



# Digital Agriculture Solutions Forum 2020

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# Agenda

## 1 The 2 Vietnamese Agriculture models

- figures in 2019
- structural specifications
- High Tech farming solutions
- working process needs and requirements

## 2 2 examples of deployed solutions

## 3 R&D on unique open and shared Tracing Database Access

- actual research and brainstorming
- role of government(s) and business markets and/or organizations

## 4 Q&A

## 1.a. The 2 Vietnamese Agriculture models

### Some figures:

- Agriculture is 15% of national GDP (20% in 2004, 40% in 1989)
- Agriculture is 40% of country land area
- Agriculture is 40% of employment with 21 millions workers (60% in 2005)
- Agriculture is 32.000 farms
- VN is third rice exporter in the world
- main other farming products are seafood (shrimps), coffee, black pepper, cashew nut, cotton, peanuts, ...

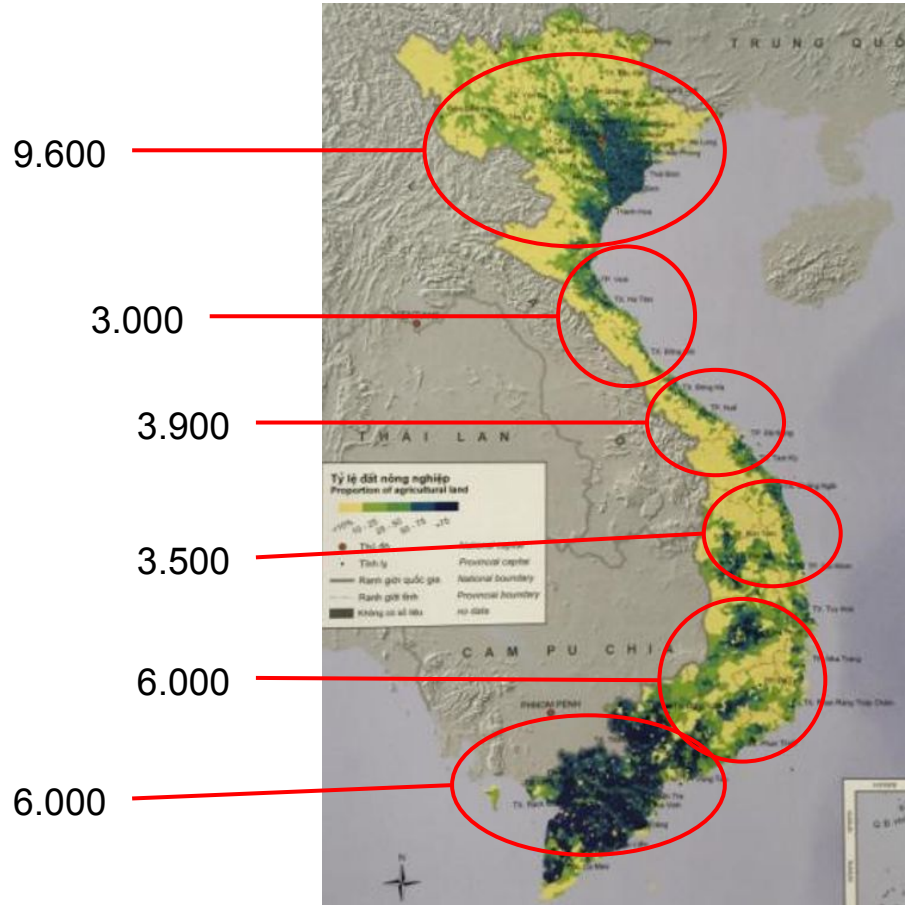
### Some facts:

- Agriculture is driven by manual processes
- VN has a 12-month growing season (2-3 harvests/year especially in Mekong Delta area, South VN with 4 millions ha space)

=> attractive and cheap agriculture export

=> low quality and thus difficult competitiveness

Agriculture is 32.000 farms deployed  
grosso modo like this around the country:



## 1.b. Structural specifications:

32.000 agricultural farms =

- 20.500 farms for livestock (30M pigs, 300M poultry, ...)
- 8.500 farms for cultivation (43M tonnes rice, 10M tonnes cassava, ...)
- 2.300 farms for fish/aquaproduct (7M tonnes)
- 700 others

Farmers could be divided into 2 categories, each one having different “digitalized needs”:

**Smallholder farms** (less 50 workers)

**Large-scale farms** (more 50 workers)

% ratio depending on workers, tonnes, revenue, productive area, ... But the important is the need of each one.

