WORKSHOP "BLOCKCHAIN IMPROVES AGRICULTURAL SUPPLY CHAINS"

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Introduction of blockchain based platform to verify traceability – The case of dragon fruit supply chain

NGUYEN THU HANG- THE ASIA FOUNDATION

DANG DUC CHIEN- IPSARD

ZOE PIPER- ETHITRADE

Meeting Consumers' Demands

You're in Vietnam, eating Alaskan king crab

You're in Melbourne, eating dragon fruit from Vietnam

What a strange and delicious fruit!!! I want to buy it, but…

- Is the fruit clean and fresh? Is it safe to eat?
- Who grew the fruit? Where it comes from?
- How was it processed?

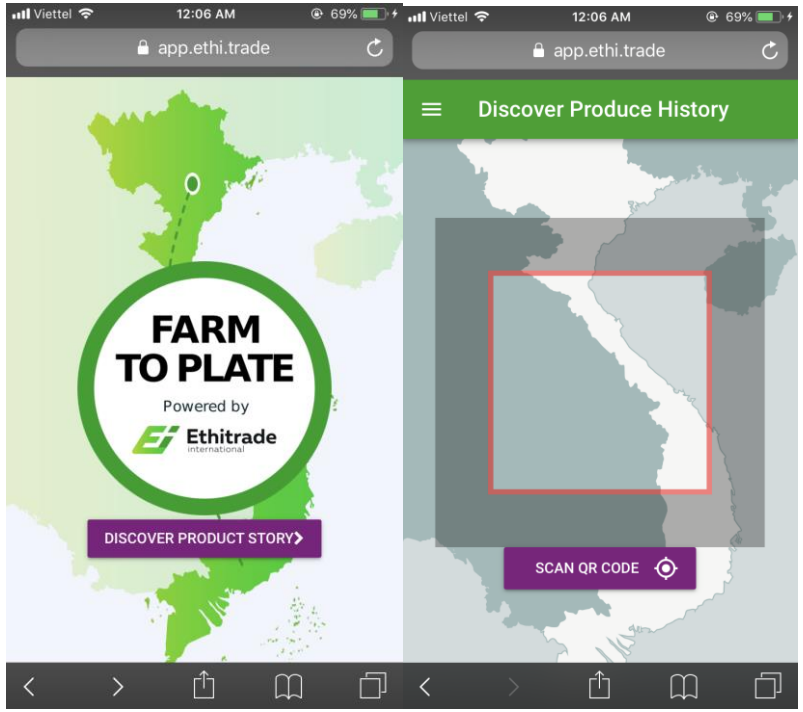
These are typical traceability issues…

Blockchain resolves traceability concerns for consumers

- Let's trace the journey of a dragon fruit!!!

Scanning the QR Code - How to?

- Web-based mobile app
  - http://app.ethi.trade

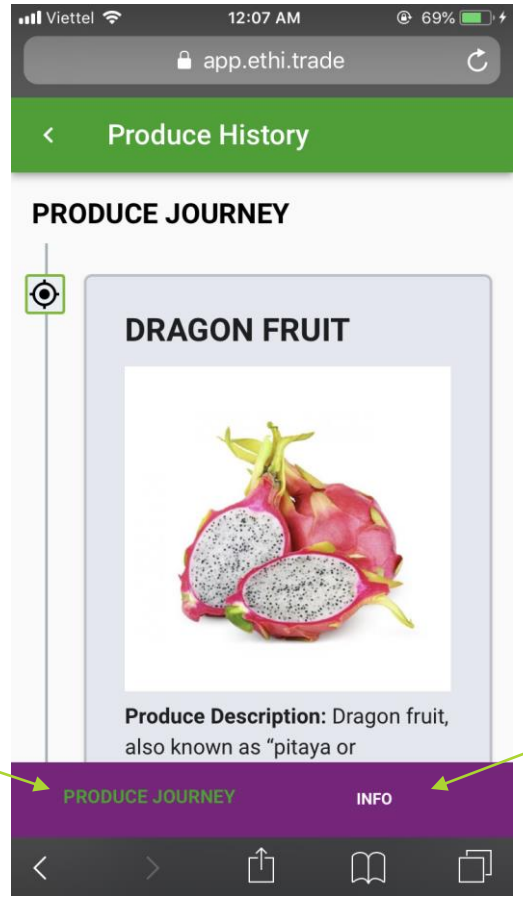


- Native app
  - Any QR scanning app
  - https://drive.google.com/uc?id=1ETnF9-0SdWPDp6y7EI2GuSUknSIjTUWd&export=download

