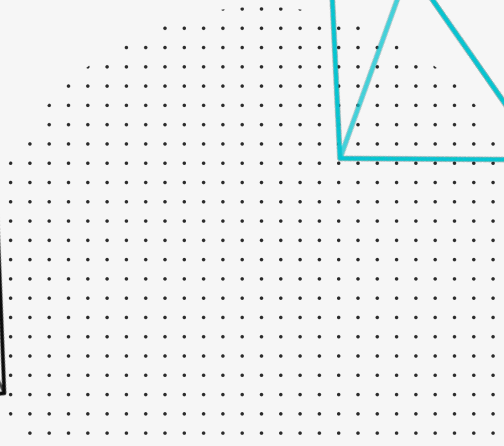
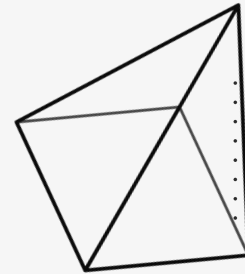




# Decentralised trust in food supply chains

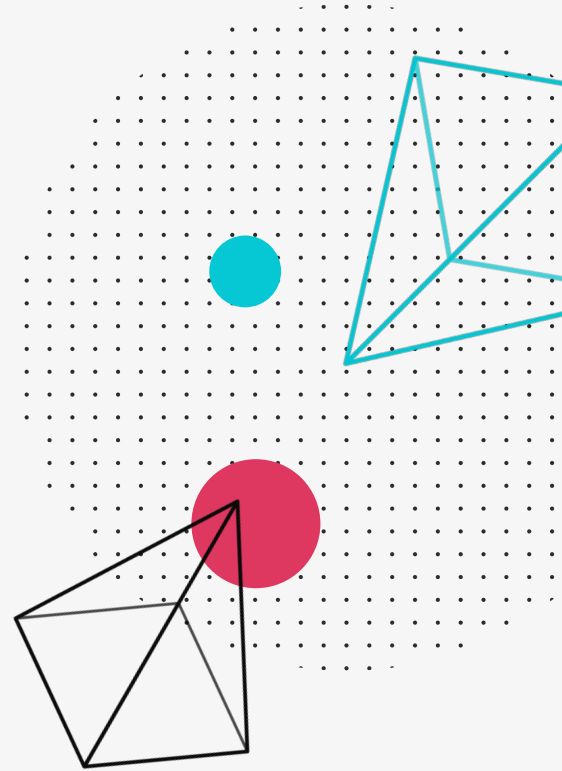
Trace Labs Group Ltd -  
OriginTrail Core Developers



# Blockchains are trust networks

**Decentralized protocols bring trust to the data and value exchanges by enabling:**

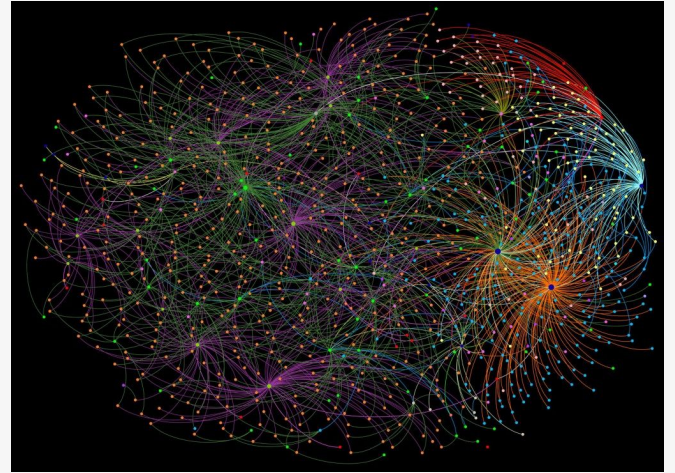
- Tamper-proof shared transaction ledger
- Decentralized identity
- Decentralized Finance
- Tokenization



# Knowledge Graphs are **semantic networks**

“**Things, not strings**” – moving from raw data to actionable knowledge.

Google, Facebook, Amazon use KGs to **extract value** from their **semantic data** (about websites, users, products..).