## 1.c. High Tech farming solutions

Article 5 of Law on High Technologies includes information technology, biotechnology, new material technology, and automation technology;

## 1.d. Working process needs and requirements

Depending the farming models, needs are different. Because the expected result is different:

**Smallholder farms** concentrate on selling daily production at the best price. They have limited capabilities to invest into digital solutions, tools or help.

Their production depends a lot on the weather conditions. Forecasting is difficult. A lot of farmers are working with manual processes.

**Large-scale farms** concentrate on their productivity. Their future production is already sold. They have already buyers with +/- negotiated tariffs.

To answer that demand, they invested into HighTech production tools to maximize their staff, stock, materials, weather conditions forecast, ...

## TraceVerified has a long history into agriculture business as a service company.

Our company has start with an online tracing food solution (product TraceAbility) allowing each user to input data regarding its product to obtain and to use as a food safety chain.

Since 3-4 years now TraceVerified has also a consultant role on different project, more “social” with local, Provincial Government, with NGO’s, ... Some extra projects held in 2020-2021

### Projects Name

Café Redd in Da Lat area  
Da Nang Province  
Ben Tre Province  
Mango (UNIDO)  
An Giang Province (ReCeRD)  
Can Tho University and CGIAR  
TruTrace and WWF USA

### Goal to achieve

Deforestation control and digitize 1.000 Coffee smallholder farms  
Smart City and safety food chain  
Smart selling markets for smallholder farms in agriculture (B2B platform)  
Tracing of Mango Production and control risk management in Mekong area  
TraceAbility of rice production  
Sustainable practices in the Rice production  
Developing a software to manage the supply chain in the tracing process.

TraceVerified is an important actor for Gouvernement, Business Organisations or NGO’s to understand the business or the workflow on the field. We are located in Vietnam, our team is Vietnamese, we know Vietnam.

## 2. 2 examples of deployed solution using digital capabilities of our product TraceFarm.

### Smallholder farms

We meet their needs of helping them to sell their production. The software concentrates on the product details, availability and price. The software act as a B2B platform between any middleman and the farmer directly.

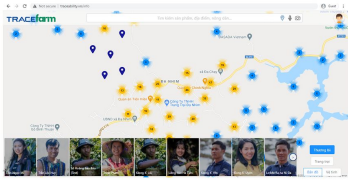
### Large-scale farms

We meets their needs of helping them to manage their farm to obtain the maximized profitability. The software control key factors such as worker labour timing, stock entries, production forecast, ...

This software can control some extra IoT devices to collect data of weather, air or soil analyzes. Data are processed by AI and enter into the system.

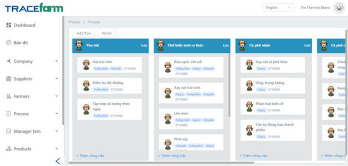






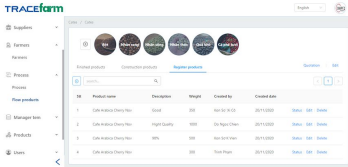
### Farm mapping

- Display the location of all farmers in Lac Duong region on the map.
- Display farmer information and farm information right on the map.
- List of Farmer Leaders.



### Production process

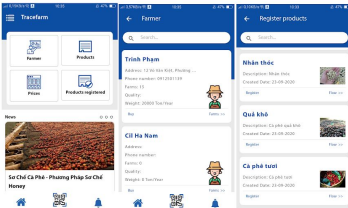
The company can create production processes at each stages of the supply chain: harvest, collection, transport, processing, roasting, distribution,....