Information Displayed

- Discover product story

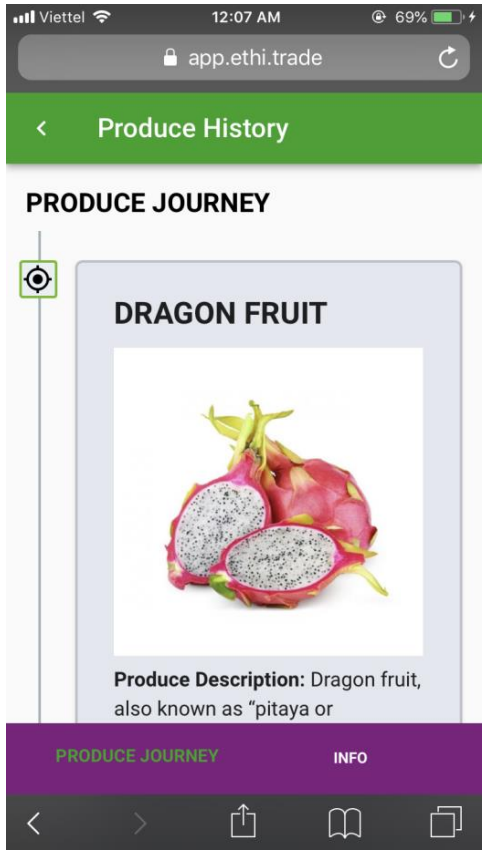
Produce journey: different stages of the supply chain



Info: information about certificates

Produce Journey

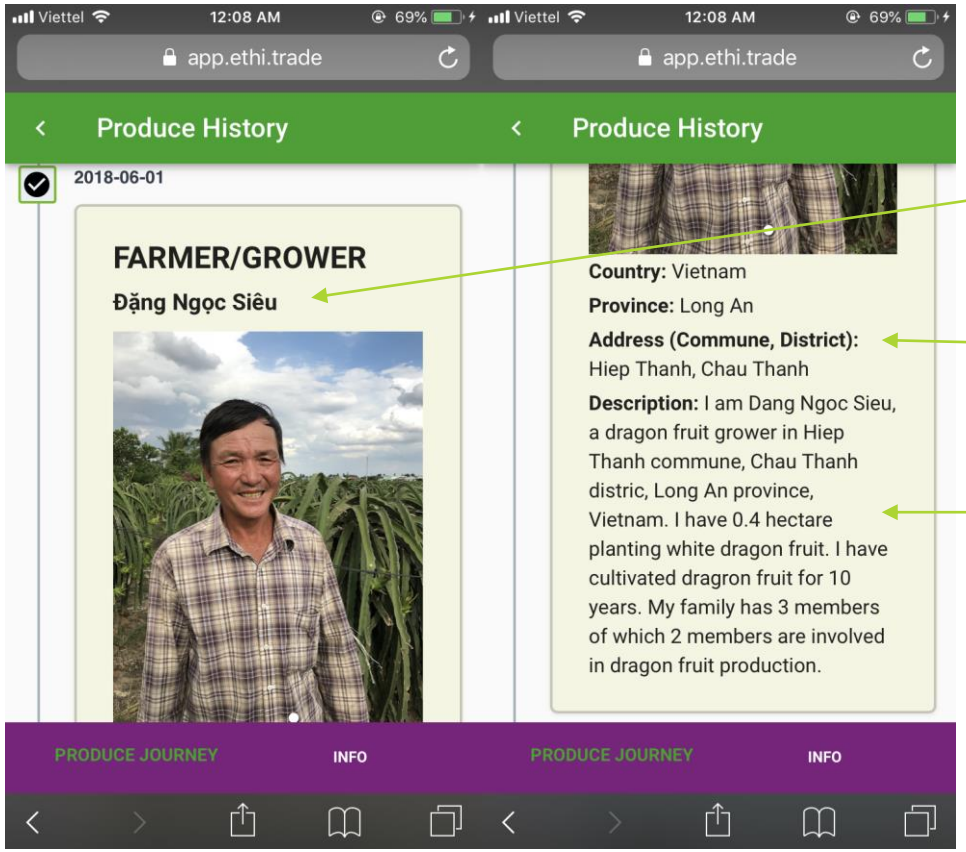
- **Fruit intro**



- Name of produce
- Expiry date
- Variety: red/white flesh
- Packaging method
- Fruit size: 7-24
- Product packed
- Carton weight
- Quantity export
- Production area: PUC

