origintrail

The "Google" of web 3

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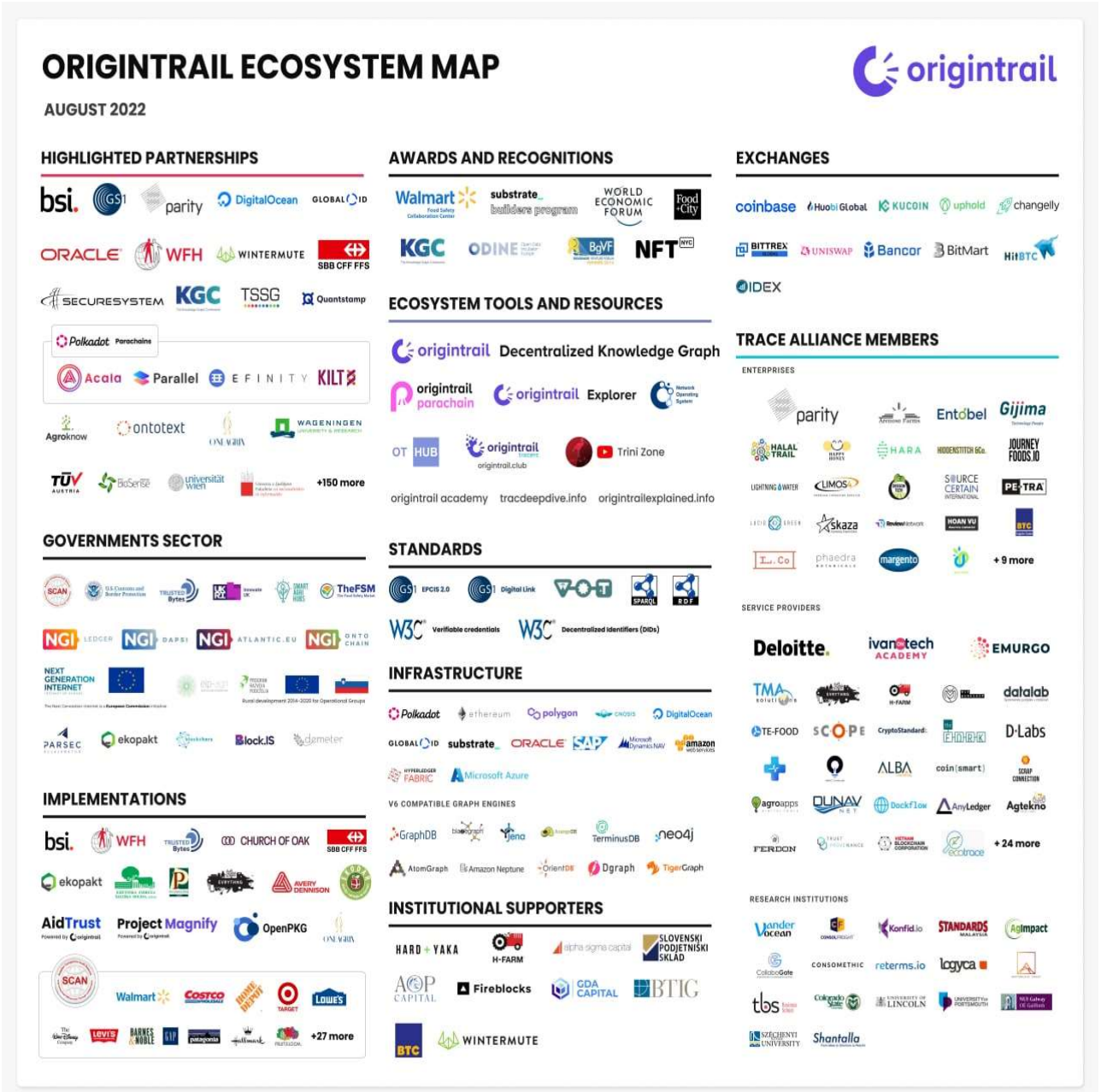

Table of Contents

1 DOCUMENT PURPOSE

The document in front of you was created for two reasons:

1. Origintrail is one of the most advanced protocols in the web3 world today. It does not have enough recognition among the public in the world in general and in Israel in particular. Approaching it in simple language (as much as possible) can bring many people and organizations to be able to see and appreciate the tremendous potential inherent in it, also by exploring use cases which will be detailed later.

