

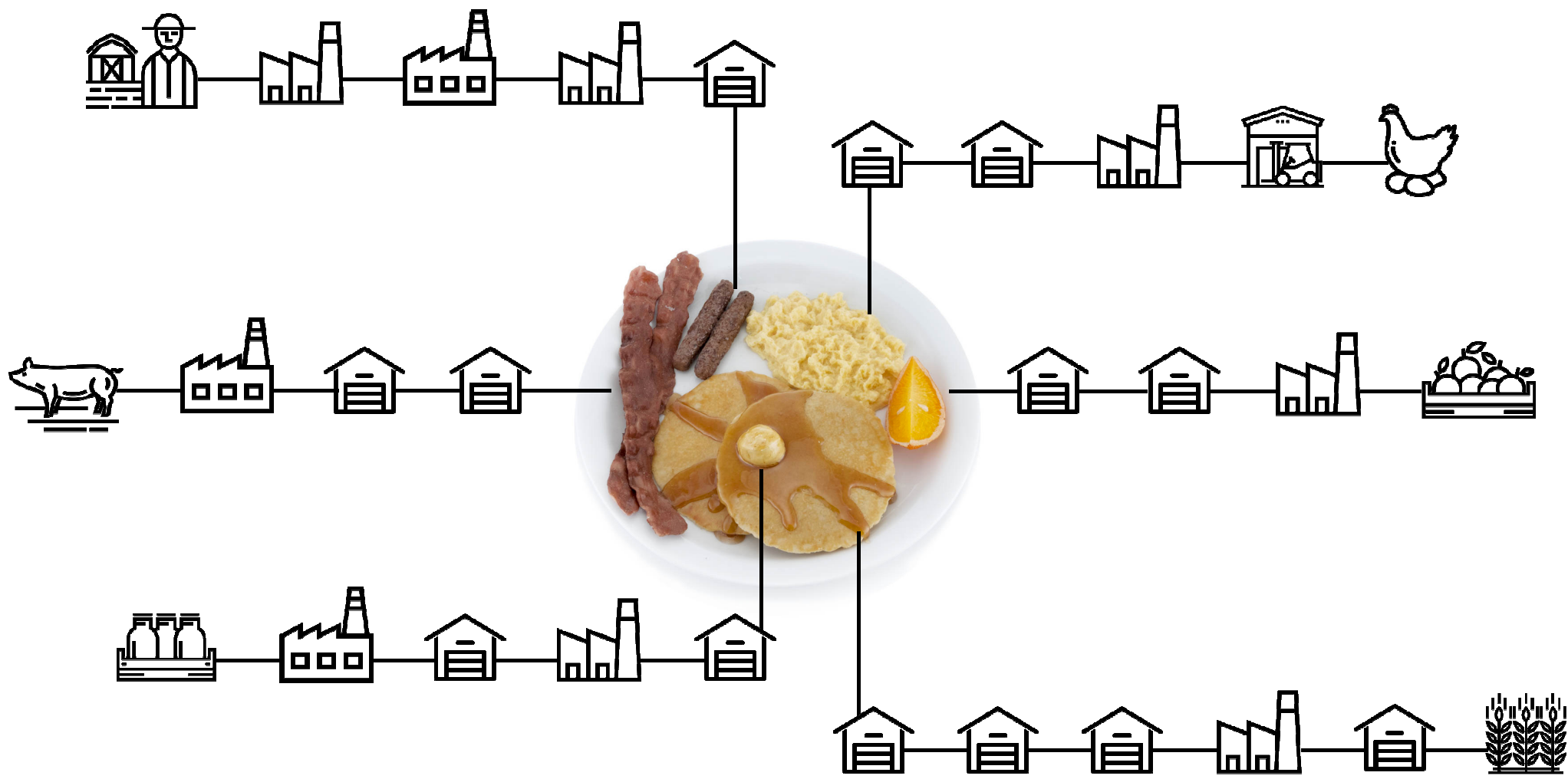


Sledljivost za zagotovitev trajnosti s tehnologijo Blockchain

Nino Pirtovšek [Head of business development](#)

origintrail.io

Walmart  Food Safety Collaboration Center - Innovation Spark Award 2017



Complexity of Supply Chains



32% of manufacturers say
they are unable to guarantee the
ingredients they use
aren't fraudulent.