Produce Journey

- **Farmer/Grower**

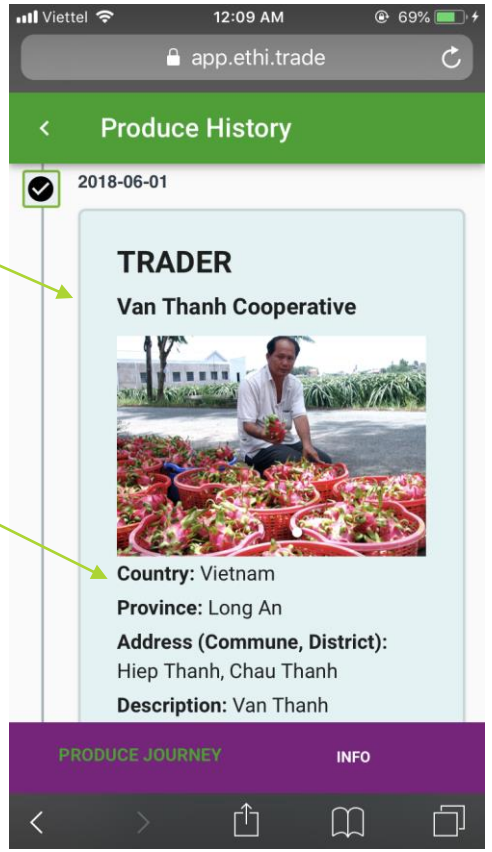


- Name of farmer/grower
- Address
- Description of farmer/grower

Produce Journey

- **Trader**

- Name of trader
- Address
- Description of trader



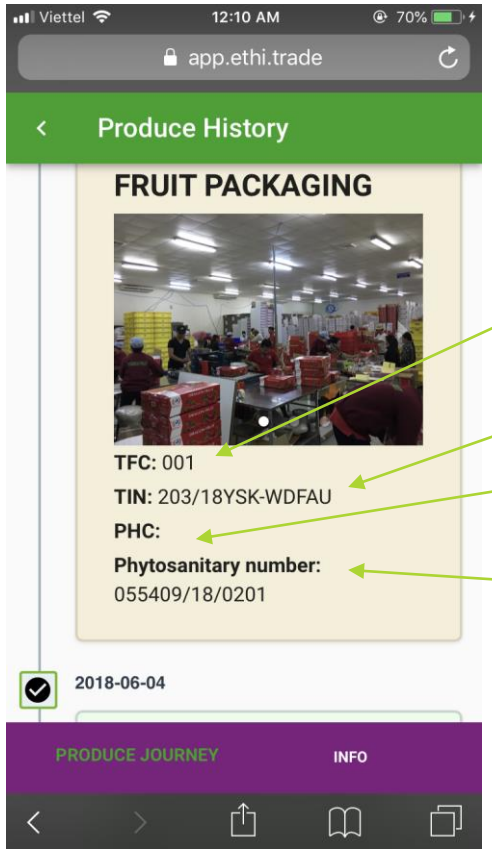
Produce Journey

- **Fruit Cleaning**

- Name of company
- Address
- Description of the company

Produce Journey

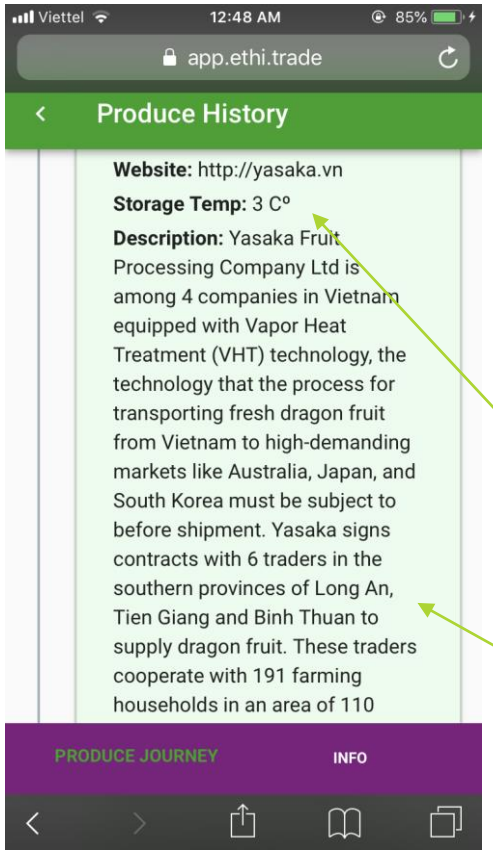
- **Fruit Packaging**



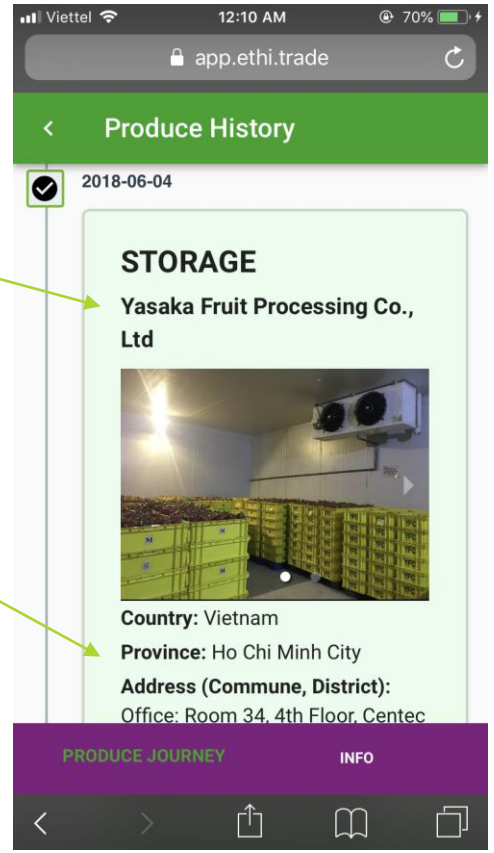
- Treatment Facility Code (TFC)
- Treatment Identification Number (TIN)
- Packing House Code (PHC)
- Phytosanitary number: provided by PPD