Google

facebook

amazon



Uber

# OriginTrail - World's first Decentralized Knowledge Graph

- Global semantic network for data and value exchange driving network effects
- "Semantic Web3" fabric through synergy of **Knowledge Graphs and Blockchains**
- Permissionless network running on 1800+ nodes globally

Blockchain agnostic  
network  
#integrity





Global data standards  
support (W3C, GS1)  
#interoperability

Data access  
permissioning  
#Privacy

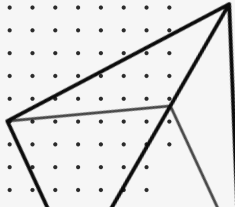
**Web3 applications**

**Decentralized  
Knowledge Graph**

**Blockchains**

 [ethereum](#)  [xDai](#)  [polygon](#)  [Polkadot](#)

Organising humanity's most  
important assets, making them  
**discoverable, verifiable and  
valuable.**



From **physical** to **digital**.

From **data** to **assets**.

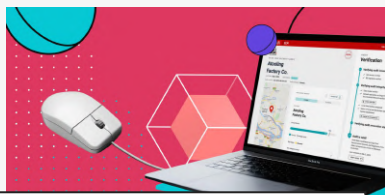
From **Web2 data silos** to  
**the semantic Web3**.

Organise, discover and verify anything – from physical to digital assets like supply chain items, to art, diplomas, certificates, NFTs, DeFi and more.

The Decentralized Knowledge Graph makes the world's data assets easily usable, tradeable and understandable.

# Leading global companies solutions on OriginTrail

From physical  
to digital.



tracelabs

bsi.

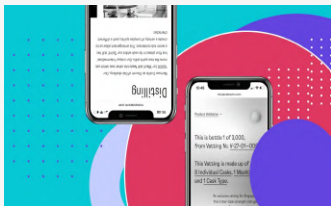


## Trusted factory

BSI and SCAN are utilizing the OriginTrail protocol to ensure the integrity of security audits for over 40% of US imports.



**Pharmaceutical  
industry**



**Food and  
Beverage  
Traceability**



tracelabs

## Rail Travel Safety

Ensuring the safety of train travel by tracking every piece of rail track material used by the Swiss Federal Railways.

