

Integrated solution for Food Traceability

*to enhance output & commercial value
of Vietnamese agri-products*

NATION
VIETNAM
INSTITUTION
NATIONAL ECONOMICS UNIVERSITY

MEMBERS
NGUYEN CAM TU
PHUNG THANH TU
NGUYEN LE LAN CHI
DANG HOANG TUNG LINH

MEET OUR TEAM

1st Runner-up RMIT Fintech Blockchain Competition 2022



DANG HOANG TUNG LINH

Finalist of Tsinghua's
Metaverse Hackathon



NGUYEN LE LAN CHI

Best Academic for
Blockchain in Finance



PHUNG THANH TU

Champion of National
Economics University's
Digital Economics
Olympiad



NGUYEN CAM TU

2nd Runner-up of ASEAN
Data Science Explorers

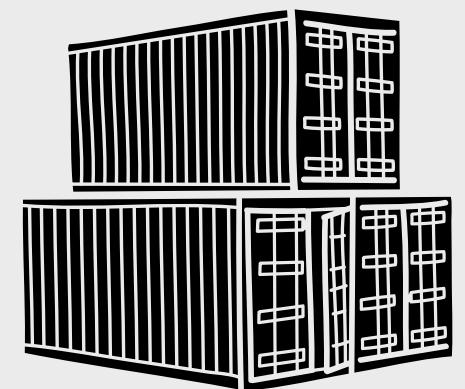
ADVISOR: s6k Labs

Pioneer of consulting and
providing blockchain solutions

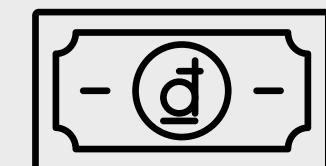


Jan 2021 | Covid-19

6000+
containers

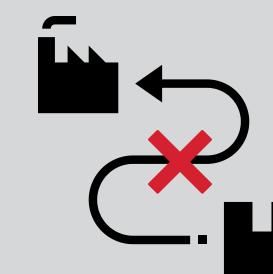


129+ million USD



LOW COMMERCIAL VALUE

LACK OF TRACEABILITY & QUALITY TRACKING



Disrupted data flow throughout the supplychain

Lack of input data

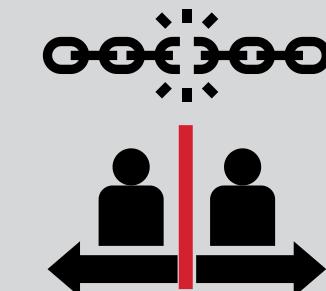
NON-TRANSPARENT TRANSACTIONS



60% - 70%
Agri and Aqua products are exported to China through unofficial quota

No requirement for contracts and invoices

FRAGMENTED MARKET



80% of farmers are **small-scale** producers

Average fruit farm in Vietnam ~ 0,4ha, more than **400 times smaller** than US ones

EVFTA: ↓ 86% - 99% tariffs to EU

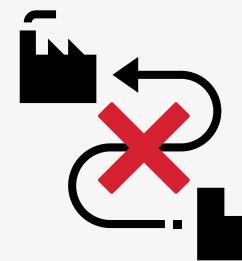


**Online auction
platform**

**"Farm to fork"
traceability system**

**Hyperledger
blockchain model**

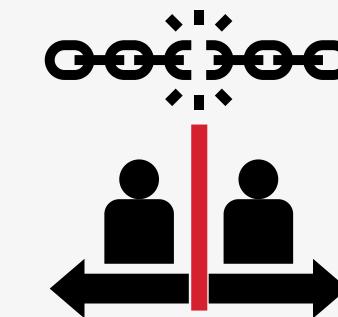
LACK OF TRACEABILITY & QUALITY TRACKING



NON-TRANSPARENT TRANSACTIONS



FRAGMENTED MARKET



Blockchain-based system

empowering transparent and consistent flow of data exchange and transaction

The smart contracts

(based on blockchain) for fair trade and transparent contract

Online auction platform

for connecting stakeholders

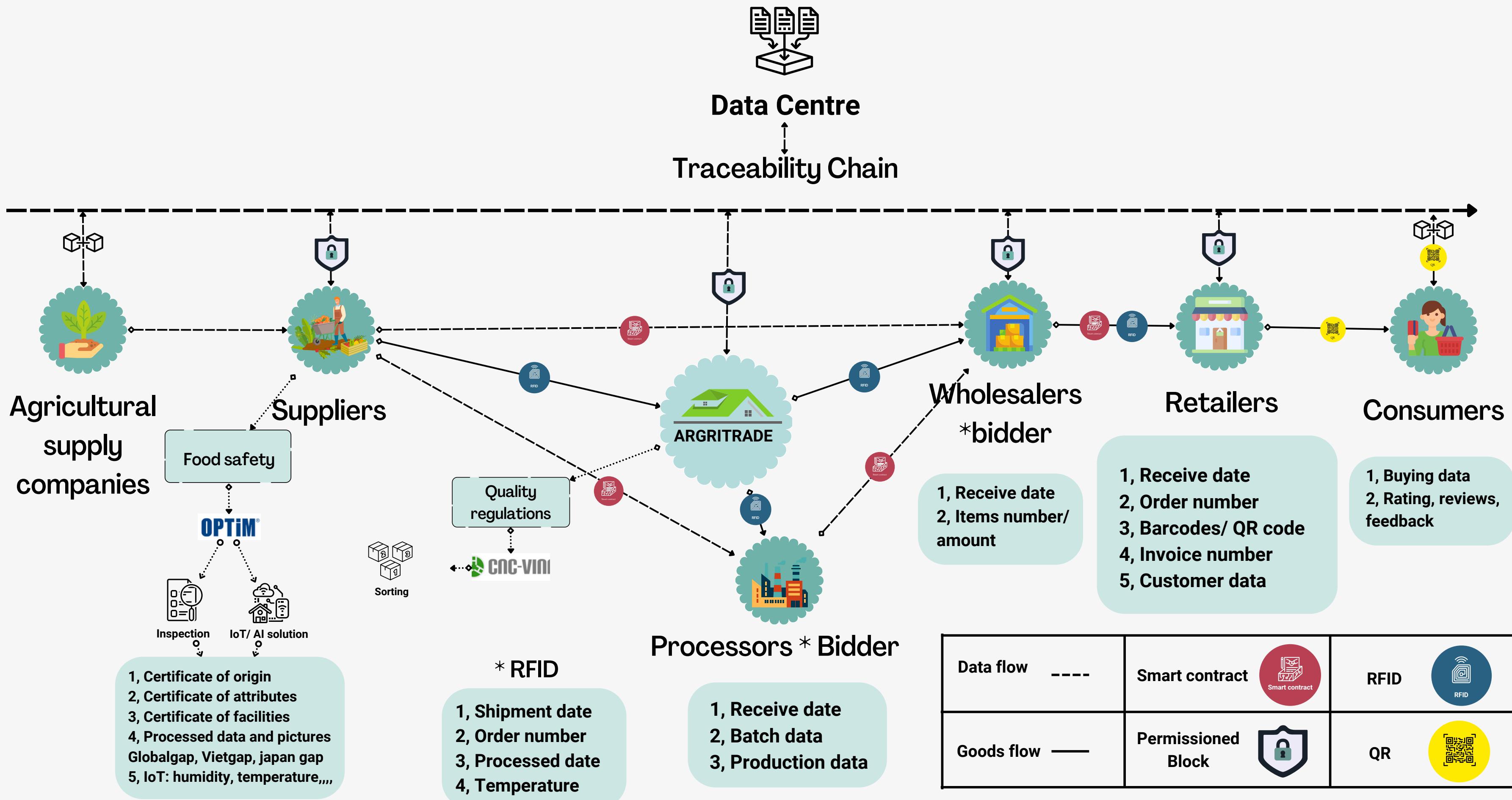
Collaboration for supporting technologies