2. The project is now before a leap forward and it is time to try to harness entrepreneurs and organizations to develop applications that can improve the people life and empower them.

I have a lot of Ideas for start-ups using the potential lies in the DKG, and I'm looking for partners (mainly technical), who connect to the vision behind this project, and they have the time and desire to invest in developing an idea.

I would greatly appreciate any response, request or question regarding this paper, in any media that suits you:

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Last thing …I am not a Tech guy (my background is Finance), so I will not go deep in the technology behind the protocol, but I will try to focus on the meaning and the opportunity that it brings along with it.

2 INTRODUCTION

Origintrail ("OT") was initiating (formally) in 2017[1] by Trace Labs company ("TL").

TL was founded in 2013, and today it is a group of companies formed out of the United Kingdom, with presence in Slovenia, Serbia and Hong Kong.

The motivation for establishing OT was to provide a successful solution to challenges throw food supply chains using the blockchain technology.

OT have identified two key factors needed to be addressed: impeding data collection and sharing data in supply chains.

To answer those barriers, **they developed a decentralized, off-chain peer-to-peer network (ODN) that safely combines supply chain data from different IT systems, keeping it encrypted (stores only fingerprints of data on a blockchain) to ensure data integrity. This solution minimizes the amount of data stored on the blockchain in order to reduce cost and inefficiency. The protocol is blockchain agnostic, so it can be implemented in any blockchain the stakeholders wish.**

The ODN combines two layers: Network and Data

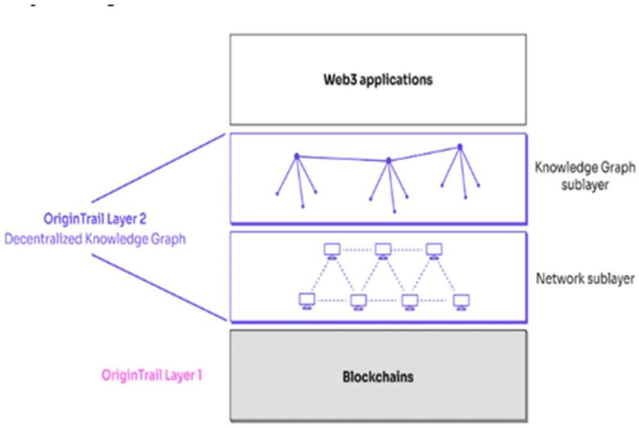
Network layer- It consists of network nodes (today about 2,500) which all contain parts of the decentralized database. The network distinguishes between two types of nodes in regards to their interaction with supply chain data - data creators (DC) and data holders (DH). A DC node is responsible for injecting supply chain data into the network and replicating it over a specific number of data holder nodes. A DH node responsible to hold the data and keep it faultless.

Data layer- The data layer takes care of all the necessary data management and connectivity functionalities. Because of the need to connect many different data sets across the supply chain, while providing the flexibility to support many different connection options, data relationships are the key factor to focus on in the data layer. The most efficient way for that is using the **Graph database** solution (e.g., knowledge graph).

Knowledge Graph (KG) is an advanced database used by companies like google, amazon, Facebook, etc. it aims to make most important assets discoverable, verifiable and valuable. They were designed for the analysis of relationships between data to draw useful conclusions.