# Transparency and Trust in Food & Beverage Sector

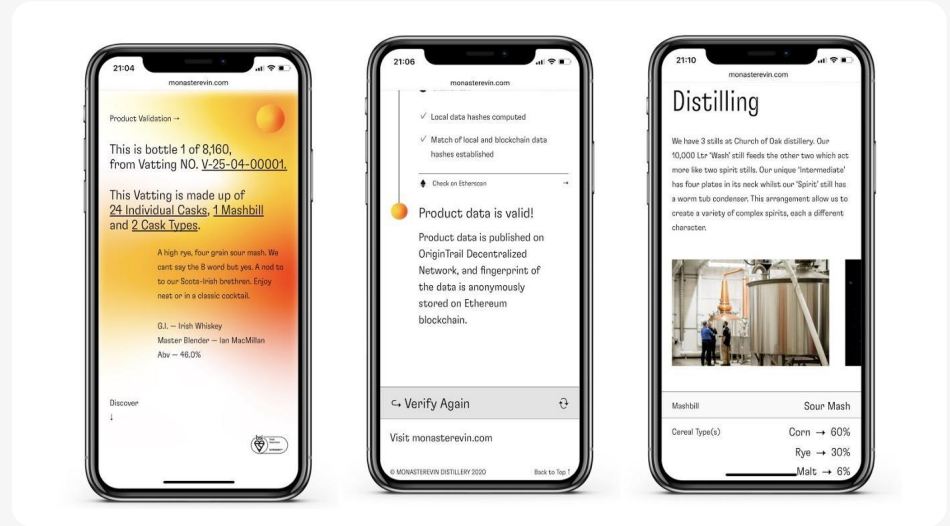


Obtaining data from farmers to **support sustainability claims.**

*"8 of 10 consumers check the origin at purchase" (Elementar, 2017)*



# Transparency and Trust in Food & Beverage Sector

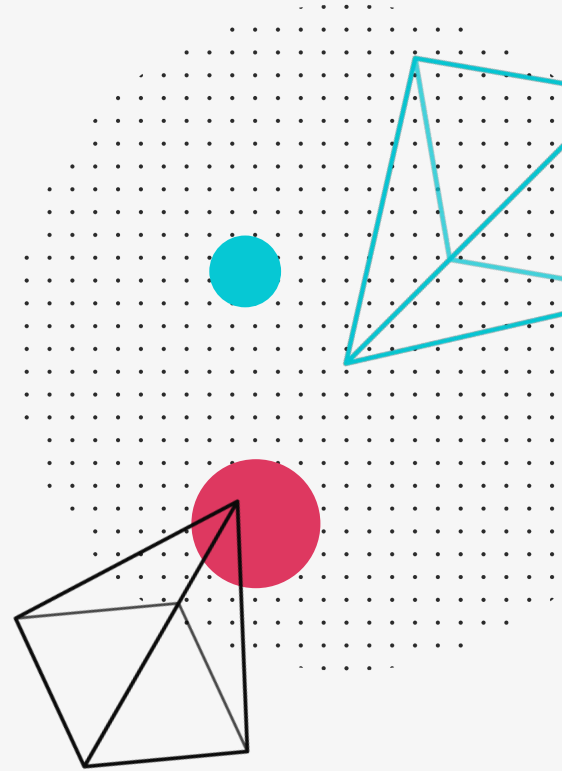


Obtaining data from farmers to **support sustainability claims.**

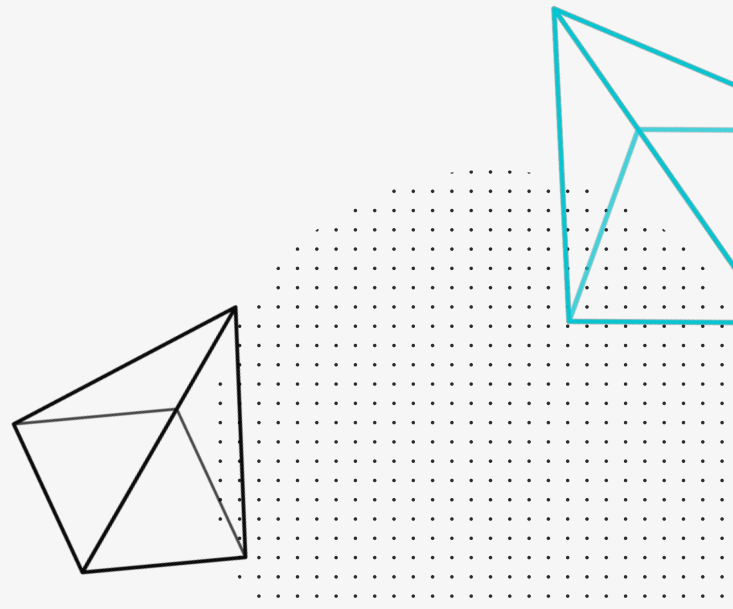
*"8 of 10 consumers check the origin at purchase" (Elementar, 2017)*

# Closing Time

- Blockchains are trust networks.
- Blockchains are not a silver bullet.
- **OriginTrail DKG** is great for handling connected data in a trusted way.
- Global adoption is here.
- Invest time & effort to understand the implications for your industry and **get your hands dirty!**