### Products and Assignment

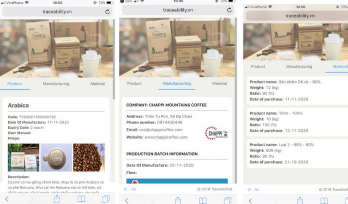
The company relies on production processes to produce the finished product of each process.

The company will assign tasks of each step in the process to farmer leaders, workers, farmers.



### App for farmer leaders

- The leader can manage the farmers, update farm information and location.
- The leader can follow up on the processes and work assigned from the company.
- Get a quote from the company
- Buy coffee from farmers and sell coffee to the company on the software.



### Traceability

The company chooses materials for production (coffee purchased from the team leaders or the farmers).  
Select the production process to create the finished product from planting to production, packaging.  
Display farmer leaders or farmers information on the traceability report.

## Smallhold farmers Desktop/Mobile

- General Overview of the farms on a map
- Detail Overview of the farmers
- Detail of products/farmer
- MiddleMan (Leader, 1/3 party, ...) can order directly the desired quantity
- Processing of the materials is also viewable
- Tracing details are available and shareable

# Large scale farms

Desktop/Mobile

Screen to have an overview of each garden/area form the farm

TRACEverified

Language English Trace Supper Admin

Tree status

+ New Search

Note date	Farm name	Area	Tree name	Tree status	Amount	Description
17/03/2019	Nông trường E2	2-1.1	Cây chuối	Cây năm một	1000	
10/07/2020	Nông trường E1	1-1.2	Cây Chấn gió	Cây năm một	5	
17/11/2020	Thaco Farm	G1.1	Cây chuối	Cây năm một	100000	

Previous 1 Next

# Large scale farms

Language: English Trace Supper Admin

### Show plan detail

No Approved Approved Close

Group plan: TASKDEMO 2020 Name: TASK1120-Công việc năm 2020-2021

Tree name: Cây chuối Select farm: DEMO TEST: Vùng Demo0101; Vùng Demo0102; Vùng DEMO0201; Vùng Demo0202

Creator: Admin Supper Trace During time: 6 Tháng Start: 20/11/2020 Plan Status: Cancel

Description: Trồng cây chuối

Job name	Unit	1 Tháng	2 Tháng	3 Tháng	4 Tháng	5 Tháng	6 Tháng
Trồng chuối	Ha	Quota on plan 200	Quota on plan 200	Quota on plan 500	Quota on plan 100	Quota on plan 500	Quota on plan 500
		Number of unit 14.00000	Number of unit 14.00000	Number of unit 35	Number of unit 7.000000	Number of unit 35	Number of unit 35
		Xèng gỗ 0 Cái	Xèng gỗ 140 Cái	Xèng gỗ 35 Cái	Xèng gỗ 7 Cái	Xèng gỗ 35 Cái	Xèng gỗ 35 Cái
Xắn cây con	Ha	Quota on plan 100	Quota on plan 100	Quota on plan 100			
		Number of unit 44	Number of unit 44	Number of unit 44			

Tasks and planning distribution per worker, group of workers.  
Control and manage all necessary material, fertilizer, chemicals, ...  
=> report revenue/cost per area, per tree, per worker, per season, ...

# Large scale farms

REPORTS

HARVERT  
MANAGEMENT

Cord data

Loss data

Output forecast

Actual output

Actual production  
quantity

STORE OPERATORS

TREE MANAGEMENT

FARM MANAGEMENT

CATALOG GROUP

CATALOGS

Tree name(\*)

Cây chuối x

Select farm(\*)