RFID

for automated tracking thorough supply-chain

IoT sensors

Farming management platform



1, Agricultural supply companies

2, Farms: Products get harvested

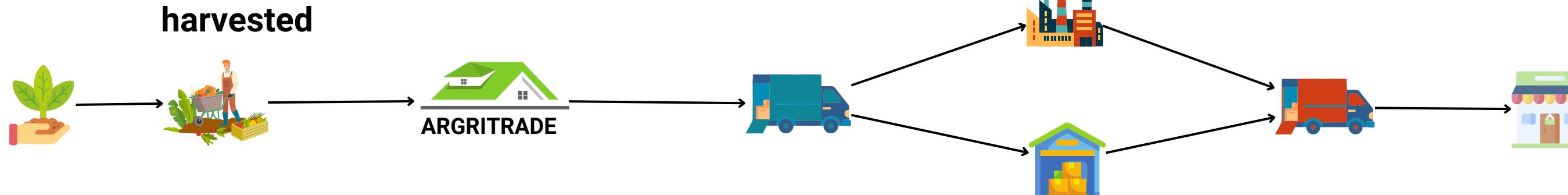
3, Storage & Auction

4, Delivery

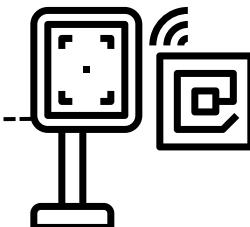
5, Processors Wholesaler * Bidder

6, Delivery

7, Retailers

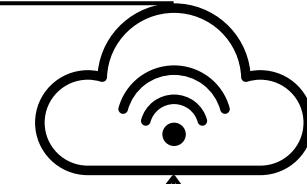
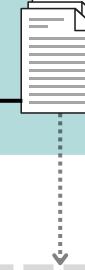


RFID & QR



RFID reader

BLOCKCHAIN NETWORK



Internet

- Producer
- Product source
- Certification
- Product
- Expiration Date

- Order number
- Out time
- Vehicle number
- Product
- temperature

- Reception time
- Reception date
- Temperature

- Order number
- Out time
- Vehicle number
- Product
- temperature

- Reception time
- Reception date
- Temperature

SMART CONTRACT



8, Consumers

PHASE 1: BLOCKCHAIN

Q3 - 2022

- Pitching for government institutions for funding and consulting
- Cooperate with government to approach co-op farms

Q1 - 2023

- R&D for market demand
- Survey co-op farms with VietGAP, GlobalGAP

Q3 - 2023

- Cooperate with chosen co-op farms
- Register for Production Unit Code

Q4 - 2023

- Platform development with **Bigchain Database**

Q1 - 2024

- Input data into the Blockchain system
(origin, quality, farming condition)

PHASE 2: AUCTION PLATFORM

Q4 - 2027

- Pilot **Hyperledger** to upgrade blockchain system

Q2 - 2027

- Operate auction system

Q1 - 2027

- Launch Agritrade Wed & App
- Marketing

Q4 - 2026

- Pilot project (auction)
- Evaluate effectiveness
- Pitch to collab with sorting & logistic companies

Q2 - 2026

- Build Prototype for auction platform
- Audit contract
- Deploy QR code

PHASE 3: IOT & RFID

Q1 - 2029

- Deploy RFID

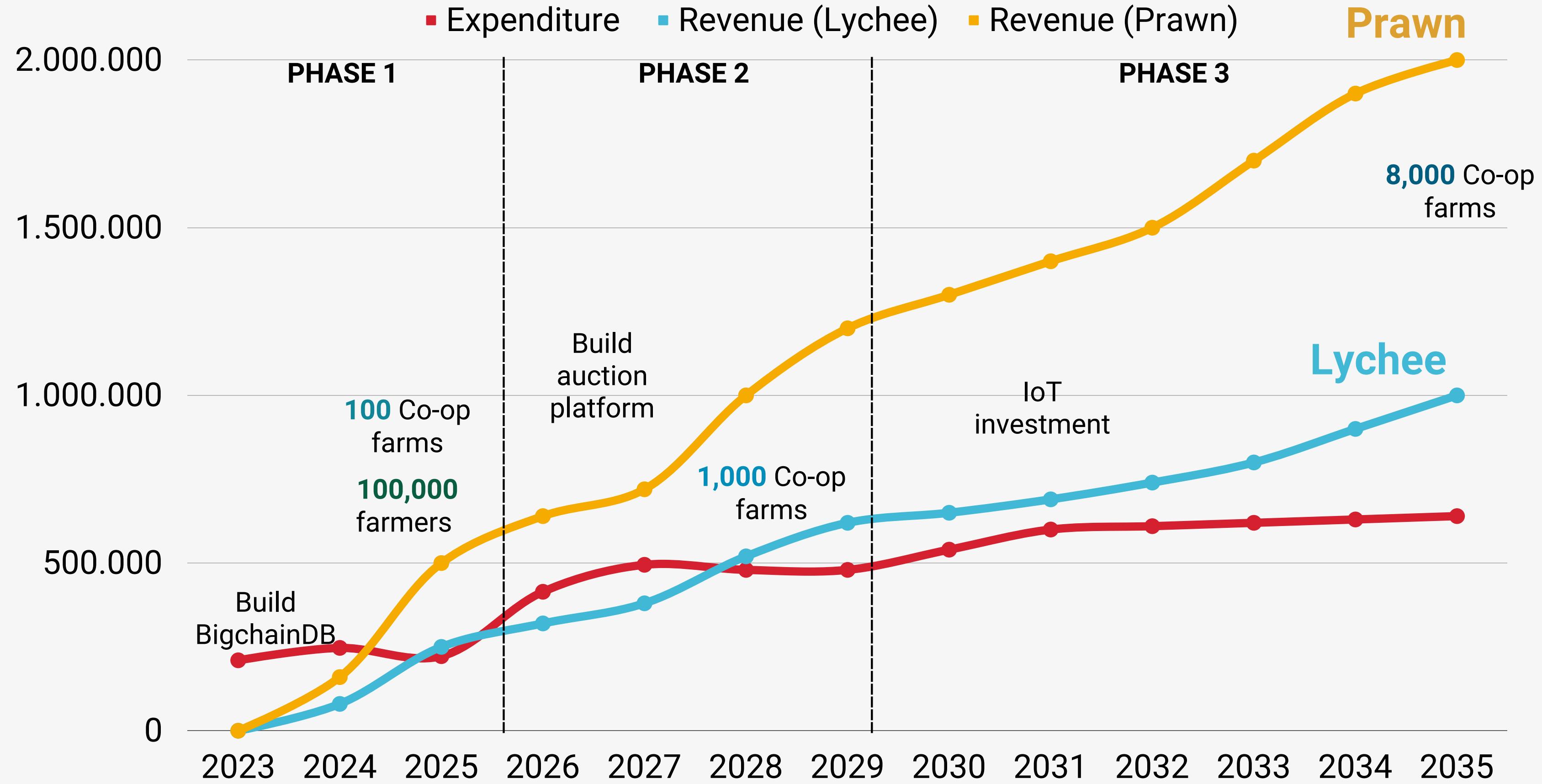
Q1 - 2030

- Invest IoT for selected Co-op farms in the system

Q4 - 2031

- Launch **Hyperledger** blockchain system

REVENUE STREAM	PHASE 1	PHASE 2	PHASE 3
Commission on sale (direct exporting)	✓	✓	✓
Subscription (for database: premium & new members)	✓	✓	✓
Commision on input material	✓	✓	✓
Commission on sale (on bidding platform)		✓	✓
Branding promotion for suppliers		✓	✓
Advertisement		✓	✓
Profit from IoT investment			✓

