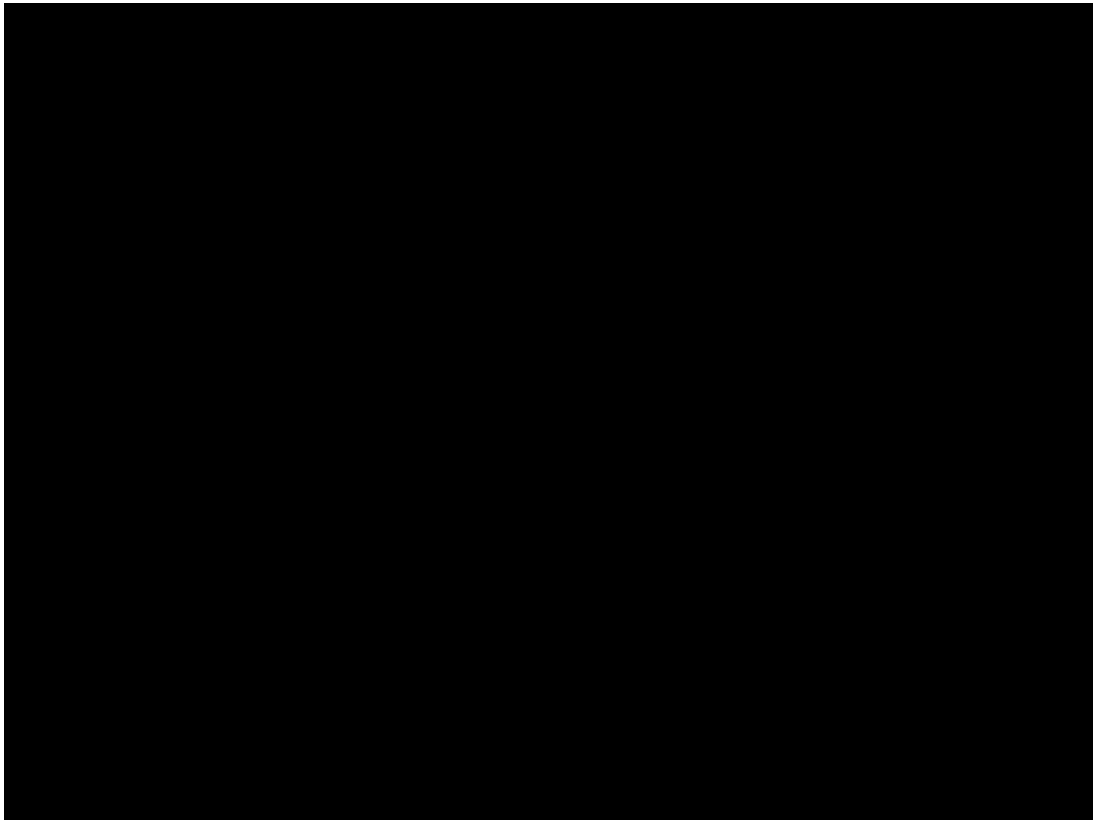
Digital Green

Consent collection: UI to raise awareness about data

AGNEXT

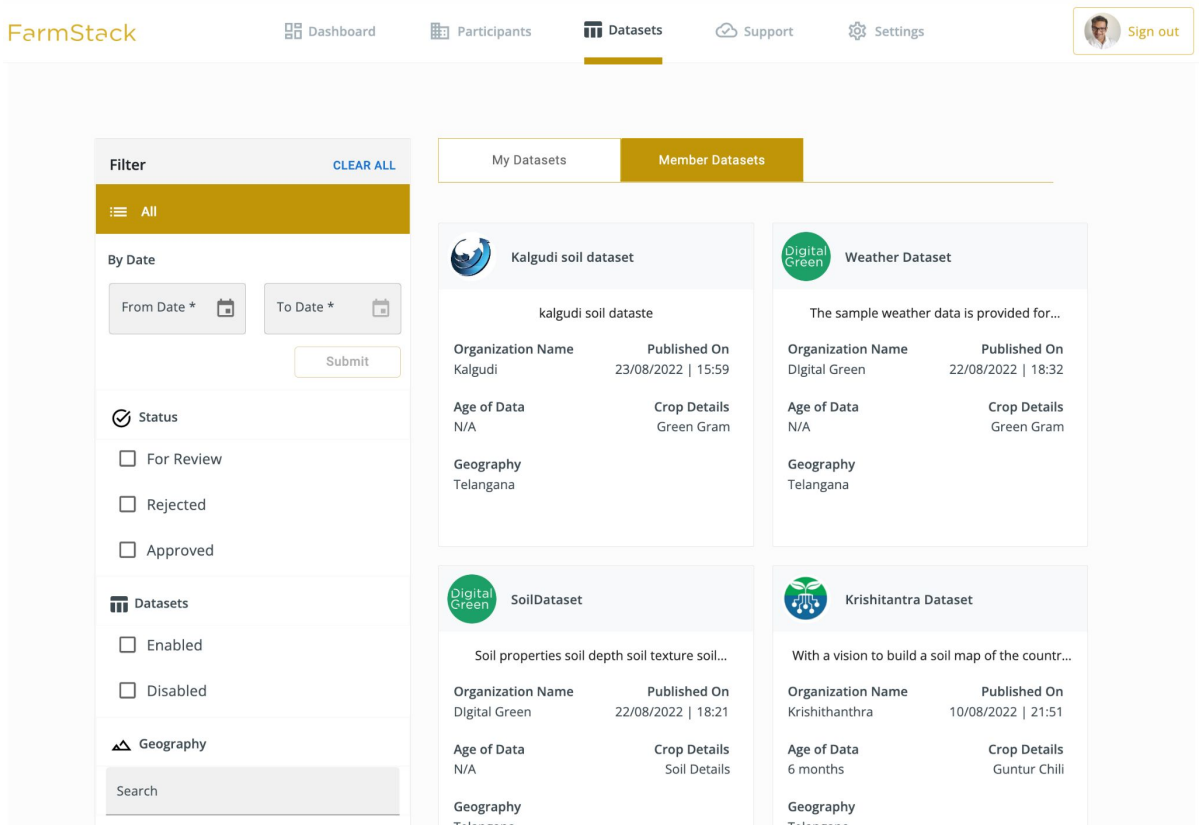
Digital Green

Customised advisory: *controlled by Farmer organisation*



Digital Green

Data catalog example: *Metadata and connector data published*

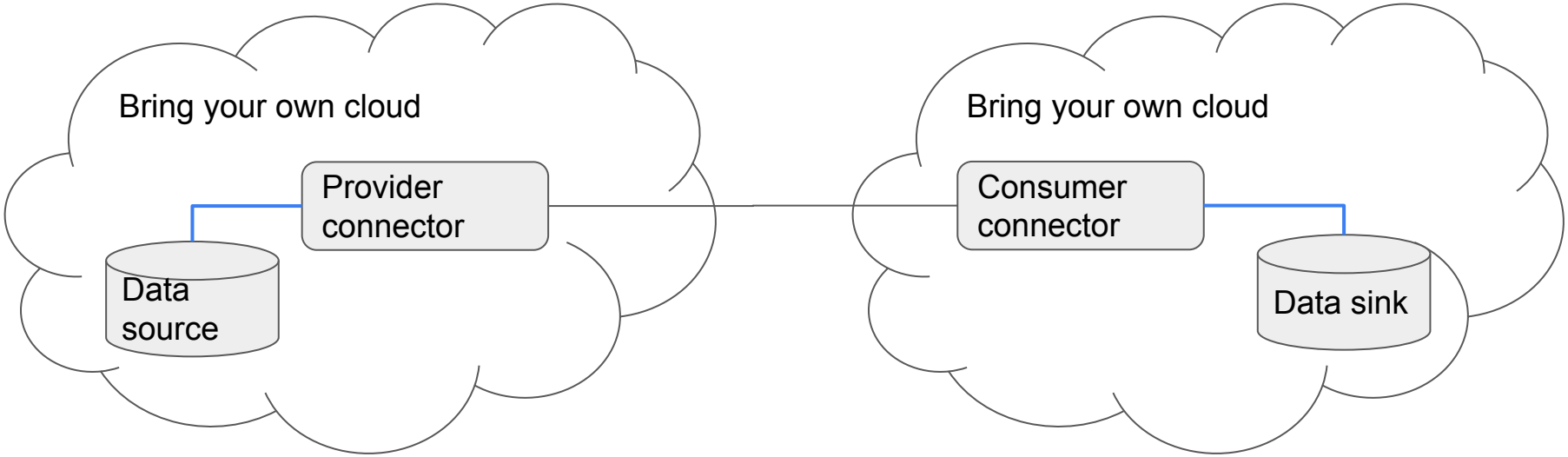