E1 Nông trường E1 x

Begin date

17/12/2020

End date

31/01/2021

Search

Month 12

13/12/2020 -> 19/12/2020

Week of year : 51

Week of year 51 (30) : 3600

Week of year 50 (40) : 0

Week of year 49 (20) : 0

Week of year 48 (20) : 0

**Total: 3600**

20/12/2020 -> 26/12/2020

Week of year : 52

Week of year 52 (10) : 0

Week of year 51 (40) : 4800

Week of year 50 (20) : 0

Week of year 49 (30) : 0

**Total: 4800**

Month 1

01/01/2021 -> 07/01/2021

Week of year : 1

Week of year 1 (10) : 0

Week of year 52 (40) : 0

Week of year 51 (20) : 2400

03/01/2021 -> 09/01/2021

Week of year : 2

Week of year 2 (10) : 0

Week of year 1 (40) : 0

Week of year 52 (20) : 0

10/01/2021 -> 16/01/2021

Week of year : 3

Week of year 3 (10) : 0

Week of year 2 (40) : 0

Week of year 1 (20) : 0

17/01/2021 -> 23/01/2021

Week of year : 4

Week of year 4 (10) : 0

Week of year 3 (40) : 0

Week of year 2 (20) : 0

Forecasting screen. Allowing to have an overview on the future.  
Allow to plan necessary resources, staff, materials, fertilizers,...

## 2. A new software will be deployed early 2021. Now under finalization and testing.

Based on RFID technology, the Swine management software has those relevant features:

- RFID technology (no more contact with animal)
- E-identification allow new automation processes (scaling, feeding, counting, moving, ...) and then reduce input errors.
- Managing working time task by task
- Control all stocks (FIFO) such as food, medicine, adjuvants, materials
- allow individual tracing (no by lot)
- allow the prevent disease
- allow the manage revenue/cost per pig, per segment, per breed, per food category, ...



### Population

Boards	45	463 Kgs
Sows	568	6.228 Kgs
Piglets	5.620	237.354 Kgs
<b>Total</b>	<b>6.233</b>	<b>244.045 Kgs</b>
Asset	35.000 d/kgs	<b>8.541.575K VND</b>

### Forecast

Boards	45	463 Kgs
Sows	568	5.228 Kgs
Piglets	5.620	227.354 Kgs <span style="color: green;">+4,4%</span>
<b>Total</b>	<b>6.033</b>	<b>234.045 Kgs</b>
Asset	42.000 d/kgs	<b>9.829.890K VND</b> <span style="color: red;">-13,10%</span>

### Population month-1

Boards	45	463 Kgs
Sows	568	6.228 Kgs
Piglets	5.220	217.354 Kgs <span style="color: green;">+8,8%</span>
<b>Total</b>	<b>5.833</b>	<b>224.045 Kgs</b>
Asset	35.000 d/kgs	<b>8.541.575K VND</b> <span style="color: green;">+0,3%</span>

### Population month year-1

Boards	45	463 Kgs
Sows	568	6.228 Kgs
Piglets	5.020	207.354 Kgs <span style="color: green;">+13,2%</span>
<b>Total</b>	<b>5.633</b>	<b>214.045 Kgs</b>
Asset	41.000 d/kgs	<b>8.775.845K VND</b> <span style="color: red;">-2,6%</span>

<28 days	29 - 59 days	60-120 days	121-144 days	145-155 days
1.257 3.142,5 kg	1.546 38.133,5 kg	1.349 78.242,0 kg	1.223 95.394,0 kg	245 22.540,0 kg

Consumption	Month-1	Month year-1	<b>Employee RFID at work</b>	<b>#23</b>
3,3	3,2	2,9		

<b>Stock food</b>	F1	F2	F3	F4
<b>Rotation</b>	6,2 T	14,5 T	22,3 T	6 T
	5 days	7 days	7 days	12 days

### RIP year to date

<28 days	29 - 59 days	60-120 days	121-144 days	145-155 days
12 23,5 kg	22 132,3 kg	19 573,2 kg	13 1.002,1 kg	4 386,8 kg