2017 Lockton Food & Beverage Report

OriginTrail v1.0 (Before Blockchain)

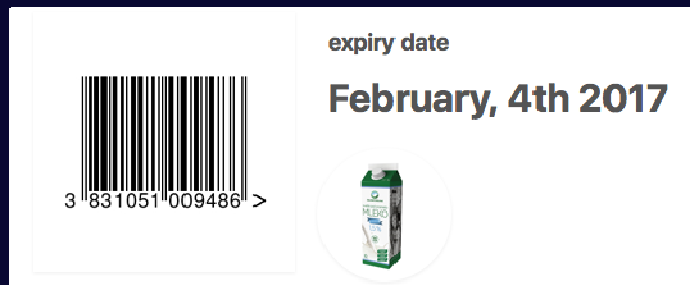
Download App



App commercial



Scan barcode and input expiry date



Most common question:

How can we trust
the information you're providing us?

Lack of trust leads to lack of sustainability



+



=



**Regulation
requirements**

Trust

Sustainable

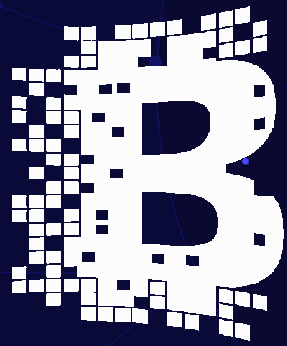
Challenges

1. Poor data interconnectivity from ERP systems and other data sources
2. Limited trust
3. No efficient error visibility
4. Regulation requirements

Solution

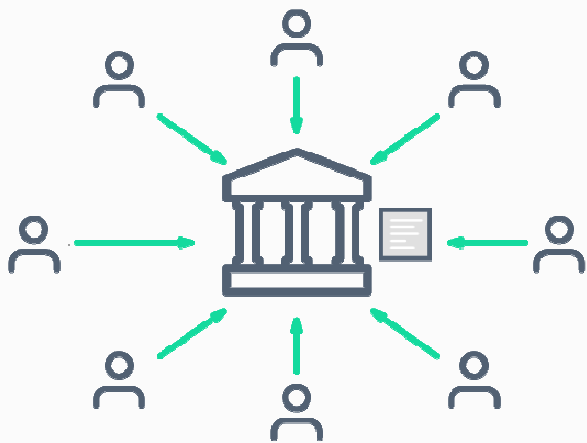
Platform that enables seamless data exchange between organisations, exposes discrepancies and provides traceability.

#decentralization



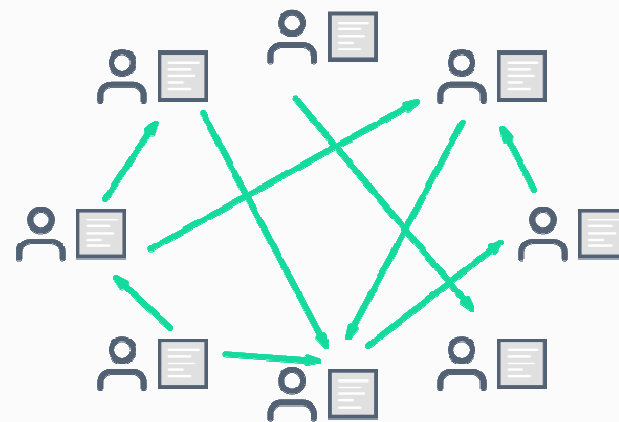
BLOCKCHAIN

Ways of record keeping



Centralised ledger

- Ledger stored and updated by the central body (middle-man)
- Trust in the middle-man
- Ledger easy to change & manipulate
- “Single point of failure”