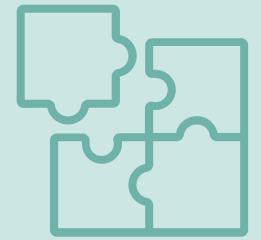


QR code

	VNPT	Viettel	VietQuality	SmartLife
Price advantage	v	v		
Other agricultural services			VietGap/ GlobalGap certificate	Processing supervision with HACCP standard
Other ancillary services			Legal services (business registration, brand protection)	Sales management for distributors
Competitive advantage	Largest market share		Provide a wide range of services	Sync database with GS1E-commerce platform for agri-products

	Agridental	Wowtrace	Nextfarm	AGRITRADE
Meet the GS1	v		v	v
E- Auction platform				v
E-Commerce platform	v			
Data input by IoT sensors		v	v	v
RFID		v	v	v
AI & Big Data		v	v	
Competitive Ad			Technical partner: Viettel	*

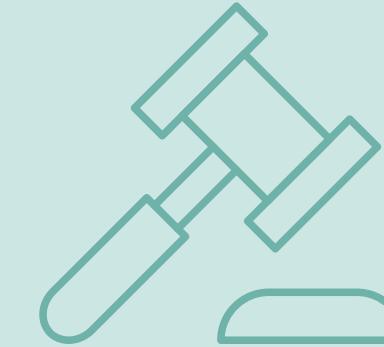
Blockchain-integrated system



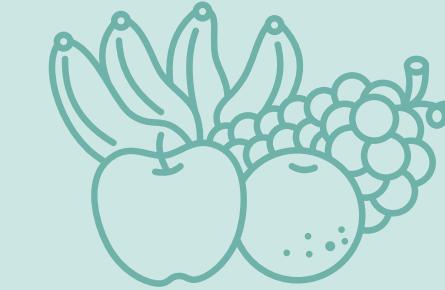
Integrated solution
with blockchain, IoT,
RFID and QR-Code



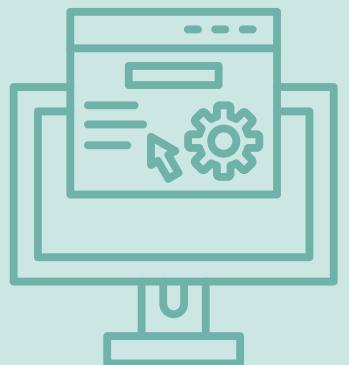
Connected to a **wide
range** of suppliers



A **pioneer** with E-
auction platform for
agri-product



Product **variation**



Offering an **all-in-one**
operation platform



Database gives
insights about the
market's demand



Validation of data
inputs with IoT



Utilization of RFID for
higher **data accuracy**
and traceability

BEHAVIORS

Low tech adoption



PRICE ADOPTION

High cost to set-up



COMPETITION

Competitors with similar features,



REGULATORY

Lack of official framework



HUMAN RESOURCES

Shortage of skilled labor



PHASE 1

PHASE 2

PHASE 3



SOCIAL IMPACT

BY 2030: TARGET ~ 1,000,000 farmers

AGRITRADE

2 ZERO HUNGER

Agriculture productivity will increase **by 100%**

Access to nutrient foods for **70% of the Vietnamese consumer**

8 DECENT WORK AND ECONOMIC GROWTH

Sustainable value chain for Agriculture

Ensure Financial Inclusion for **10% of Vietnamese farmers**

Decent work and stable income for **10% of farmers**

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Reduce more than **500,000 tons** of food loss across Vietnam annually

Proper food governance among the agriculture sector will be promoted

Consulted by:



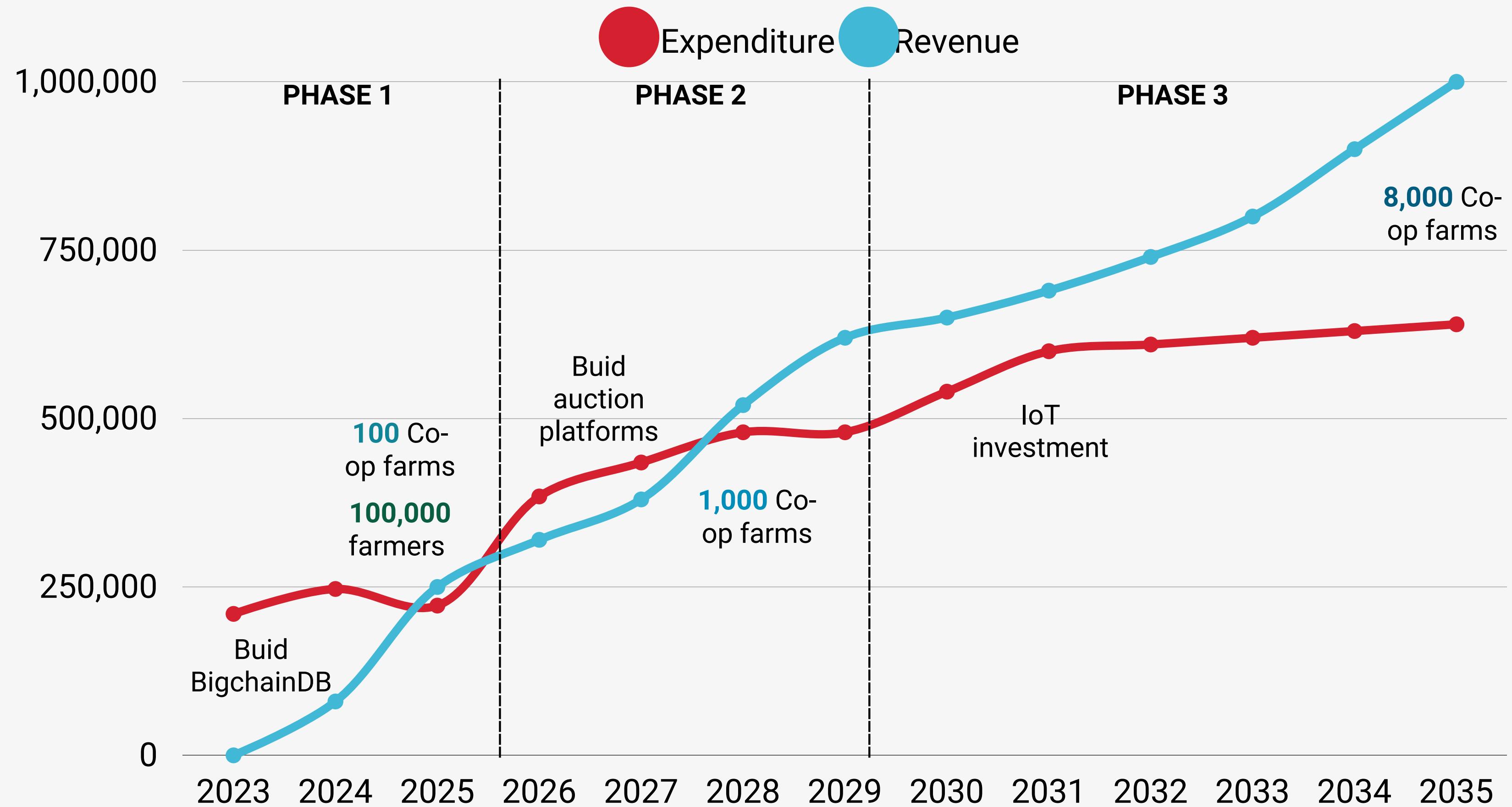
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THANKS
Quality * Integrity * Traceability