### Health Status

Now	Month 1
5.903	5.435
228	229
82	77
20	28
<b>88%</b>	<b>85%</b>

### Daily Tasks Progress

N# tasks uncompleted d-1	4	200'
N# tasks of assigned d	160	3.735'
N# tasks to be finished d	164	3.925'
N# tasks started	103	1.725'
N# tasks to be completed	61	2.000'
		<b>60,3%</b>

### PEN overview (Total #510 pens)

N# PEN occupied	450	88%
N# PEN empty	60	12%
N# PEN pregnant sow	51	10%
Pigs/m² today	6.233/6.960	0,89
Pigs/m² month-1	5.833/6.960	0,83

12 PM 21/08 **33°** Realfeel 39° Party sunny ☀️ 25% ▲

Max UV Index 13 (Extreme) Dew Point 25°

Wind W 9 km/h Cloud Cover 39%

Wind Gusts 13 km/h Visibility 16 km

Humidity 66% Humidity 9144 m

Indoor Humidity 66% (Extremely Humid)

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12 PM 21/08 **33°** Realfeel 39° Party sunny ☀️ 25% ▼

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12 PM 21/08 **31°** Realfeel 39° Intermittent clouds ☁️ 25% ▼

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12 PM 21/08 **30°** Realfeel 39° Party sunny ☀️ 25% ▼

---

12 PM 21/08 **35°** Realfeel 39° Mostly cloudy ☁️ 25% ▼

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12 PM 21/08 **32°** Realfeel 39° Party sunny ☀️ 25% ▼

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12 PM 21/08 **31°** Realfeel 39° Party sunny ☀️ 25% ▼

### Pig under control

RFID's	HEALTH	PEN	RESPONSIBLE	AGE / REMAIN	WEIGHT	SUBJECT	DETAIL
999000 12345 12356		F2.37 ▼	Nguyen Hoang ▼	28 d / -127 d	4,2 kg	Cut Tail D4	Pig not eat loose 0,3 kg weight. Placed in pen F2.37
999000 12345 12356		F2.34 ▼	Le Tran Hoang ▼	27 d / -128 d	3,9 kg	General health check	Pig fight with others. Violent. Isolate in pen F2.34
999000 12345 12356		F2.31 ▼	Nguyen Hoang ▼	28 d / -127 d	4,2 kg	Food 5	Pig not eat, Hes temperature +2°C. Chenge pen

**Farm Daily**

- 1.1 Population
- 1.2 Pig Detail**
- 1.3 Pen Detail
- 1.4 Check-out Pig
- 1.5 Check-in Pig
- 1.6 Pen Allotment

## Pig Details

12:00am | 3/20/2020

[Export](#)

RFID: 99900 00000 00215 RIP 07/06/2020

Name: piglet201905-13-001 Pen: F2.37

Japfa ID: JAPFA IDVN/34/34664

Farm: Bien Hoo 34 Blg: NHA11

DoB: 01/05/20 Type duration: 155 d

Weight: 6 kgs Sex: M

Health: Good Responsible: Le Huy Hoang

Father: 99900 12345 12345 Mother: 99900 12345 12432

Center Revenue: 634432 pig 2M Center Cost: 214432 pig 2M

RIP
Create task
Save
Check in farrowing
+ New

### Health Informations

Pregnant OK 03/1/2020

Date	Time	Author	Subject
01/06/20	15h00	LTPP	Antitiotic 3 D30
05/05/20	15h28	LTT	Sunuvite 100 D4
05/05/20	15h00	LTT	Uniferon 100 D4
05/05/20	13h17	BTT	Castration D4
01/05/20	04h47	BTT	Cut tail D4
01/05/20	04h46	BTT	Born NAD D1


+ New

### F/B Informations


Date	Time	Author	Subject	Qty
01/06/20	06h12	LTPP	Food 1 D28	0.15
01/06/20	15h02	LTPP	Food 1 D28	0.15
01/06/20	15h00	LTPP	Complement 1	0.05
01/06/20	21h00	LTPP	Food 1 D28	0.14
01/06/20	06h00	LTPP	Food 1 D28	0.14
31/05/20	15h10	LTPP	Complement 1	0.05
31/05/20	21h08	TTC	Food D28	0.13