Produce Journey

- **Storage**



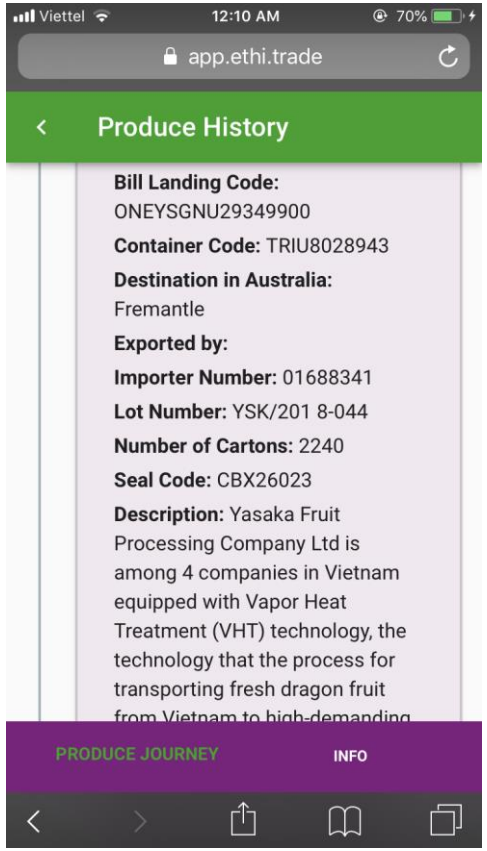
- Name of company
- Address
- Storage temp
- Description of the company



Produce Journey

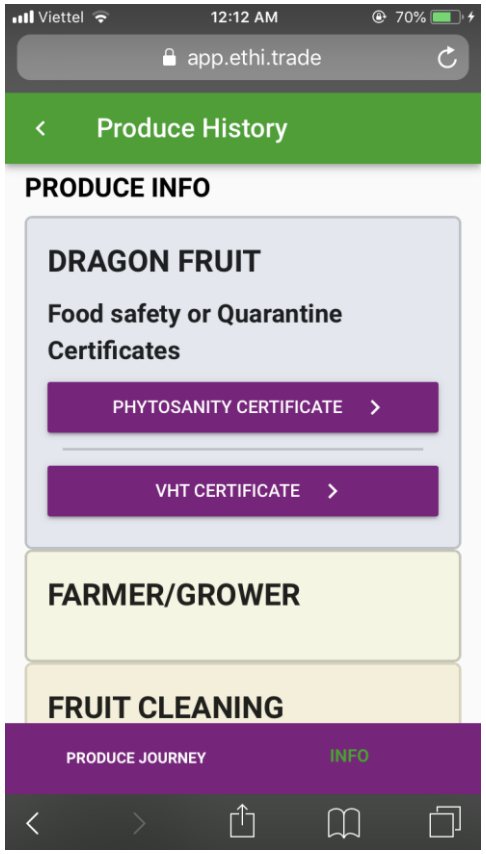
- **Export**

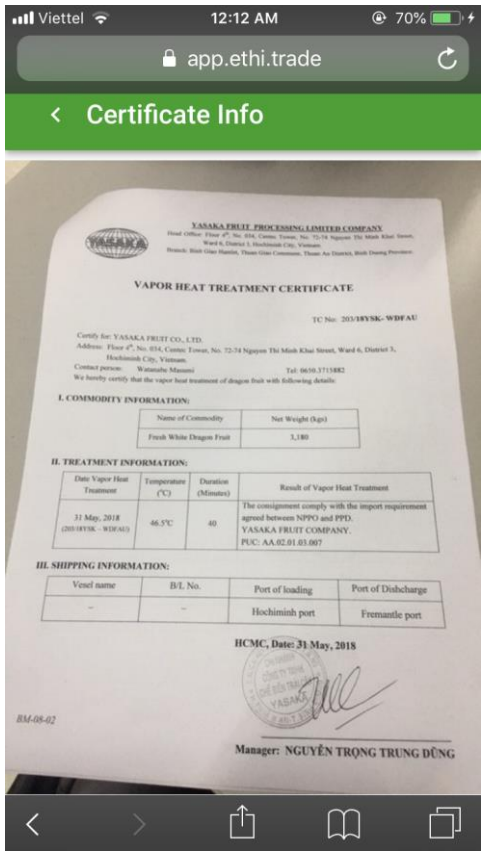
- Name of company
- Address
- Lot number
- Number of carton
- Exported by
- Bill lading code
- Container code
- Seal code
- Destination port
- Importer number



Produce Information

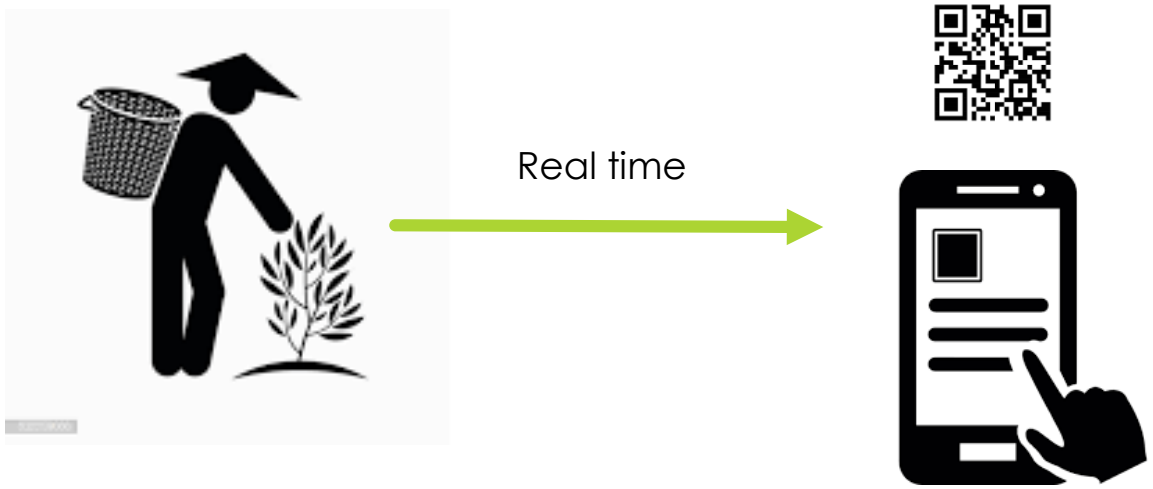
- **Certificates**
  - VietGAP/GlobalGAP
  - VHT certificate
  - Phytosanitary certificate