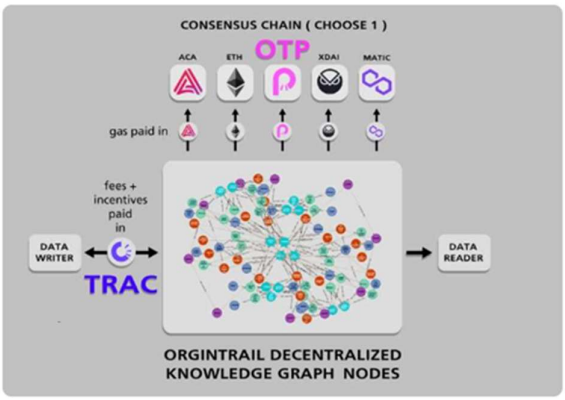
[1] https://origintrail.io/storage/documents/OriginTrail-White-Paper.pdf

The DKG is a global trusted index for Web3 grade assets. It is a permissionless knowledge graph hosted on the OriginTrail Decentralized Network, run by DKG node runners across the globe. Anyone can contribute to the OriginTrail DKG and use its services.



OriginTrail incorporates blockchain (layer 1) as the platform to ensure data integrity. For all the information that gets included in the system, a tamper proof "fingerprint" (a cryptographic hash) is generated and stored on the blockchain at the time of arrival. The cryptographic hash is commonly used to prove the received data has not been modified in any way.

OriginTrail ecosystem is enabled by the tokenization of data exchange and supply chain processing functionalities. The **Trace token** is the means of compensation between supply chain data producers and data consumers on one side and the OriginTrail node holders on the other. It provides the incentive to the nodes in the peer-to-peer network to perform the system functionalities. Maintaining and operating the p2p network takes resources: time, electricity, computing power, storage space and communication bandwidth. The Trace token is implemented as an ERC20 compatible token on Ethereum. This ensures interoperability with wallets and other tokens on Ethereum. The Trace token smart contract handles all transactions and balances in a secure and trusted manner.

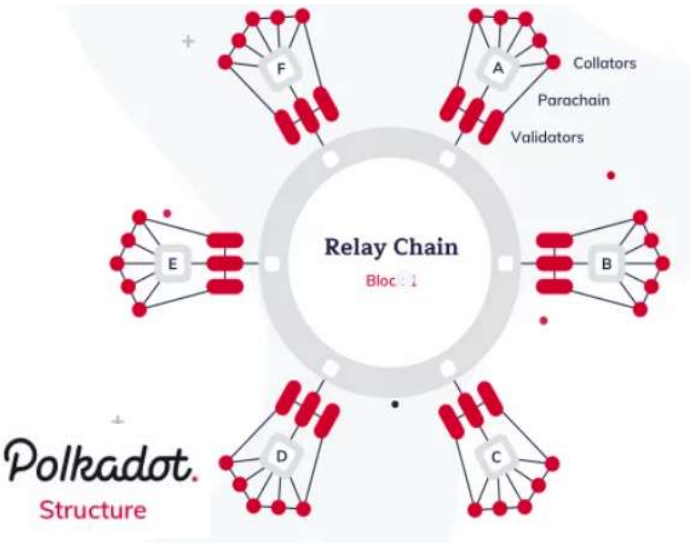


TRAC vs OTP comparison, credit: @_i_o_t_b on Twitter

Those fundamentals that described above are based on the first whitepaper published on 2017.

As for today the protocol has been involve and many use cases were built upon it. Some of them we will review later in the paper.

The most significant and important development last year, is the joining of OriginTrail to the blockchain system of **Polkadot**.



Polkadot is a sharded protocol that enables blockchain networks(parachains) to operate together seamlessly. It designed to increase the interoperability of different blockchains and connect them into a single multi-blockchain network. It allows blockchain systems to process and transfer data quickly and securely. by harnessing the power of the OriginTrail DKG, OriginTrail Parachain extends discoverability, verifiability and greater value for interconnected Web3 assets to Polkadot.

On June 2022, OT launched its specialized blockchain — the OriginTrail Parachain.

Integrated with the Polkadot Relay Chain, the OriginTrail Parachain brings a formidable capacity to incentivize the usage growth of the DKG, as well as creates huge efficiency gains without sacrificing decentralization, and network effects through interoperability with other parachains.

OriginTrail is leaded by its 3 co-founders:

Ziga drev – has a bachelor degree in international relations and affairs and also M.B.A from the university of Ljubljana. He joined Trace Labs (2013) as a student. Active as Managing Director.