+ New


### Pictures




01/06/20 15:00  
Le Tri Thanh Phuong  
Antibiotic 3 D30



05/05/20 15:28  
Le Thanh Tho  
Sunuvite 100 D4



05/05/20 15:00  
Le Thanh Tho  
Uniferon 100 D4



01/06/20 04:47  
Binh Thanh Thu  
Delte Primawalt D1

+ New

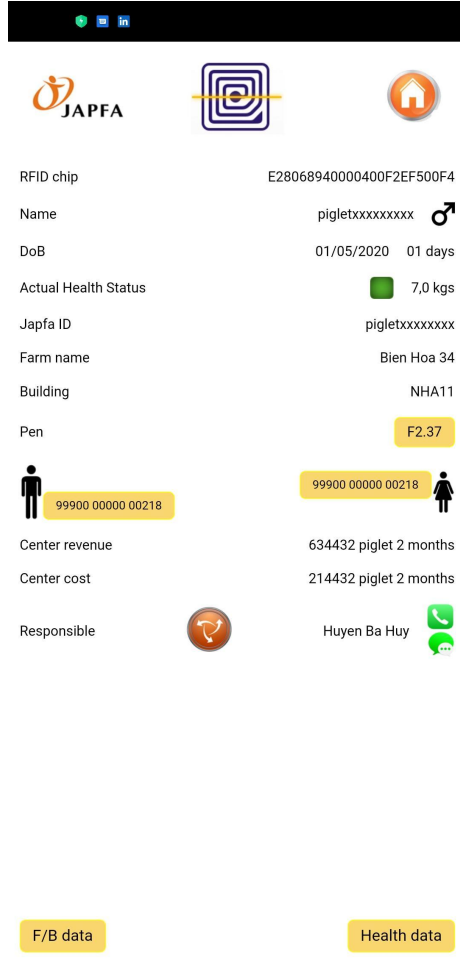
05/05/2020 15h28 LE Thanh Tho  
99900 00000 00125 PEN F2.37 IDVN/34/34644 1.2 kgs M

Injection Sunuvite 100. New born seems weak. Under observation. Health status Orange. Change PEN F2.34



Edit

0000 00215, pregnent OK [Reset select](#)



## Pig details mobile screen

Based on tracing model:

- actual details (ID, weight, location, ...)
- Centers revenue/cost for better \$\$\$ management
- health status
- Worker in charge
- Origins details for better breed statistic
- ...