How do supply chain actors get involved?

- A specific farmer picks up fruit and sells to a trader, he/she (already given an user account) will log in the platform and upload information of the batch of fruit already transacted (real time)
- A transaction will be generated, then a QR code accordingly, which will accompany the batch of fruit until up on the supermarket shelves

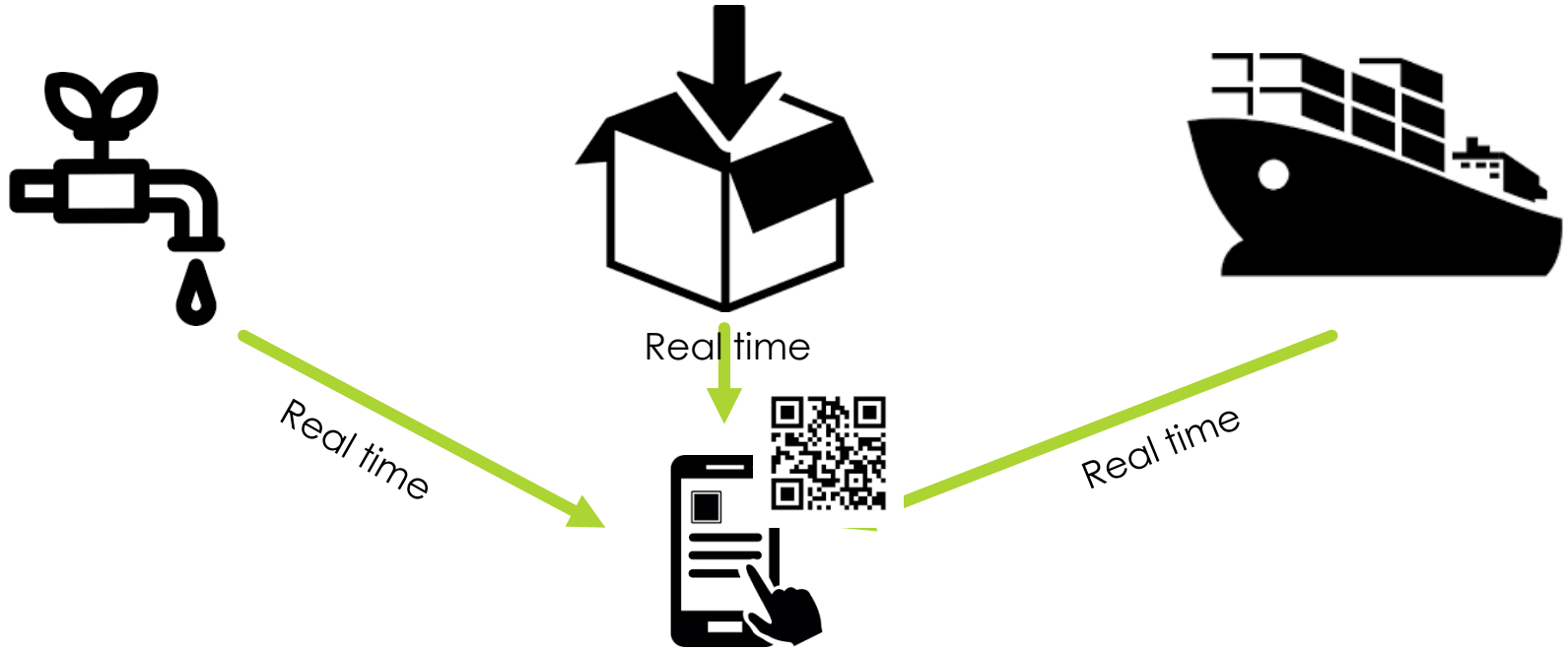


How do supply chain actors get involved?

- The trader (already given another user account) will log in the platform and enter his/her part of information to the transaction created by the farmer in the previous stage (real time)

How do supply chain actors get involved?

- Other stakeholders who do cleaning, packaging and exporting (given another user account) will then log in the platform and upload their parts of information to the previous transaction to accomplish one complete transaction (real time)



What resources do supply chain actors need to get involved?