Tomaz levak – has a bachelor degree in international relations and affairs and also Master degree in Human resources Management from the university of Ljubljana. He joined Trace Labs (2013) as a student. Active as Managing Director.

Branimir Rakic – has a Master of science (MS_C), electrical and computing engineering from the University of Belgrad. He joined Trace Labs (2013) as a student. Active as CTO.

3 EXECUTIVE SUMMERY

OriginTrail[2] is like Google…but for Web3. Today we need to dig in for hours on the web (Google), on different websites to get **valuable** information. With the DKG anyone will have access to a huge amount of structured data with one click, using the connections and associations between all of its accessible physical and digital assets. Also, it provides access to the "Deep Web".

Application developers can then use this vast network of information to build knowledge about specific assets into their apps.

Many organizations are adopting this decentralized technology instead of similar centralized solutions due to a hesitance to trust one organization with their data and reluctance to share competitive data with a third party. OriginTrail's DKG solution has served already as a catalyst for cooperation among competitors.

The best way to grasp the power of the protocol, the variety of possibilities and the huge potential that lies in it for the benefit of improving people's day-to-day processes, is to focus and explore the ecosystem map found in the opening page.

- **World class partnerships with the best players from key industries**

- **The company works in cooperation with governmental organizations in the world in order to influence the way in which organizations and individuals exchange services, products, knowledge and ultimately value.**

[2] https://medium.com/acalanetwork/origintrail-to-launch-on-acala-bringing-its-decentralized-knowledge-graph-to-acalas-developer-d92c4372deb9

- **By pioneering the use of global standards such GS1 EPCIS and W3C's Verifiable Credentials OriginTrail has been embedded into a growing number of applications built also to bring value to some of the most notable global organizations.**

- **Now days the OriginTrail's Parachain is connecting to the mainnet on Plokadot (the Relay Chain) and V6 final implementation is completed , we will see its new features such as UALs, incentivization, advanced keyword search, Polkadot integration and more.**

- The Magnify project **kick-off and the asset publishers will, for the first time ever, have the opportunity to create verifiable and ownable search results for the universe of assets that will evolve over time.**

4 DKG- THE "GOOGLE" OF WEB 3

Trace Labs is the core developer of the OriginTrail Decentralized Knowledge Graph – a set of tools and protocols designed to bring billions of assets to Web3, leveraging blockchain technology. It connects the physical world (art, healthcare, fashion, education, supply chains, ...) and the digital world (blockchain, smart contracts, Metaverse & NFTs, and DeFi, …) in a single connected reality.

4.1 Knowledge Graphs- What Are They?

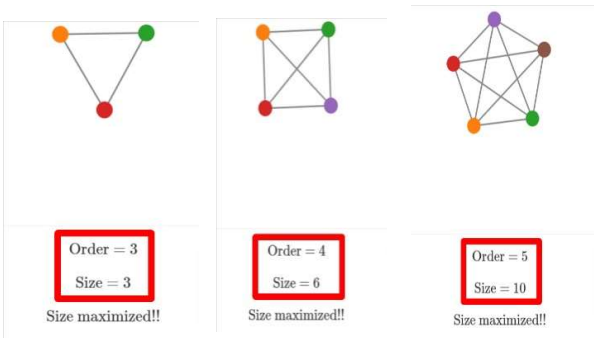
Before we dive in it is important to know that advanced knowledge graph technology currently powers trillion-dollar companies like Google (Google PageRank), Amazon and Facebook. These companies have private KGs to make sense of the vast data that they collect from their users. Unknowing users give their data freely to these corporations while using their products, which then gets monetized with the help of a KG in a siloed environment.