Decentralised ledger

- Ledger stored and updated by all participants, no middle-man
- Trust in the network mechanisms (math & cryptography)
- Ledger is immutable
- System can survive catastrophic events

OriginTrail v2.0 (Built on Ethereum)

OriginTrail Dashboard

localhost:3000/#/dashboard/import-status?page=1

origintrail

CELEIA

Dashboard / Import Status

Import Status Imported products

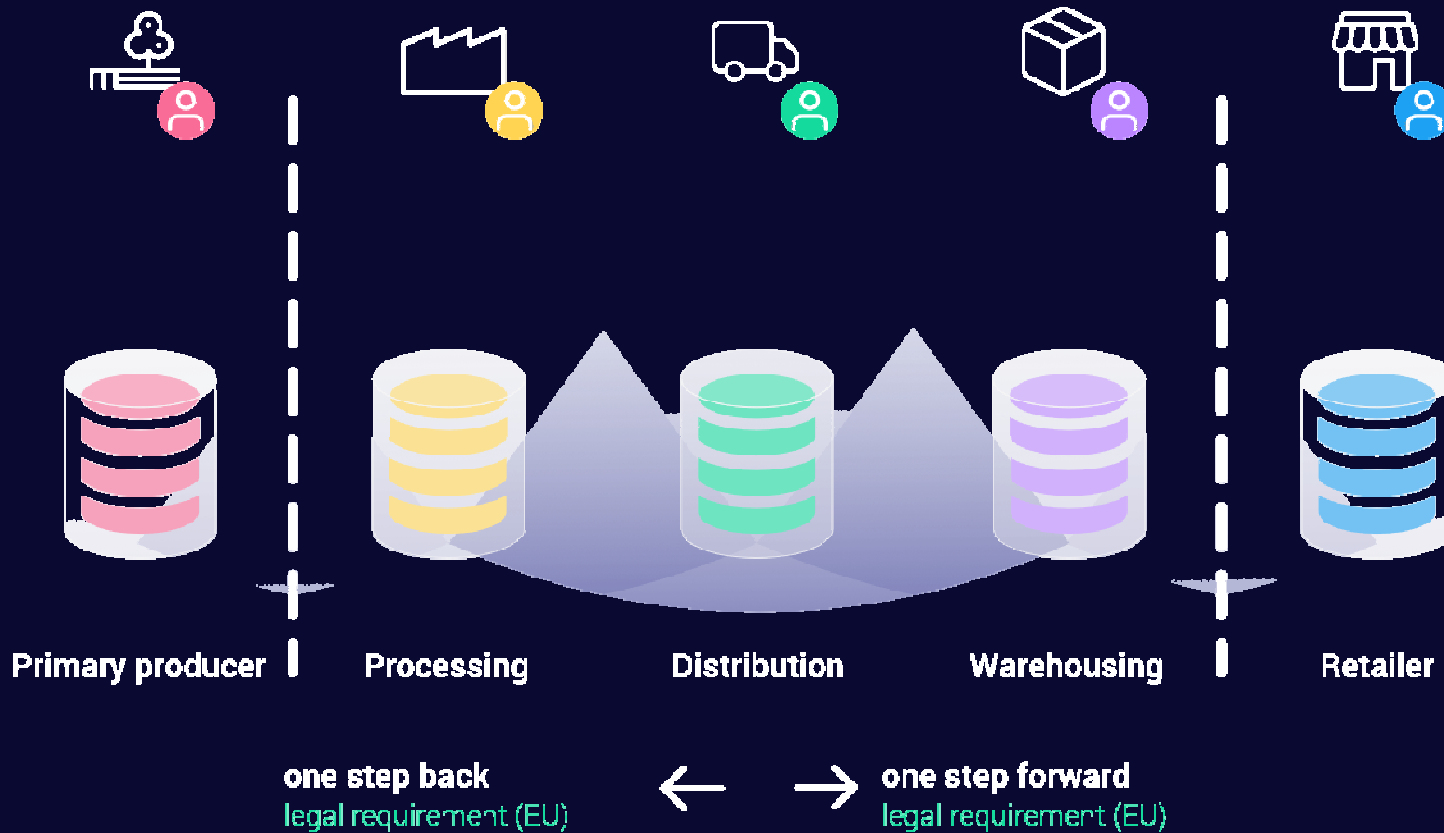
#	Date	File name	Run time	Status	File Hash	File URL	Gas Used	Network	Transaction URL	Action
1	03. 12. 2017 06:00	2017-12-3_PROSPEH_-utf8-11-09-21.CSV	03. 12. 2017 19:14	✓	688293ac6ebc5f960efa51fbc2cad6d3004393c032a369680b6264f4ac74745	URL	70842	mainnet	URL	Run again
2	02. 12. 2017 06:00	2017-12-2_PROSPEH_-utf8-11-19-17.CSV	02. 12. 2017 19:18	✓	9b9fd4eb9e25ae7c5a66befb6bc8c37f4b8752842041b2dcb3b2d9d95017d0eb	URL	70842	mainnet	URL	Run again
3	01. 12. 2017 06:00	2017-12-1_PROSPEH_-utf8-11-40-52.CSV	01. 12. 2017 19:20	✓	25c803f819b4ecac5e369af970b16a03d9759c67b78a6e6a865844d06b417313	URL	70842	mainnet	URL	Run again
4	30. 11. 2017 06:00	2017-11-30_PROSPEH_-utf8-11-24-50.CSV	30. 11. 2017 19:22	✓	97294edb2261f865c6e8a0e9d76eaaecdf74b14d680a9b2f7e2787b2227189e	URL	70842	mainnet	URL	Run again
5	29. 11. 2017 06:00	2017-11-29_PROSPEH_-utf8-11-24-24.CSV	29. 11. 2017 19:26	✓	7a222563351d595e2f77450cc4218cf21bcce367d2c11766bb82c45584c3595f	URL	70842	mainnet	URL	Run again