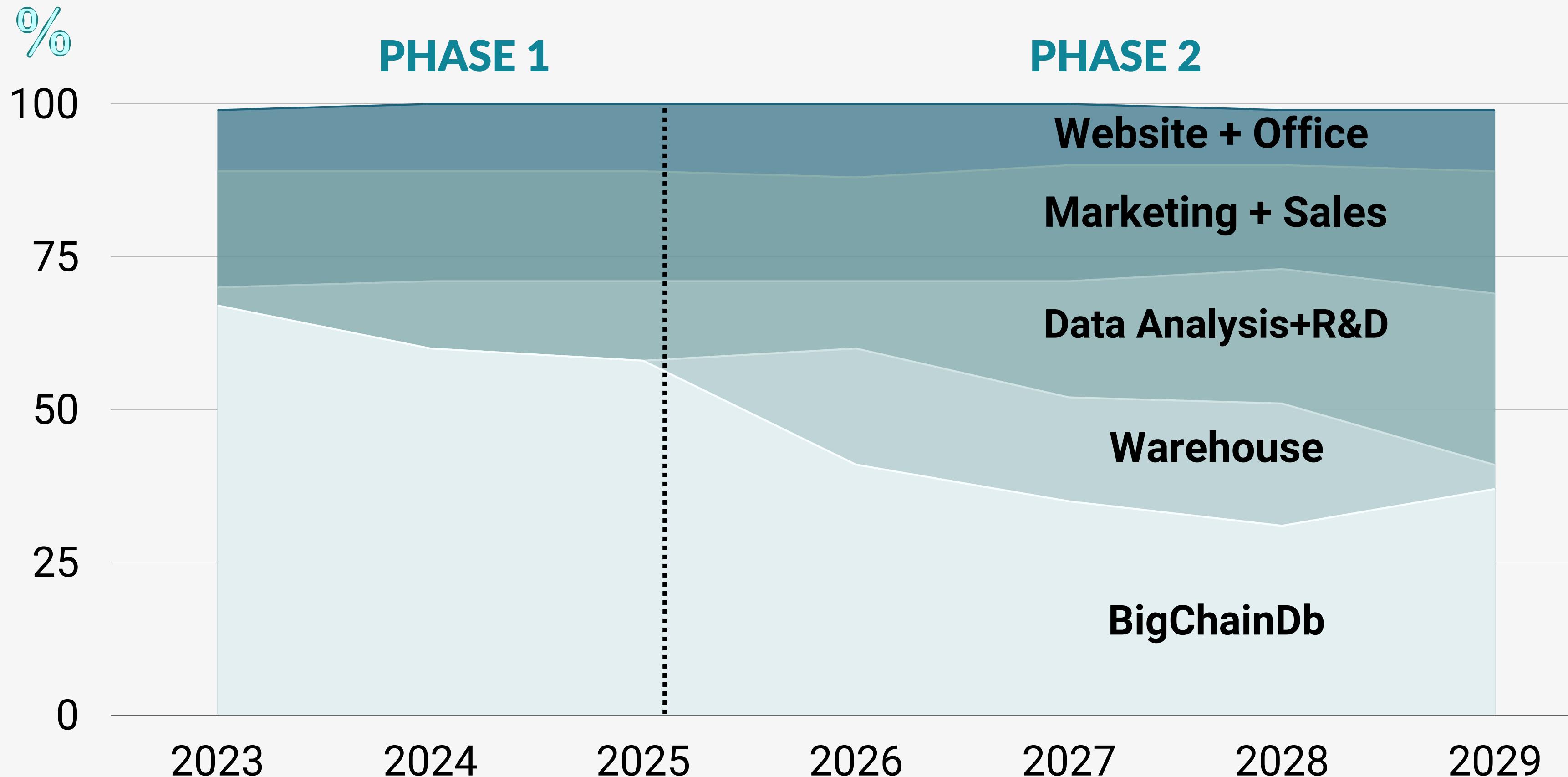


EXPENDITURE & REVENUE

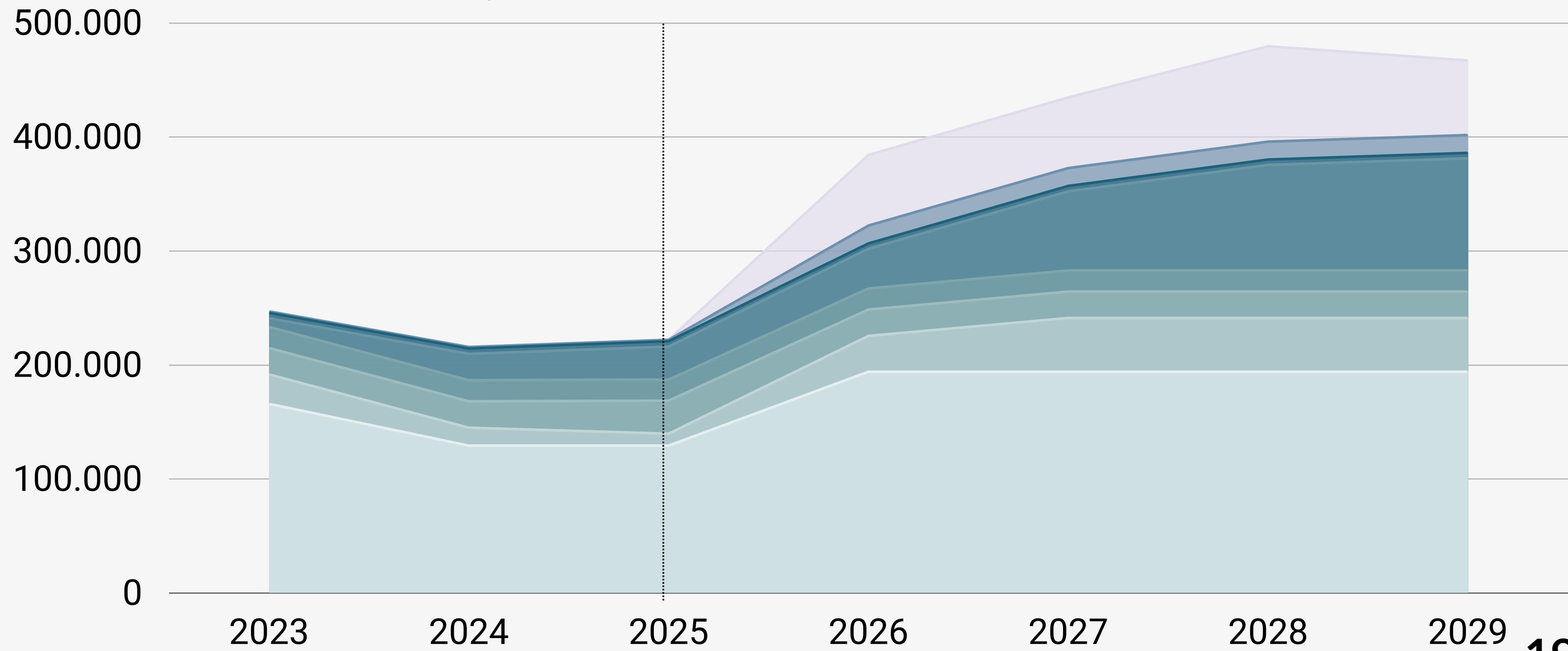
AGRITRADE



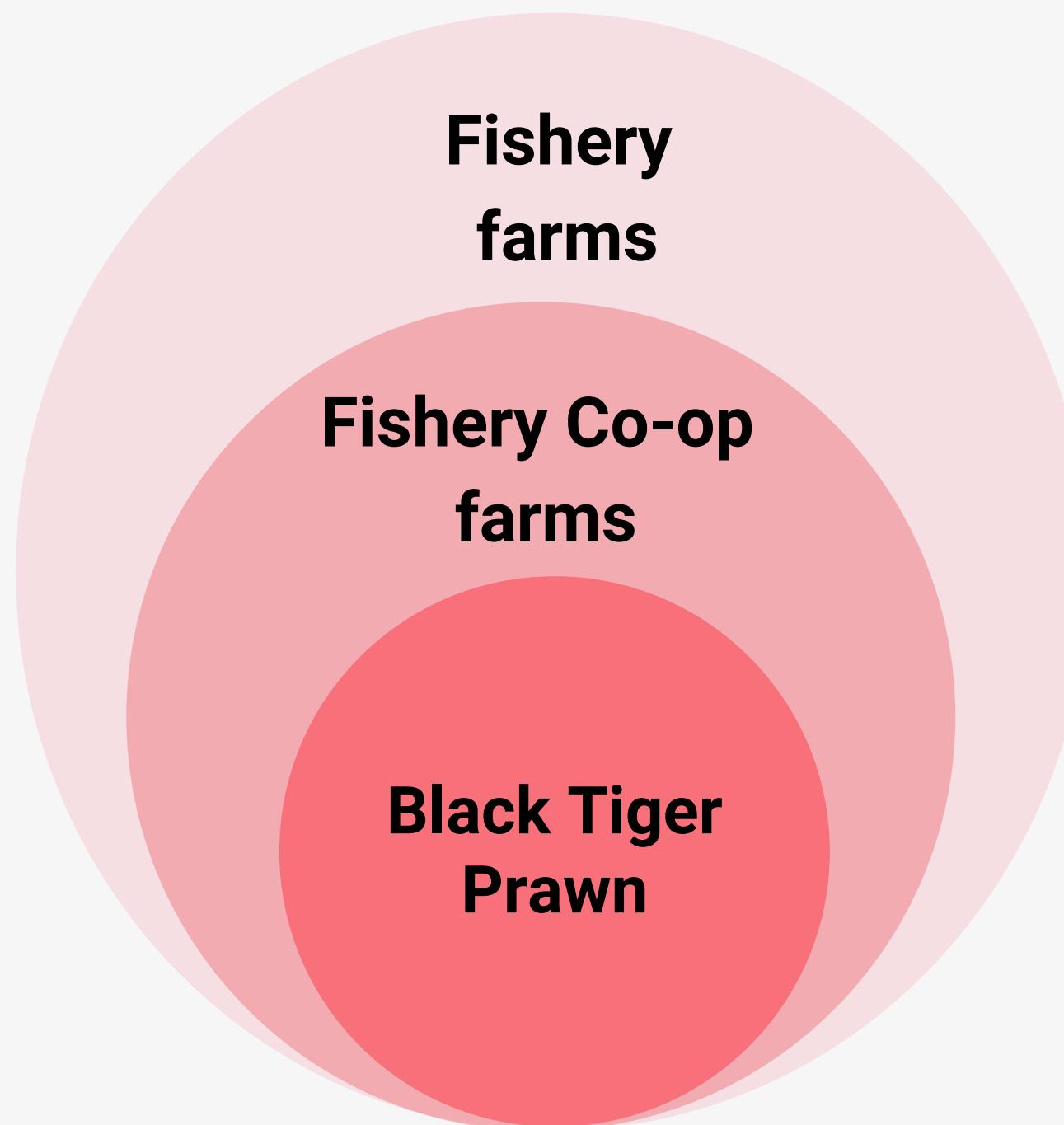
	Year 1 2024	Year 2 2025	Year 3 2026	Year 4 2027	Year 5 2028
Number of farmers	50,000	100,000	150,000	250,000	500,000
Volume	10mt	20mt	30mt	50mt	100mt
Value	\$500,000	\$1,000,000	\$1,500,000	\$2,500,000	\$5,000,000
Commission	\$5,000	\$10,000	\$15,000	\$25,000	\$50,000
Subscription	\$50,000	\$140,000	\$205,000	\$235,000	\$310,000
Commission on input supply	\$25,000	\$80,000	\$100,000	\$120,000	\$160,000
Total Revenue	\$80,000	\$250,000	\$320,000	\$380,000	\$520,000