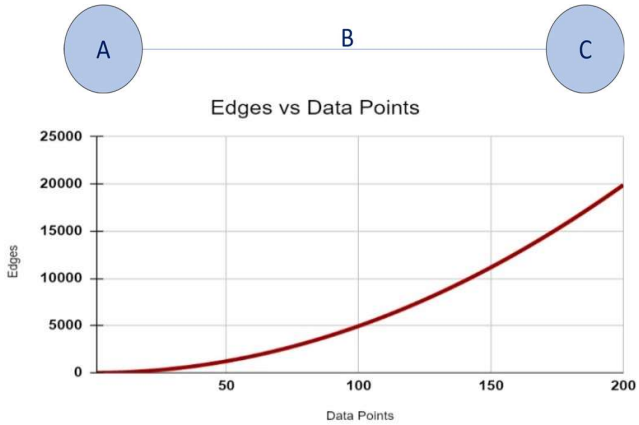
A knowledge graph, also known as a semantic network, represents a network of real-world entities—i.e., objects, events, situations, or concepts—and illustrates the relationship between them. This information is usually stored in a graph database and visualized as a graph structure, prompting the term knowledge "graph."

information is inherently valuable; a simple Google search term enriches the knowledge graph of Google and generates more value. Next time when Google is being searched for the same term, they will actually use the learnings from what you've done previously.

A knowledge graph is made up of three main components: points, edges, and labels. Any object, place, or person can be a node. An edge defines the relationship between the nodes. For example, a node could be a client, like IBM, and an agency like, Ogilvy. An edge would be categorizing the relationship as a customer relationship between IBM and Ogilvy.

A represents the subject, B represents the predicate, C represents the object





Knowledge graphs are typically made up of datasets from various sources, which frequently differ in structure. Schemas, identities and context work together to provide structure to diverse data. Schemas provide the framework for the knowledge graph, identities classify the underlying nodes appropriately, and the context determines the setting in which that knowledge exists. These components help distinguish words with multiple meanings. This allows products, like Google's search engine algorithm, to determine the difference between Apple, the brand, and apple, the fruit.

Some examples for knowledge graphs applications:

Retail- recommending products based on individual purchase behavior and popular purchase trends across demographic groups.

Entertainment- Knowledge graphs are also leveraged for artificial intelligence (AI) based recommendation engines for content platforms, like Netflix, SEO, or social media.

Finance - This technology has also been used for now-your-customer (KYC) and anti-money laundering initiatives, allowing banking institutions to understand the flow of money across their clientele and identify noncompliant customers.

Healthcare - Knowledge graphs are also benefiting the healthcare industry by organizing and categorizing relationships within medical research. This information assists providers by validating diagnoses and identifying treatment plans based on individual needs.

4.2 Discoverable, Verifiable and Valuable

"THE DKG WAS DESIGNED TO MAKE HUMANITY'S MOST IMPORTANT ASSETS DISCOVERABLE, VERIFIABLE AND VALUABLE".

As this is the main vision behind The DKG it is important to understand what each component means:

Assets- Both physical assets (such in the food chain) and digital assets (NFTs for instance) or just generally data assets.

Discoverable - means that all this knowledge that gets accumulated is able to connect to some other knowledge or is able to be used in some application. Discoverability is also important in terms of bridging data silos. When we have situations where we have companies that have maintained their own data systems, like Facebook and Google, but also any data system, in order to bridge those, you need to have the property of discoverability.

Verifiability - in the context of blockchains, verifiability is associated to immutable data sets that have all been signed, and have a cryptographic fingerprint. On the protocol level you

can verify the integrity of this information, or that it has been immutable, but also confirm or verify the signature of whoever issued this verifiable data set.

Valuable – combining all 3 dimensions above you can create value to any discoverable and verifiable asset. You can look (query) for that data and get all kinds of answers and analytics based on verifiable data and that is what we can base our decisions on. Now we (data creators) can own and enjoy from the fruits of our data.

Behind the structure of the DKG are 4 principles:

1. **Permissionless network** - The OriginTrail DKG is running on a permissionless network of 2000+ nodes globally enabling data discovery, connectivity and immutability.
2. **Interoperability** - Supporting all critical global standards to drive interoperability and unleash more value from siloed data.
3. **Multichain** - OriginTrail is a scalable and highly efficient network that employs a multi-chain approach (for now running on Ethereum, xDai, Polygon and Polkadot).
4. **Privacy by design** - Make your assets discoverable, verifiable and valuable while protecting your sensitive data at all times.