6	25. 11. 2017 06:00	2017-11-25_PROSPEH_-utf8-11-35-23.CSV	25. 11. 2017 19:23	✓	40b0c58ec809ef6ad9ca7e62a6f606091e7d74d8723b12df263eefda4b7dee15	URL	70842	mainnet	URL	Run again
7	24. 11. 2017 06:00	2017-11-24_PROSPEH_-utf8-11-26-23.CSV	24. 11. 2017 19:24	✓	4053f427bbaf292efce8ccc6e99edaa9bedba5c5f1a5beb15817439f1670e884	URL	70842	mainnet	URL	Run again
8	22. 11. 2017 06:00	2017-11-22_PROSPEH_-utf8-11-17-50.CSV	22. 11. 2017 19:25	✓	934e76bf87a72162580fc27f5accbd81a4f91c42707684df204299abf8e6674	URL	70842	mainnet	URL	Run again
9	21. 11. 2017 06:00	2017-11-21_PROSPEH_-utf8-11-05-46.CSV	22. 11. 2017 00:27	✓	be7d1a7eceb5036d1bee90205bc0d6952098da5a1aeb5acc20c41af3b7ba3b95	URL	29487	mainnet	URL	Run again
10	20. 11. 2017 06:00	2017-11-20_PROSPEH_-utf8-11-04-11.CSV	22. 11. 2017 00:26	✓	1e576009a6bf7ed03f85e35a9fa0ea23f22817af5cf079150b91a5bd4447a250	URL	29487	mainnet	URL	Run again
11	19. 11. 2017 06:00	2017-11-19_PROSPEH_-utf8-11-15-32.CSV	22. 11. 2017 00:25	✓	e1518c1d57da3e3f3d52c2b71849fc45d588269322efaed578e2133f23ad32c	URL	29487	mainnet	URL	Run again
12	18. 11. 2017 06:00	2017-11-18_PROSPEH_-utf8-11-24-43.CSV	22. 11. 2017 00:25	✓	437a27f065d0e56ed3f5dae7bee64f3dff4100261974d624f97487d55fbb09bf	URL	29487	mainnet	URL	Run again
13	17. 11. 2017 06:00	2017-11-17_PROSPEH_-utf8-11-09-51.CSV	22. 11. 2017 00:24	✓	6d1a4cdb9924c690a2da679492a5d074e062936b09d93ebda7c2c00db272e56	URL	29487	mainnet	URL	Run again