1

A smartphone with wi-fi connection or a desktop (smartphone preferable)

2

Management cost for additional activities in sorting out dragon fruits in all stages of the supply chain

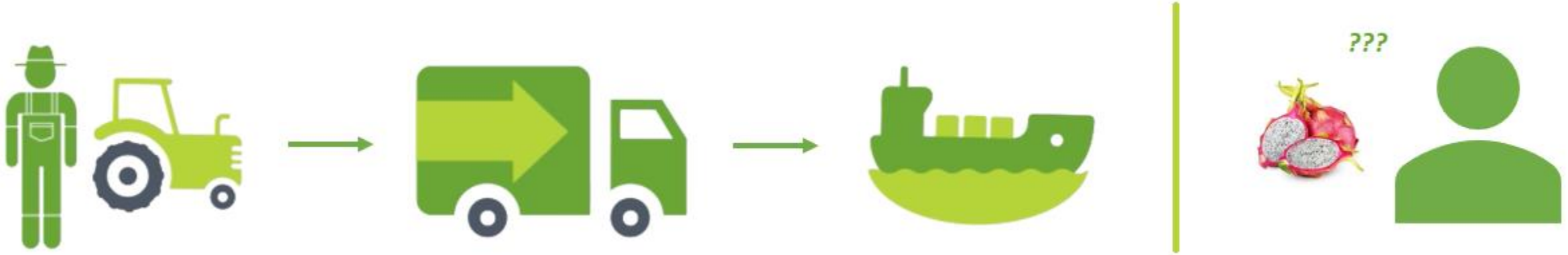
3

A printer and additional cost to print QR code stamps

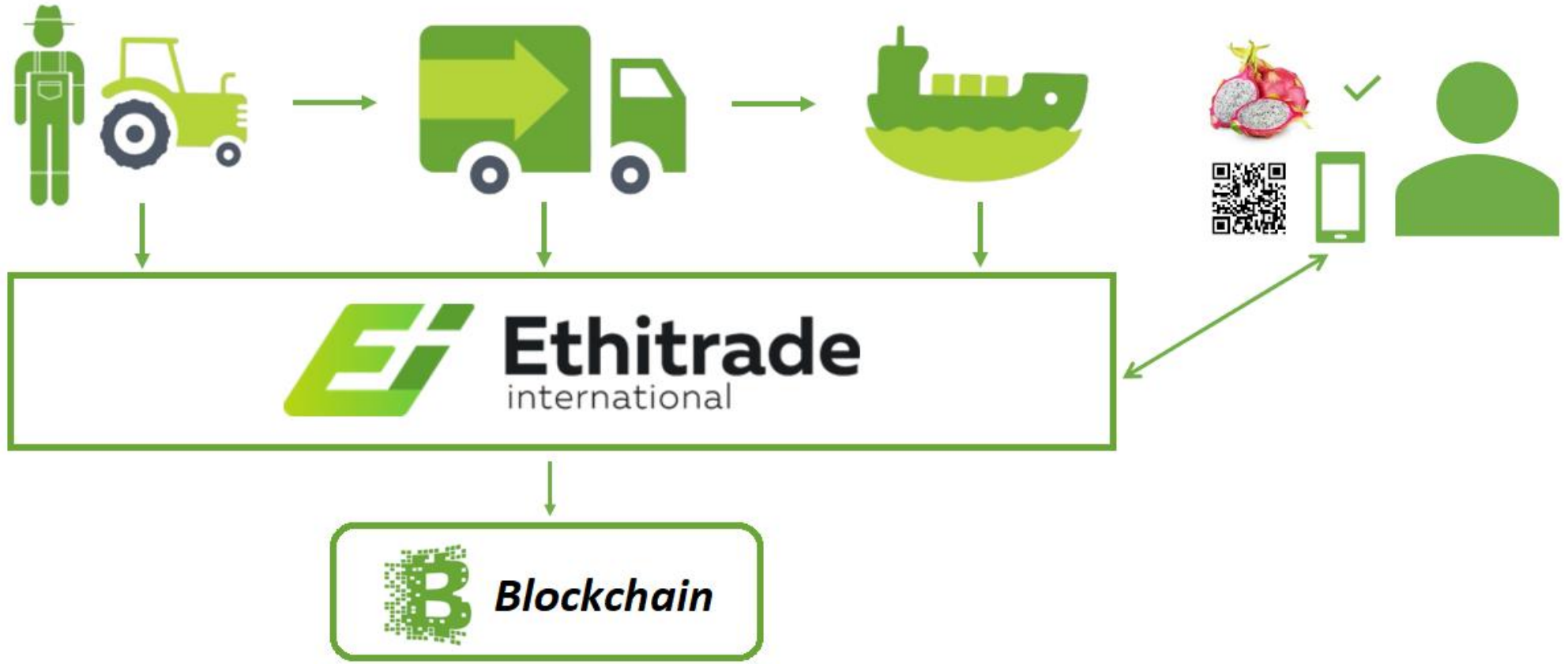
Prototype Pilot Scope

Map	Map the dragon fruit supply chain – engaging with two exporters
Prototype	Develop a prototype system for capturing supply chain data • Use open design principles so all stakeholders get a good understanding of the full system
Pilot	Conduct a pilot to track 50 trades using the prototype system
Analyse	Use the pilot to assess user behaviour and uncover additional requirements