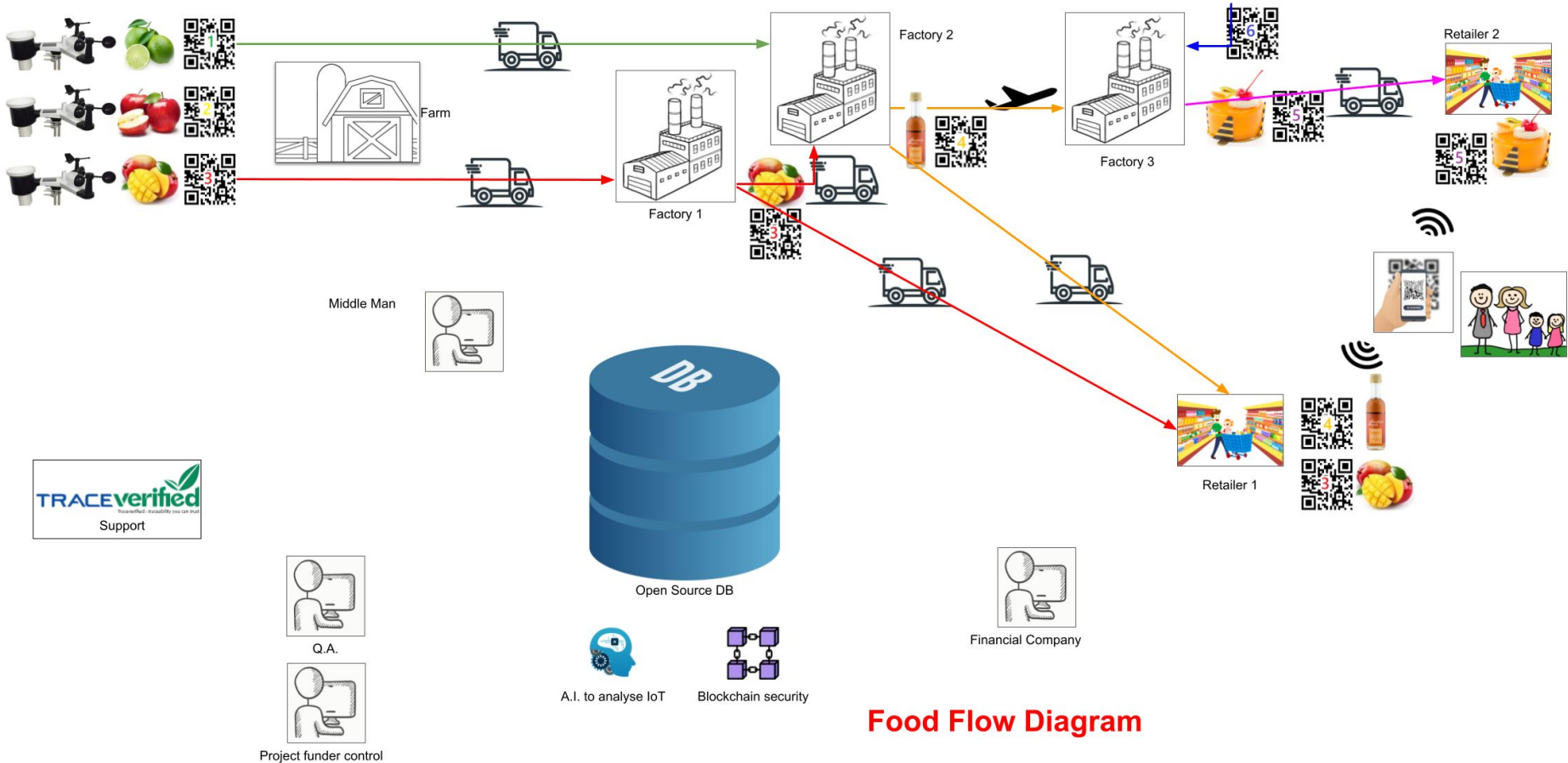
All data are on-time.