localhost:3000/#/dashboard/product

Is Blockchain a Silver
Bullet?

Blockchain Is Not the Silver Bullet

Data fragmentation

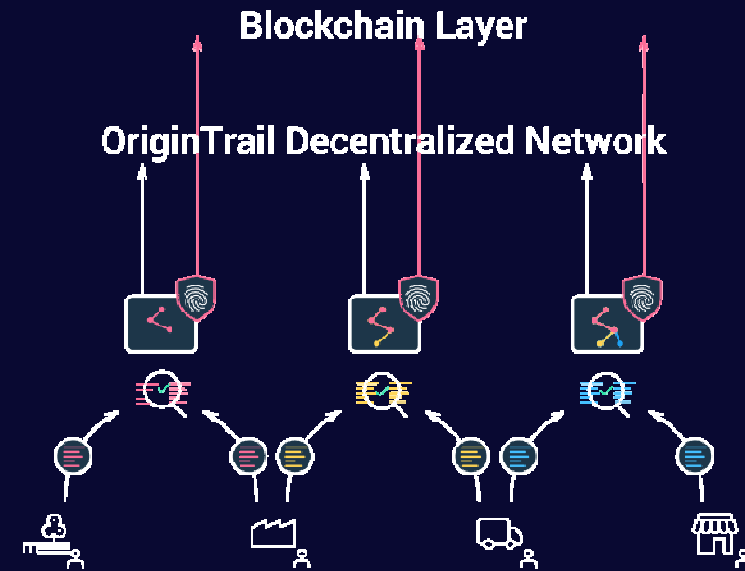


Blockchain Is Not the Silver Bullet

Cost & Lack of Database Properties

Platform	Ethereum	Hyperledger Fabric	IPFS/Filecoin/Storj	BigchainDB
SYSTEM TYPE	Public	Permissioned	Public	Permissioned
INTENDED USE	General purpose virtual machine, Smart contracts	Customizable blockchain framework for closed environments	Decentralized file storage	Decentralized document database
DATA STORAGE COST	High	N/A	Low	Low
DATABASE FUNCTIONALITIES	No	No	No	Yes
SUITABLE FOR HIGHLY INTERCONNECTED DATA	No	No	No	No

Interoperability/ Consensus Check



Data set from Stakeholder 1

```
1 Stakeholders:
2 ID: 0x52b654bEC45E61055358DE1bE1A6A7f9113f5b52
3 To: 0x0A98F870939162725aE66E26Fe4b52cFF62c2a5
4
5 Shipped product:
6 Codetype: EAN13
7 Code: 3831051012345
8
9 Trade items:
10 (02) 0 8360413 81943567
11 (02) 0 8360413 81742214
12 (02) 0 8360417 38310516
13
14 Quantity (mass):
15 1. 240kg
16 2. 240kg
17 3. 202kg
18 Expiry date:
19 2017-12-10
20 Estimated arrival date:
21 2017-09-14
```