# Thank You



# Tech deep-dive backup slides



# What can you do with OriginTrail

**Build with semantic,  
high-quality, verifiable data**

**Publish verifiable claims  
from any system**

**Integrate data across Web3  
seamlessly**

**Easily build privacy-first,  
metaverse ready Dapps**

**Discover and crowdsource  
high quality datasets**

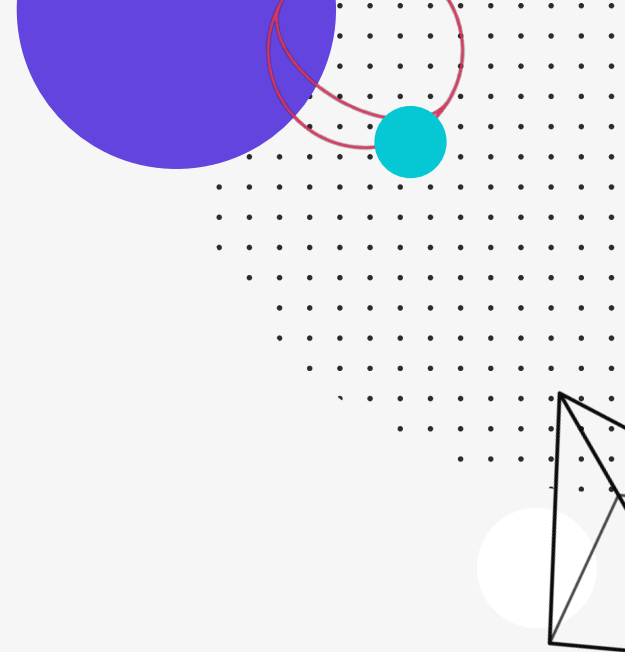
**Tokenize your dynamic  
assets**

# What is a knowledge graph?

There are many definitions of knowledge graphs (KGs), all slightly different. Without emphasising on precision, all of them explain knowledge graphs as **networks of entities – physical & digital objects, events or concepts and relationships between them**. The key characteristics of knowledge graphs are:

- focus on **data connections as "first class citizens"** (linked data)
- designed to **ingest data from multiple sources**, usually in different formats
- **flexible data models**, easily extendable

Today's common knowledge graphs are deployed within the domain of one organisation and are designed to capture data from various sources. KGs are used in **Web2 by companies such as Amazon, Google, Uber, IBM and others** for various applications – search, data integration, knowledge reasoning, recommendation engines, analytics, machine learning and AI etc.. This generates enormous value and makes these organizations the biggest in the Web2 space.



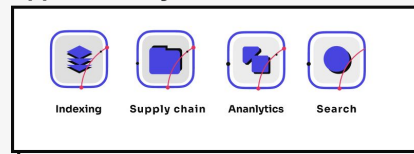
# OriginTrail Decentralized Knowledge Graph: permissionless, verifiable, shared knowledge graph of Web3

The Decentralized Knowledge Graph (DKG) is a global shared knowledge graph that is composed of an openly shared set of signed verifiable assertions. The DKG

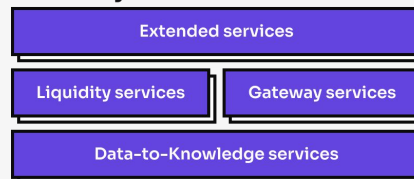
- enables permissionless PUBLISH and QUERY operations to the DKG
- enables Dapps with search, integration, analytics, AI and ML capabilities for any data source: blockchains, decentralized storage, enterprise systems, web services, etc
- removes central authorities - is hosted on the OriginTrail Decentralized Network (ODN)
- provides standards first data layer, utilizing decentralized identity (DIDs & Verifiable Claims) and semantic standards (W3C and GS1 standards)

The OriginTrail Decentralized Network runs a permissionless, multi-chain implementation of the OriginTrail DKG. With the ODN therefore one can query for data across a multitude of systems, to exchange it via several data exchange protocols and integrate it in a local knowledge graph or data store. The ODN has been live on mainnet since late 2018 (currently ~1800 nodes running the network).

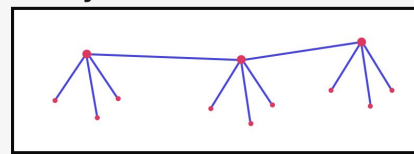
## Application layer



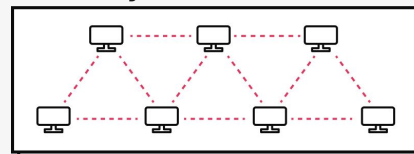
## Service layer



## Data layer



## Network layer



## Consensus layer