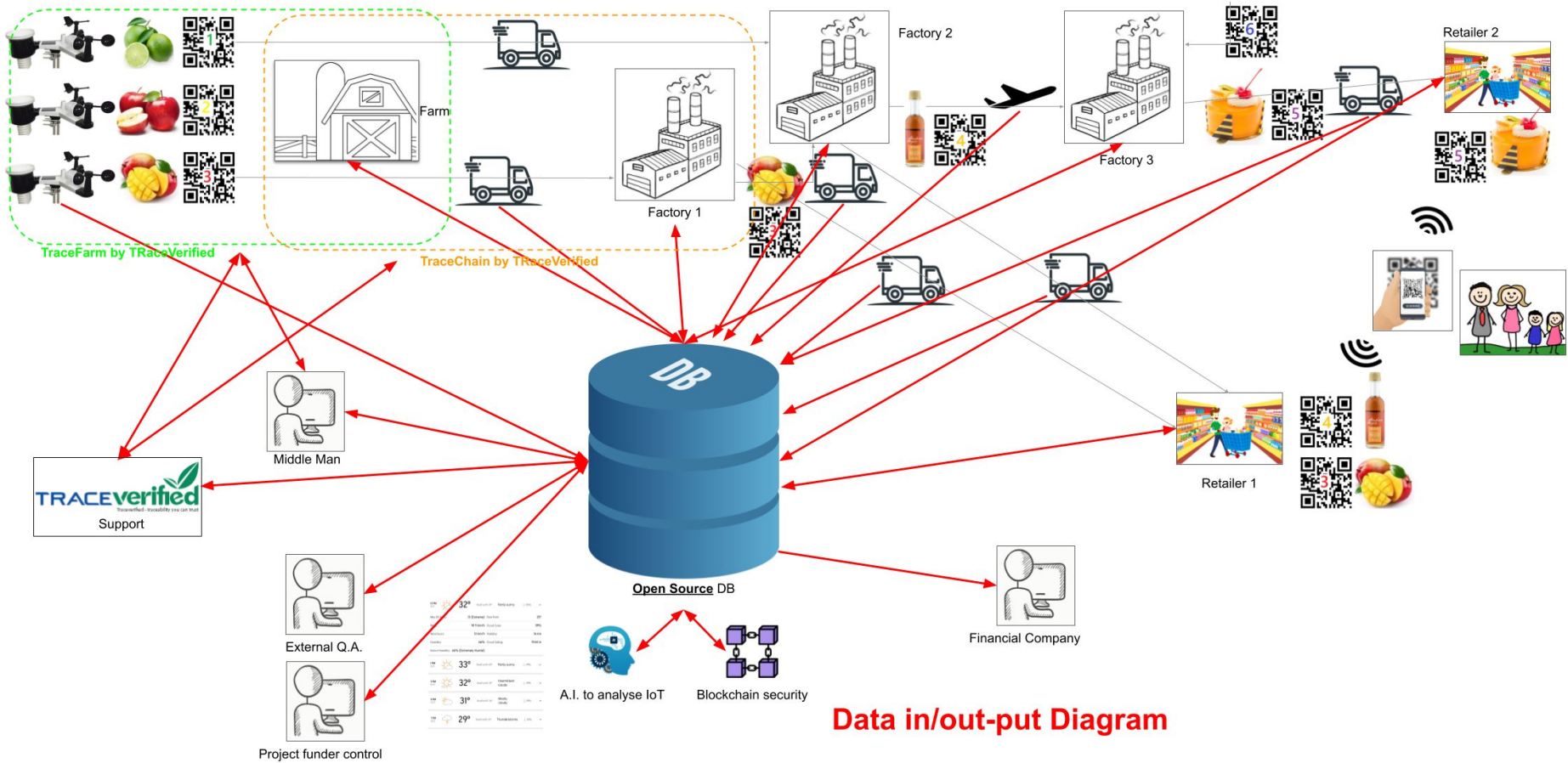
### 3. R&D on unique open and shared Tracing Database Access

TV think that sharing food tracing data should be mandatory. Only advantages:

- Avoid double/triple data input
- standardize the fields name necessary to have an efficient tracing
- allow a better food safety chain
- allow a better food supply chain



## Food Flow Diagram



## 3.b. role of government(s) and business markets and/or organization

The Main database (DB) should be and stay “neutral”... It means managed independently of any private business. The administrator has to think and act global, for the best of everyone, actual or future stakeholders.

The main Database is accessible 24/7.

Every stakeholders (private, public, companies, ONG, ...) having relationship with “tracing” of products can/have to consult/fill in the DB.

The principles and rules will be new standards of working. Unique, easy.

The DB has to respect “private life” laws. Every data are encrypted, and every output are blockchained for security reason.

Only “agreed” users (from compagnies, ONG, public, ...) have access to the DB.

Example:

- Employees of Tracing Companies (iCheck, TraceVerified, VNCheck, ...)
- Employees of Government Control Administration (Public Safety, Hygiene chain, Ministry of Agriculture, ...)
- Employees of Province and Local State agencies

It is in the interest of public safety food policy that kind of system is alive.... It's the passport of every food on the market.

## 4. Q&A



Any more informations by email: [info@traceverified.com](mailto:info@traceverified.com) by Zalo: +84 949 711 839  
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**TRACEfarm**

**TRACEchain**

**TRACEability**

**TRACEpig**