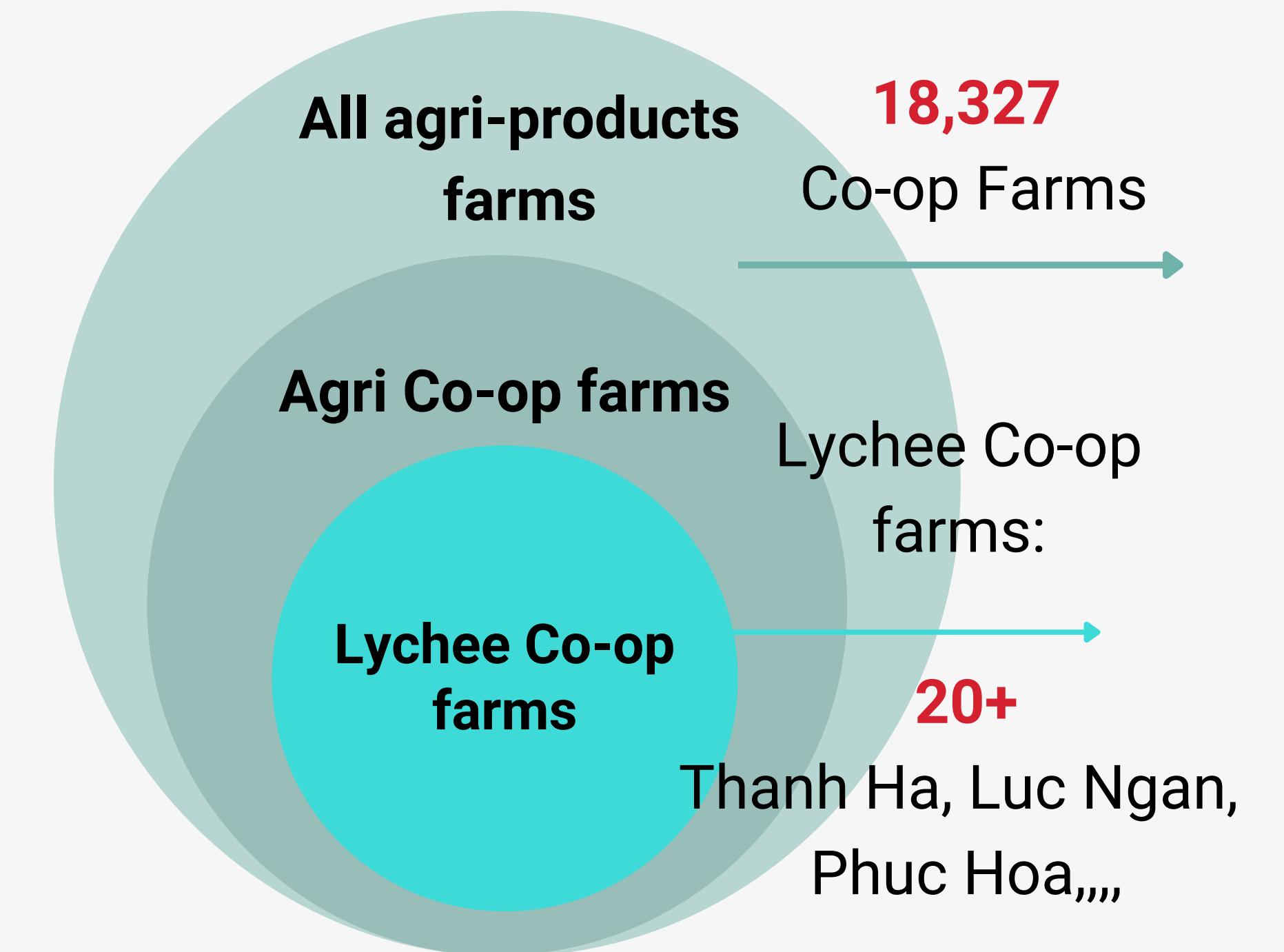
- BigchainDB
- Marketing campaigns & Ad
- Sales + Customer Service
- Office
- Data Analysis
- Software Expenses
- Website cost
- Warehouse



Option #1: Revenue



Option #2: Social Impacts



Key partners

(Cyber & Information security)

Government organization

- Vietnam Farmer Union
- Vietnam Organic Agriculture Association
- Department of Industry and Trade
- Department of Science and Technology
- The Food Safety Bureau of Vietnam

Key activities

- Platforms development with **Bigchain Database**
- Manually input the data
- User analysis
- Marketing campaigns
- Partnerships

Key resources

- Team, advisors

Value propositions

- A **traceability** system for export products
- Create **higher commercial value** for export products
- **Connect** co-op farms & import companies in EU
- **Consult** in Tech & Law
- **Transparent** transactions and contracts

Customer relationship

- Co-op farm representative
- Customer support team
- Consulting on technology & laws for suppliers
- Education campaigns (for food traceability & EVFTA)

Key channels**Customer segments**

- Suppliers: Co-op farms with (IoT) VietGAP GlobalGAP
- Import companies from EU

Cost structure

Sales & Customer service	MongoDB
Software Expenses	Data Analysis
Office	Website Cost

Revenue

- Commission on sale (direct exporting)
- Subscription (for database)
- Commision on input material

BUSINESS MODEL CANVAS	COST STRUCTURE	TARGET MARKET	DATA FLOW	AUCTION PLATFORM	VALUE PROPOSITION	PARTNERS	GOALS
Cost (launching phase)			2023 (\$)	2024-2025 (\$)	PHASE 1		
BigchainDB			166,000	129,570	<p>TOTAL FUND 246,494 \$</p> <p>BigchainDB</p> <p>UPFRONT COST STRUCTURE 2023</p>		
Marketing & Advertising			25,706	15,706			
Total			4,200	4,200			
Software Expenses	File Hosting Services		1,800	1,800			
	Email marketing tool		600	600			
	CRM software		1,800	1,800			
Total			18,480	18,480			
Office	Rent		12,000	12,000			
	Utility Costs For Office Space		6,000	6,000			
	Wifi & Internet		480	480			
Total			1,260	1,260			
Website Cost	Domain Name		1,200	1,200			
	Business Email Hosting Service		60	60			
Sales & Customer service			23,136	23,136			
Data Analysis			7,712	23,136			
Total Costs			246,494	215,488			

Key partners

Government organization

Key activities

- Auction platform development and maintenance
- Launch Agritrade Web & App
- Create educational materials
- Blockchain system upgrade (transition to **Hyperledger**)
- Marketing campaigns

Key resources

- Team, advisors
- **Data base**
- **Participants on auction platform**

Value propositions

- **Database** from suppliers and bidders to predict trends and preferences of the market
- A **wide range** of agri-products
- Create **higher commercial value** for high-quality products
- A **marketplace** to connect supply and demand
- Database for domestic & foreign investors
- + From phase 1**

Customer relationship

- Automated self-service
- Regulatory department
- Education campaign (for auction)
- Review, comment & feedback
- + From phrase 1**

Key channels

- AGRITRADE Web & App

Customer segments

- Suppliers:
 - + Co-op farms with IoT | VietGAP | GlobalGAP
 - + Farms with high-quality products for the domestic market**
- Bidders
 - + Wholesalers
 - + Retailers
 - + Processors

Cost structure

Sales & Customer service	MongoDB
Software Expenses	Data Analysis + R&D
Office	Website Cost + Auction

Revenue

- Commission on sale (**on bidding platform**)
- Subscription (**for database: premium & new members**)
- Commision on input material
- Branding promotion for suppliers**

Key partners

Government organization

Key activities

- Auction platform development and maintenance
- Marketing campaigns

Key resources

- Team, advisors
- Data base
- Participants on auction platform

Value propositions

- **Automatic & transparent** input data by integrating IoT and RFID into our system
 - Promote **sustainable**- production methods & fight climate change
 - Decrease **production cost** in the long-term & Increase **productivity** level of farming
- + From phase 1 + 2**

Customer relationship

- Automated self-service
 - Regulatory department
 - Education campaign (for auction)
 - Review, comment & feedback
- + From phase 1 + 2**

Key channels

- AGRITRADE Web & App

Customer segments

- Suppliers:
 - + Co-op farms with IoT | VietGAP | GlobalGAP
 - + Farms with high-quality products for the domestic market
 - + Co-op farms without IoT
- Bidders
 - + Wholesalers
 - + Retailers
 - + Processors
- IoT investors & service companies