Data set from Stakeholder 2

```
1 Stakeholders:
2 ID: 0x0A93f870939162725aE66E26Fe4b52cFF62c2a5
3 From: 0x52b654bEC45E61055358DE1bE1A6A7f9113f5b52
4
5 Received product:
6 Codetype: EAN13
7 Code: 3831051012345
8
9 Trade items:
10 (02) 0 8360413 81943567
11 (02) 0 8360413 81742214
12 (02) 0 8360417 38310516
13
14 Quantity (mass):
15 1. 240kg
16 2. 240kg
17 3. 202kg
18 Expiry date:
19 2017-12-10
20 Receiving date:
21 2017-09-14
```

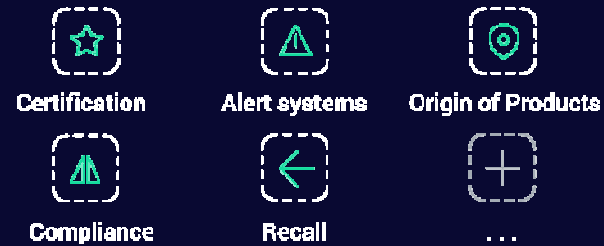
OriginTrail “Middleware”

Key Value Proposition

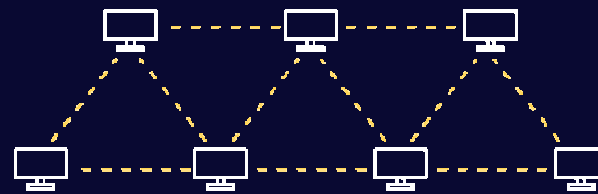
- Interoperability and data integrity
- Enables database properties
- Works with any blockchain
- Cost-effective