Supply Chain Challenges



Blockchain Based Food Provenance



Blockchain Overview

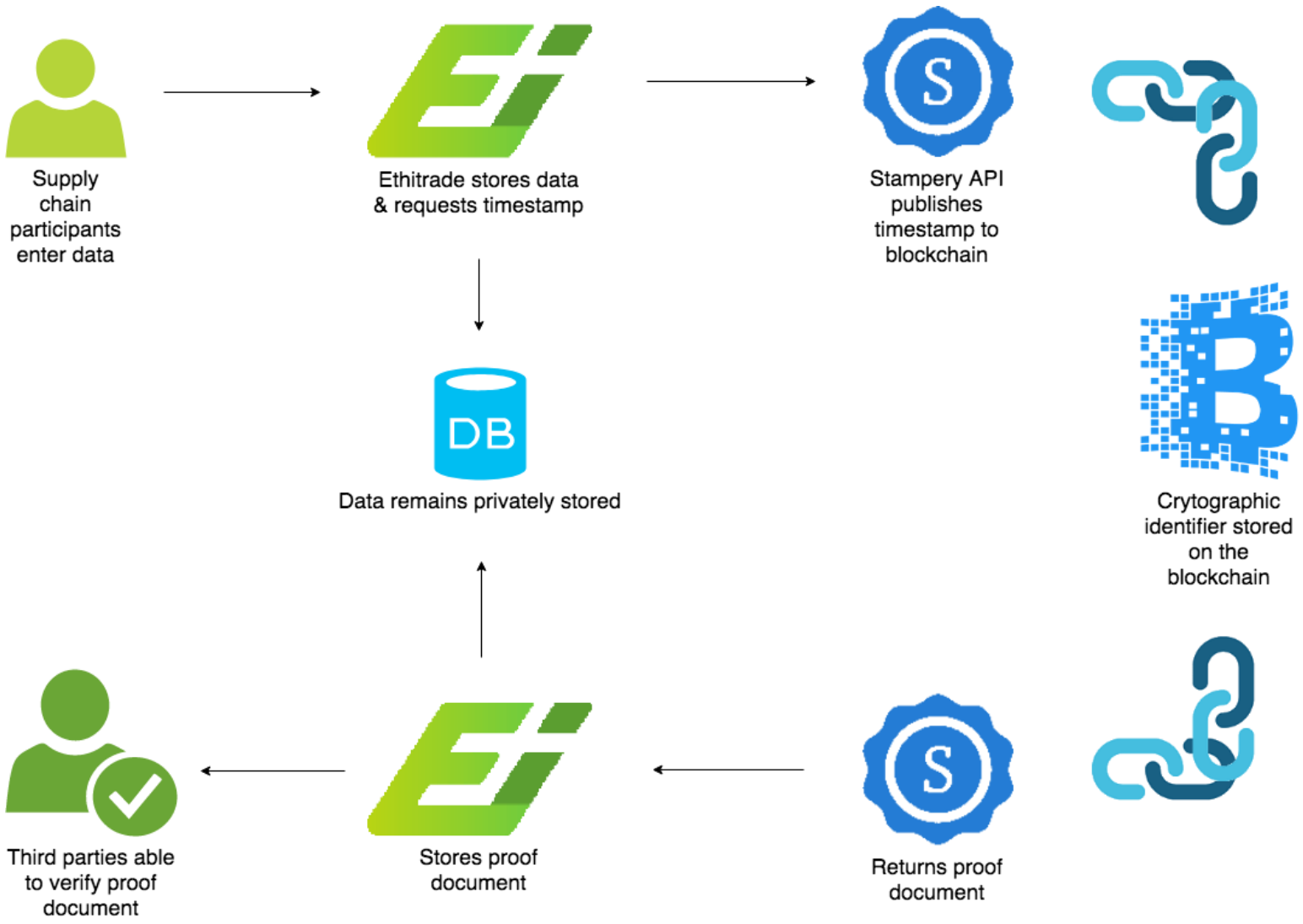
Data Integrity

- Permanent record stamped on the blockchain(s)
- Record cannot be altered once stamped

Data Transparency

- Publicly verifiable by any third party
- Point in time validation (full record of edits)

Ethitrade Blockchain Based Platform



Key Learnings

Variation: Even with just two exporters, the supply chains were different

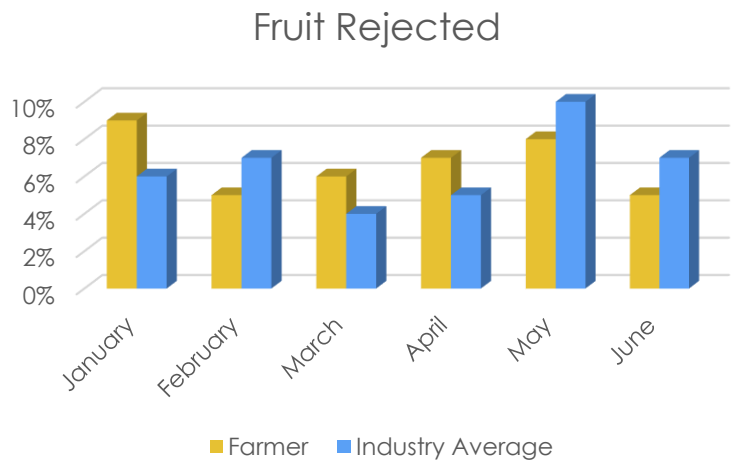
Feasibility: Need to balance ensuring traceability and minimising business impact