Digital Green

Data collection till now: *In collaboration with farmer organizations*

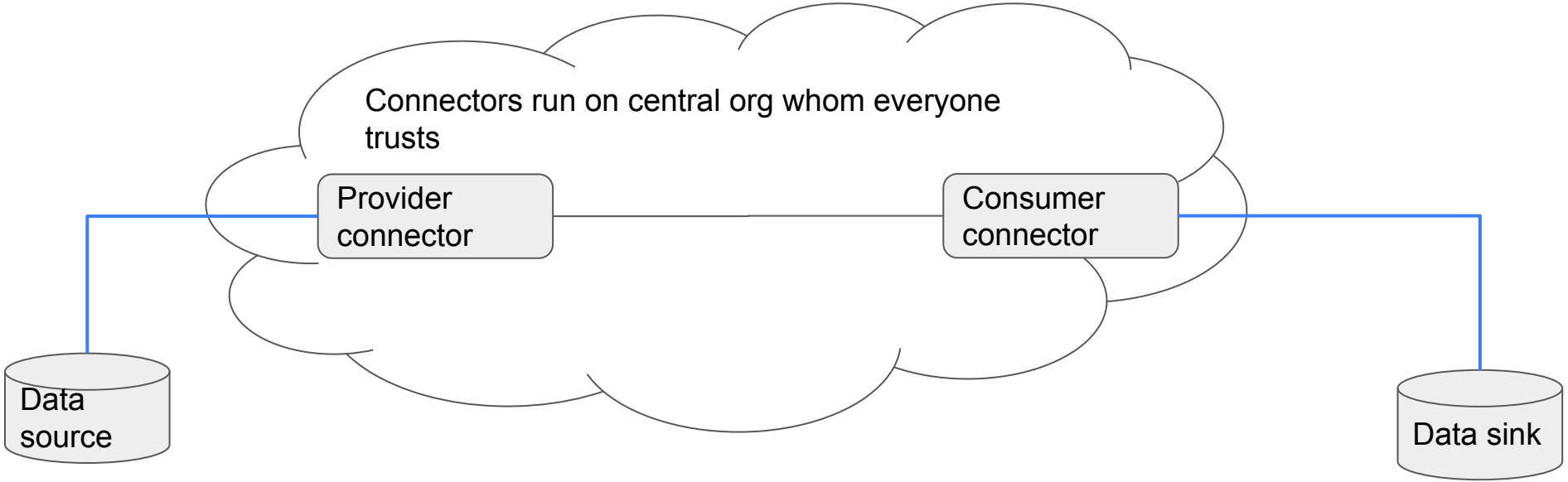
Digital Green

Data Integration patterns: *Decentralized P2P exchange*



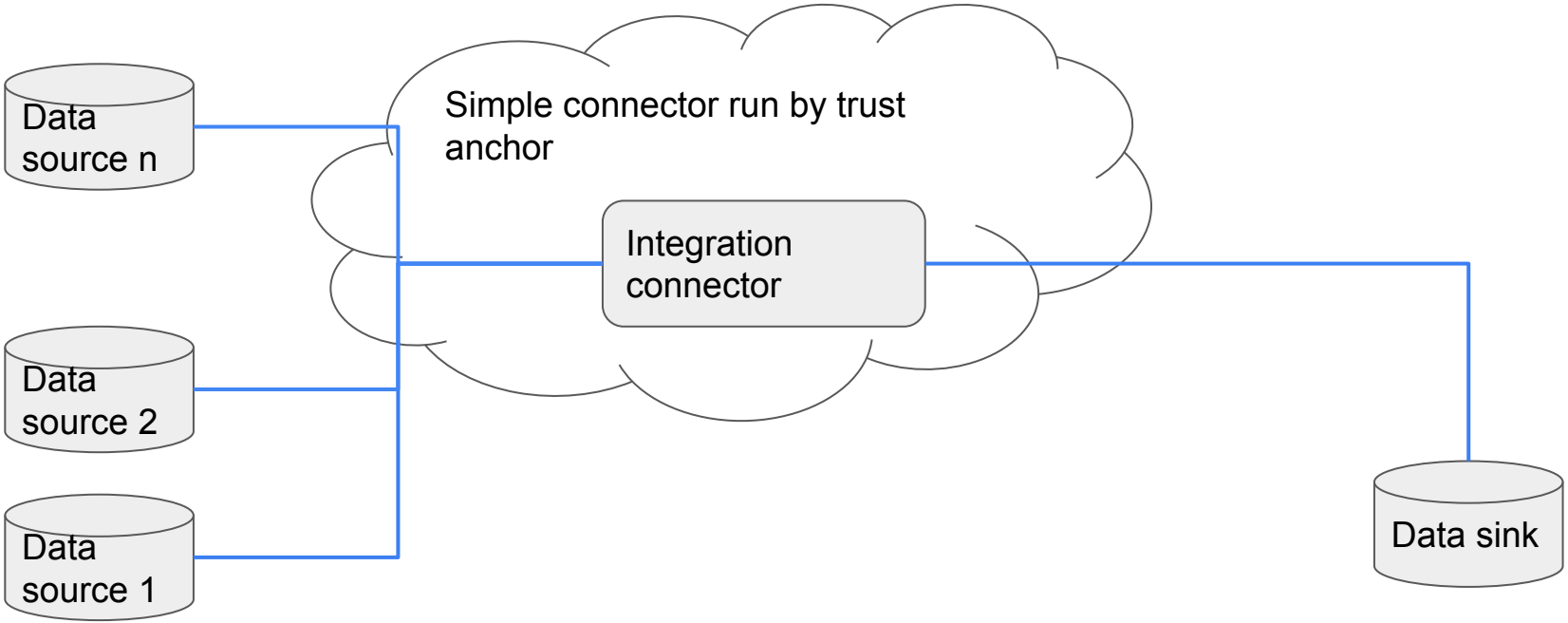
Digital Green

Data Integration patterns: *Centralized exchange with trust anchor*



Digital Green

Data Integration patterns: *Centralized simple data integration*



Digital Green

Summary

- Create a **phygital** model to reach and involve farmers
- A customizable **product + service pack** that can scale
- **Intuitive UI/UX** as crucial as **backend** infrastructure

Digital Green
THANK YOU
@digitalgreenorg