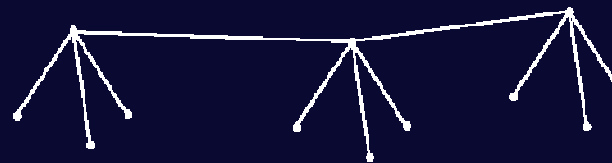
**OriginTrail
Decentralized
Network**



Application layer



Network layer



Data
layer



BLOCKCHAIN

Blockchain layer

OriginTrail implementation case

Yimishiji e-commerce platform

Product journey
from farm to table

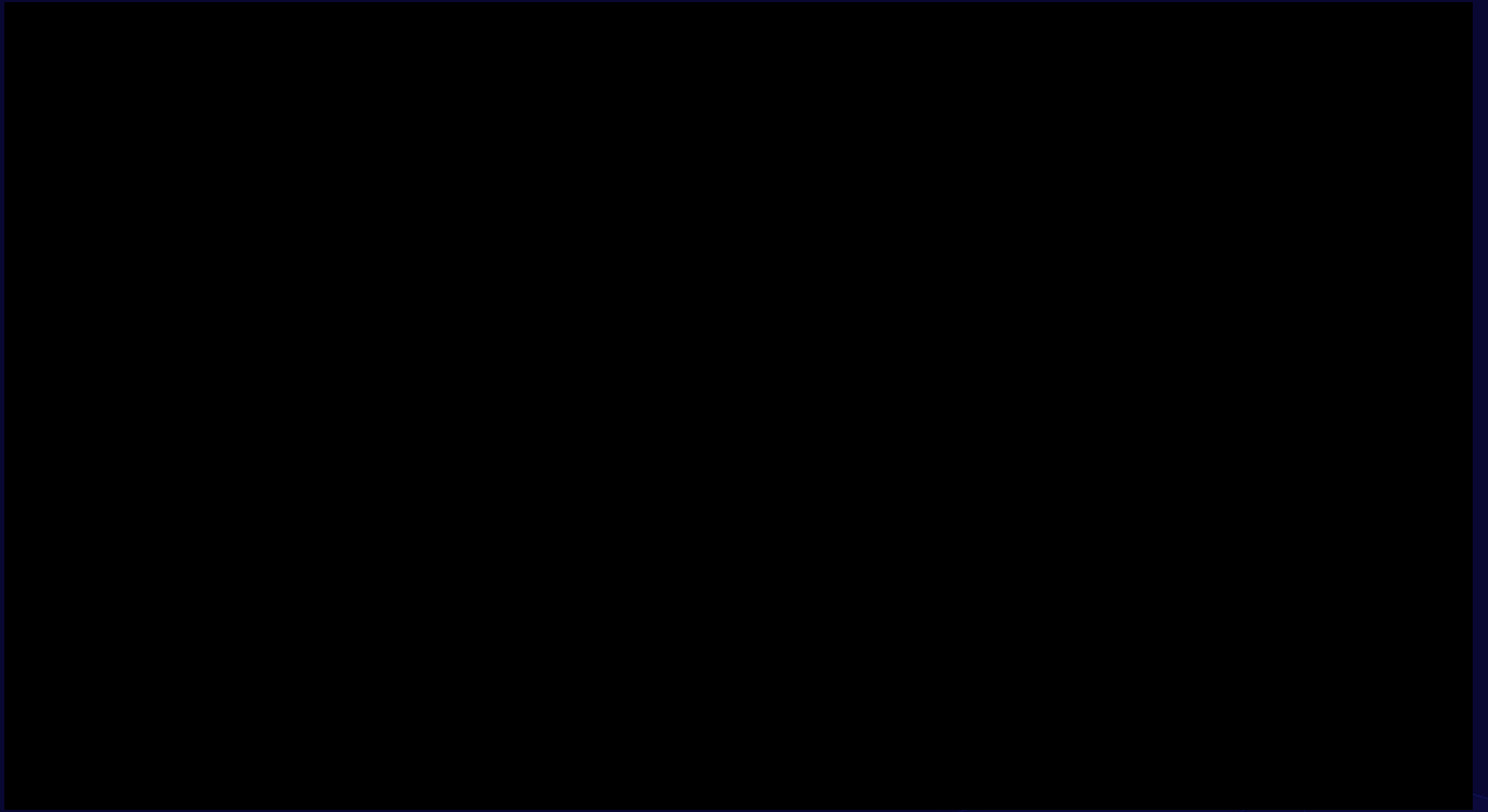


Establishing accountability
within the supply chain



Product safety
(looking at ways to use sensor data)





You don't need to change your
existing business

No need for changing internal processes

No need for changing IT legacy systems

Integration steps

STEP 1 Use Case (Supply Chain Mapping and Data Preparation)

STEP 2 Data structuring following the GS1 EPCIS standard with every participant in the observed supply chain

STEP 3 Integration with the OriginTrail network to enable data sharing

Integration time **1 month** (all the stakeholders are engaged in the project)



A Collaborative Hub for Accelerating Blockchain Adoption

The Trace Alliance connects businesses, developers and researchers who are solving supply chain challenges using the blockchain.

BECOME A MEMBER

alliance.origintrail.io

50+ Members, Including:

The Deloitte logo, consisting of the word "Deloitte" in a bold, black, sans-serif font with a small green dot at the end of the period.

The TMA solutions logo, featuring the letters "TMA" in a large, blue, sans-serif font above the word "solutions" in a smaller, blue, sans-serif font, with a globe icon integrated into the letter "n".

The Gijima Technology People logo, with "Gijima" in a bold, blue, sans-serif font and "Technology People" in a smaller, blue, sans-serif font below it.

The Trust Provenance logo, featuring a stylized blue and green icon of a cube or block to the left of the words "TRUST" and "PROVENANCE" stacked vertically in a blue, sans-serif font.



Awards and Recognitions



Walmart Food Safety Innovation
Spark Award 2017 - Beijing



#SmartVillages initiative



Food + City Challenge Prize (Austin, Texas)
People's Choice Award Winner 2017



Open Data Incubator for Europe
Winner 2016



Belgrade Venture Forum
Winner 2014



Partners

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Thank You for Your Attention!

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