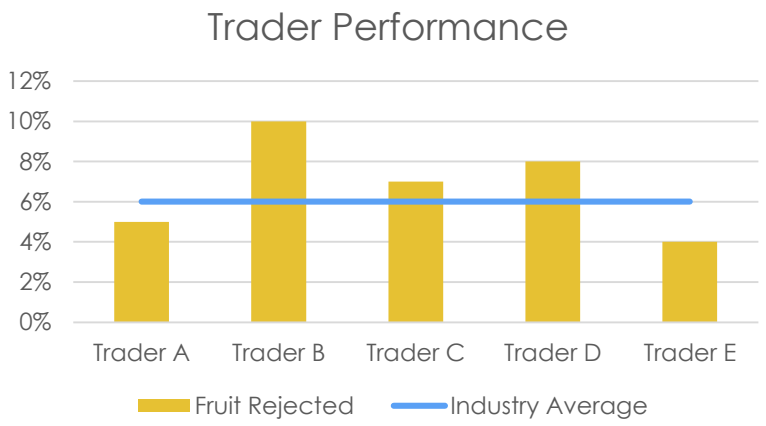
Reporting: Interest from supply chain participants in how the platform can support other business processes (such as VietGap or Global Gap certification)

Analysis: Current processes are largely paper based, limited opportunities for analysis or business insights

How is my Business Performing?

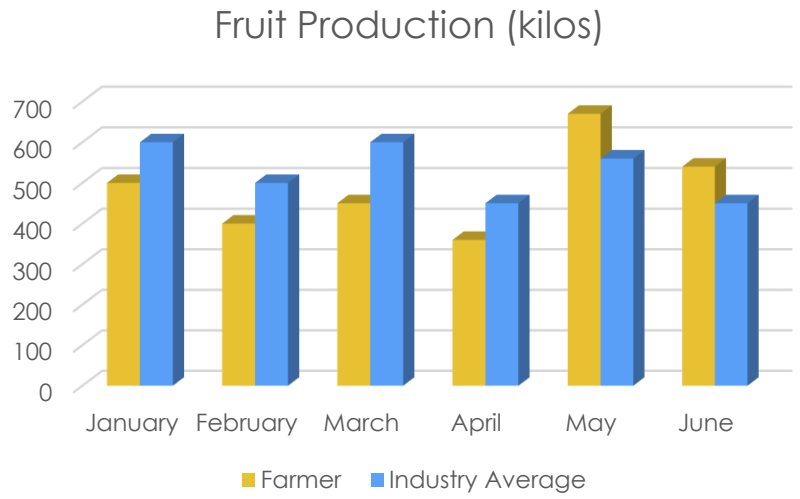
- Is the percentage of rejected fruit for a particular farmer/grower above or below industry averages? Does the percentage change depending on the trader?

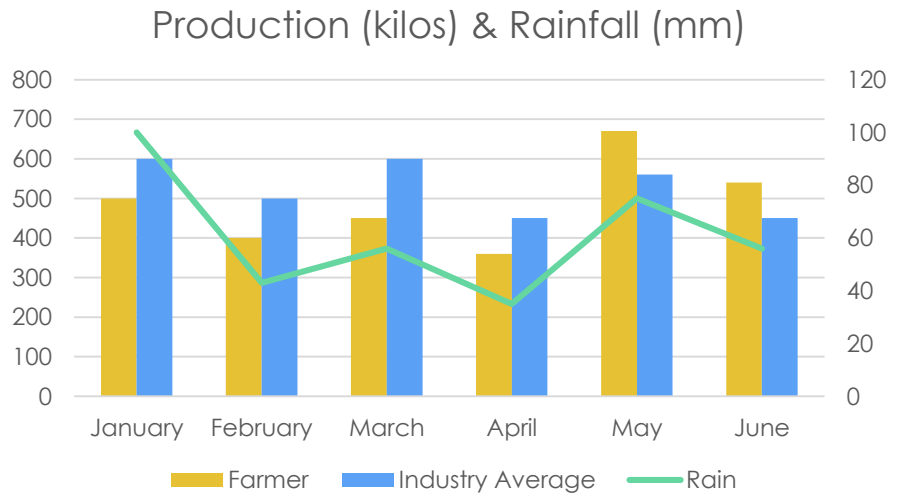




How is my Business Performing?

- How does the production of a farmer/grower compare to industry averages? How does rainfall impact production?





Proposed Enhancements to Prototype

User permissions: segmenting the system so users can only see the parts relevant to them

Reporting and benchmarking: comparisons with industry averages

Certification: capture and reporting of information for certifications (e.g. VietGap, Global Gap)

Benefits of Final Platform

Supply Chain Participants

- Better branding and potential to attract higher prices
- Greater business insights
- Streamlined certification reporting

Consumers

- Full traceability, providing greater confidence in food quality and safety
- Better information to make ethical choices

Government/Regulators

- Visibility of supply chain participants and business practices
- Greater insight into market performance

Thank you for your attention!