Cost structure

Sales & Customer service

MongoDB

Software + Office

Data Analysis + R&D

Marketing & Advertising

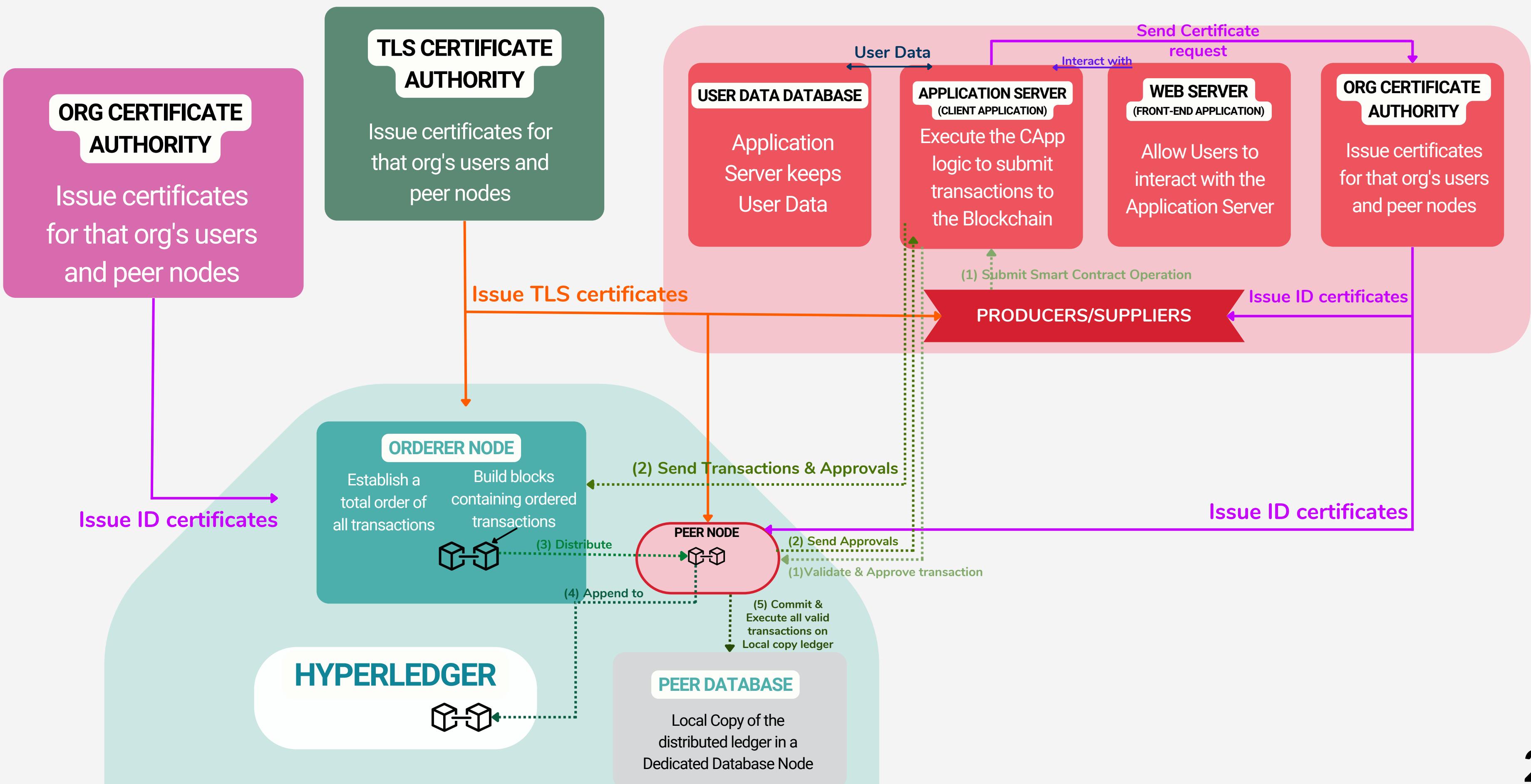
Warehouse + Sorting

Website Cost + Auction

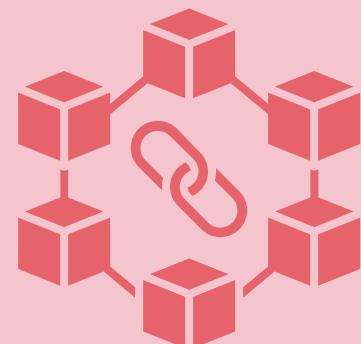
IoT investment

Revenue

- Commission on sale (on bidding platform)
- Subscription (for database: premium & new members)
- Commision on input material
- Branding promotion for suppliers
- **Advertisement**
- **Profit from IoT investment**



HYPERLEDGER



- Scalability
- Suitable for the Auction platform
- Trust: Improving data verifiability
- Data is accessible to all stakeholders, especially farmers and consumers
- Higher security efficiency

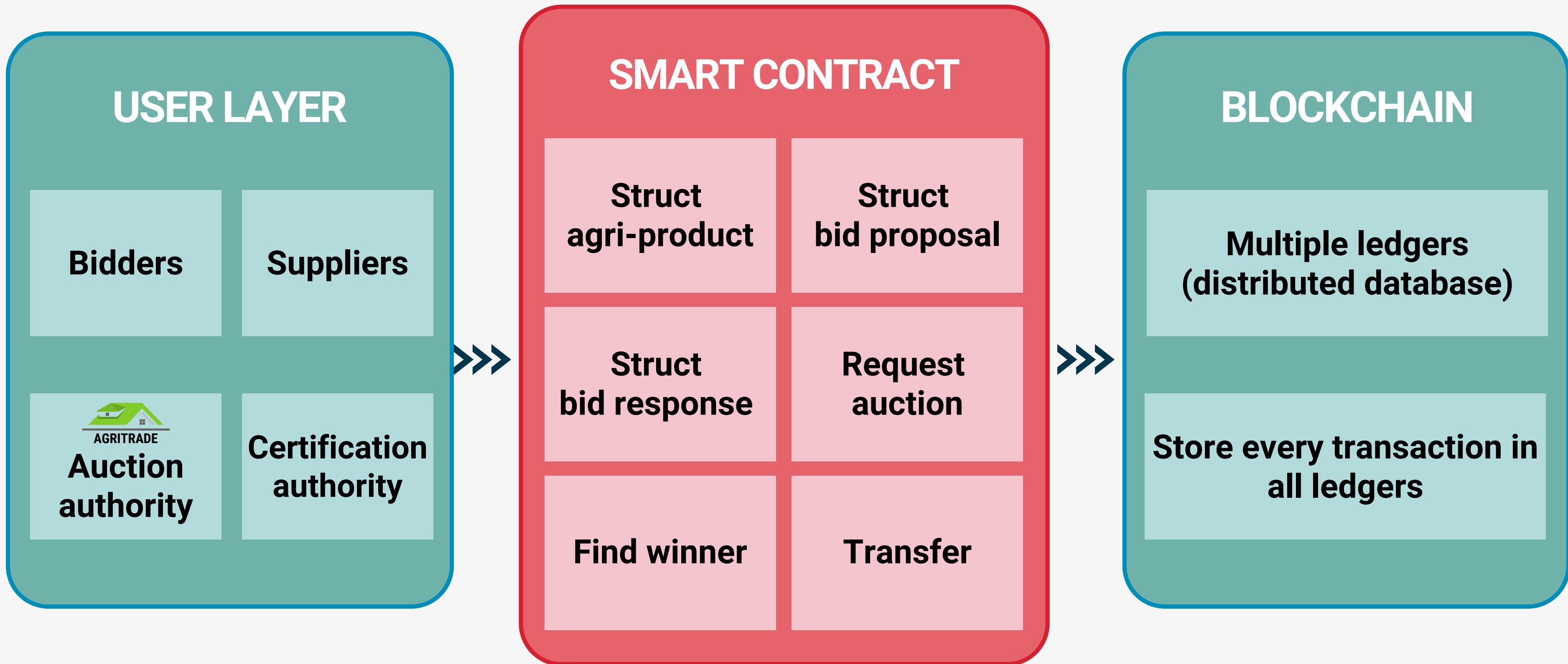
PRIVACY PROTECTION MECHANISM & IDENTITY MIXER

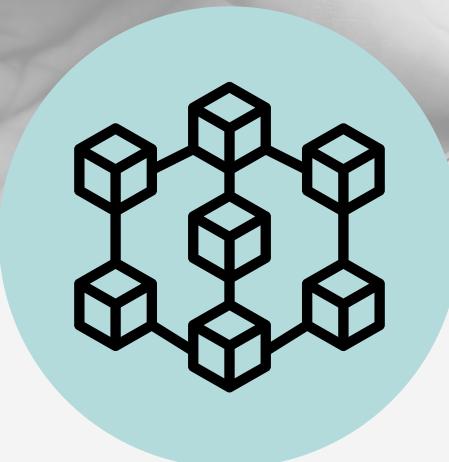


- Integrity for bidding

ZERO - KNOWLEDGE PROOF PROTOCOL

- Verify participants' identity
- Ensure anonymity of users, confidentiality & review of data





PHASE1 BLOCKCHAIN

- Traceability system
- Higher commercial value
- Connect Co-op farms & buyers
- Consult in Tech & Law
- Transparent transactions and contracts



PHASE 2 AUCTION PLATFORM

- Database to predict the market's trends and preference
- A wide range of agri-products
- A marketplace to connect supply and demand
- Database for domestic & foreign investors



PHASE 3 IOT & RFID

- Automatic & transparent input data
- Promote sustainable production
- Decrease long-term production cost
- Increase farming productivity



Cyber & Infomation security



Logistics



IoT, AI & Certification



Sorting for uniform quality



QR data tracking

Goals

Ensure the output markets for farmers

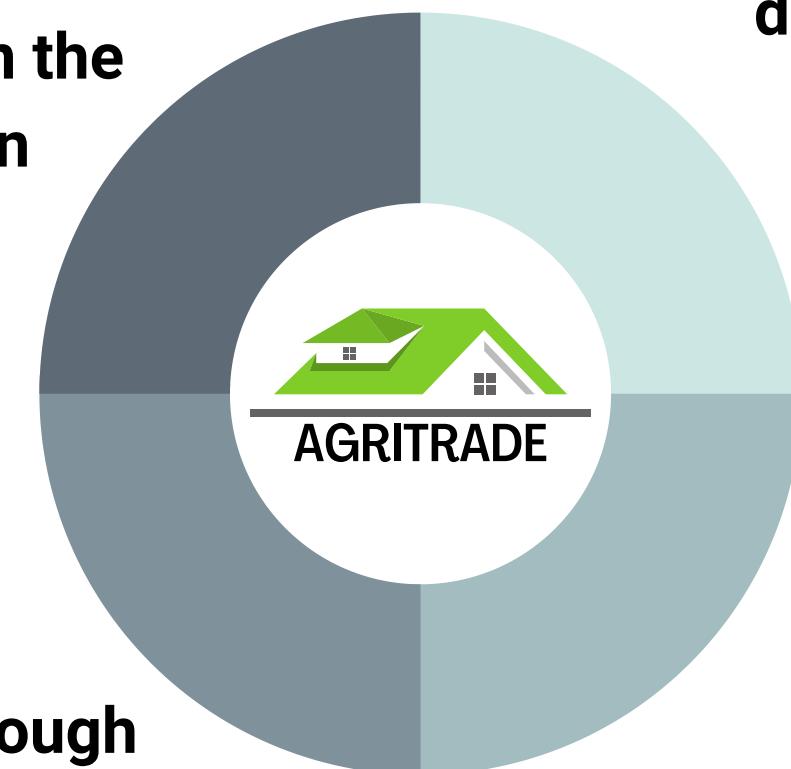


Enhance fair trade and higher income for farmers

Enhance the commercial value of Vietnamese agri-products

Objectives

Create a linkage between different stakeholders in the supply chain



Create a thorough traceability system

Provide farmers insights about the demand of the market

Promote certificated and organic products, consistent quality, sustainable production

TOTAL UPFRONT COSTS (2023)

Configuration Description	Software: BigchainDB Enterprise Server Hardware: 3 servers (8 cores/ server) Storage Hardware: 3 TB SSD
Initial Developer Effort	\$120,000
Initial Administrative Effort	\$10,000
Software Licenses	\$0
Server Hardware	\$12,000
Storage Hardware	\$24,000
Total Upfront Costs	\$166,000

BIGCHAIN DATABASE**TOTAL ONGOING COSTS**

Configuration Description	
Development Effort	\$60,000
Administration effort	\$30,000
Software maintenance & Support	\$35,970
Server maintenance & Support	\$1,200
Storage maintenance & Support	\$2,400
Miscellaneous Deployment Cost	Varies Greatly
Total Ongoing Costs	\$129,570

AUCTION (ON-GOING COST)		
UI/UX		\$3,000
	Total	\$2,400
Employee	Copywrite	\$1,200
	SMM specialist	\$1,200
	Total	\$3,000
Marketing policy	Social media marketing	\$1,000
	Search engine optimization	\$1,000
	Content marketing	\$1,000
Website maintenance services		\$6,000
Total Costs		\$14,400

WAREHOUSE (ONE-TIME PURCHASE)		
Sorting Machine (5 pcs)		\$300,000
Warehouse Construction		\$415,000
Cold Storage (40m3)		\$3,870
Land		\$86,000
Logistics		Varies Greatly
Total Ongoing Costs		\$804,870

Layers		Estimated Cost
Hardware Layers	Hardware Providers	Estimated \$160 for the setting up of hardware devices
Communication Layers,	Connectivity Network	Estimated cost for 50ha Adopt 3G or 5G: \$45
	Network System providers	Adopt network system provider: 30
Cloud Layers		Google Cloud IoT is available to users for free of cost for the first 250 MB and charges 0,0045 per MB afterwards,
Software layers	Software Application	400 per application
	Security cross-layer	100 per application
Contingency		Approximately 400 per month

Data	Supplier	Prices (approx)
Humidity	MimosaTek	\$30
Water pH	MimosaTek	\$30
CO2	MimosaTek	\$30
Soil Chemistry	MimosaTek	\$30
Fertilizer	MimosaTek	\$30
Salinity	MimosaTek	\$30
Light	MimosaTek	\$30
Evapotranspiration	MimosaTek	\$30
Water Temperature	MimosaTek	\$30
Temperature	Eurofins	\$30
Pests Detector	Eurofins	\$30