4.3 PARTNERSHIPS - THE POWER OF ORIGINTRAIL DKG

The OriginTrail Decentralized Network has been fully up and running since late 2018 and the path to enterprise adoption relay on 2 key factors:

1. **Standardization**- The entire global supply chain runs on standards developed by the GS1 organization. These standards allow for interoperability between different systems and supply chain architectures across the globe. Any blockchain-based solution to improve traceability should integrate with these legacy systems, and the OriginTrail protocol was designed from the ground up to do this. This ensures full compliance and integration with legacy systems. More than that in 2020 OriginTrail joined GS1 to develop the next-generation standards. This puts OriginTrail in an incredible position to shape next-generation intelligent supply chain interactions.
   The following is a sampling of organizations that have used the technology:
   - ✓ **BSI (British Standards Institution)** -is the national standards body of the United Kingdom and has 86,000 clients in 190 countries. BSI has partnered up exclusively with OriginTrail to solve some of the major hurdles that their clients experience in supply chains. BSI, Together with OriginTrail protocol mange the Supplier Compliance Audit Network (SCAN), that have today more than 18,000 factories (Including Walmart, Target, Home Depot, Lowes, and Walt Disney) that combined all together annual sale of 1.25 trillion USD.
   - ✓ **W3C** - The OriginTrail protocol supports the Web of Things (W3C) recommended standard. that ensure wide compatibility with IoT devices and has already been utilized for a number of European Union-wide use cases and pilots.
   - ✓ **EVRYTHNG** - is an internet of things software company performing supply chain logistics for a number of global brands. These include Coca Cola, Ralph Lauren, Puma, and Avery Dennison, among others.

- ✓ **European Union Consortia**- The European Union is the biggest supporter of blockchain integration on the planet. OriginTrail/TraceLabs is involved in at least eight EU initiatives and pilot programs in the supply chain space.

2. **Network Operating System (nOS)** – This is a custom software solution for businesses that directly connects the OriginTrail Decentralized Network to their legacy system and other permissionless and permissioned blockchains.

   It easily allows for existing ERP integrations, consensus checks for data discrepancies among partners, supply chain/track-and-trace applications, and data/sourcing provenance.

   The nOS decrease implementation time and deployment costs.

   nOS is already integrated into several legacy enterprise suites, including Oracle Cloud, Salesforce, SAP, and Microsoft Navision.

   Further, and perhaps most importantly for adoption, nOS enable the spending of credits purchased with company fiat to directly purchase TRAC via Uniswap and other exchanges; TRAC is only utilized in the background, is directly purchased when needed, and used in nodes immediately. As cryptocurrency never touches the company's accounting books, it solves the problem of mainstream companies needing to purchase and hold cryptocurrency to use the protocol.

5 ORIGINTRAIL ECOSYSTEM

OriginTrail ecosystem is enabled by the tokenization of data exchange. The system consists of a network of machines (nodes) that are all running OriginTrail full software clients. Their supply is met by the demand of users of the protocol (data producers and consumers) that wish to share data
using OriginTrail.
The $**Trace token** is the means of compensation between supply chain data producers and data
consumers on one side and the OriginTrail node holders on the other. It provides the incentive to the nodes in the peer-to-peer network to perform the system functionalities. Maintaining and operating the p2p network takes resources: time, electricity, computing power, storage space and communication bandwidth.

5.1 $TRACE TOKEN

The $TRAC token is implemented as an ERC20 compatible token on Ethereum. This ensures
interoperability with wallets and other tokens on Ethereum. The Trace token smart contract
handles all transactions and balances in a secure and trusted manner.
It is a pre-mined, non-inflationary token, and **only 500 million will ever exist**. Fractions of $TRAC (out to 18 decimal places) can be used on the network, so supply will never be an issue.
The ICO took place on January 2018, when $22.5 million were founding with the price of $0.1.

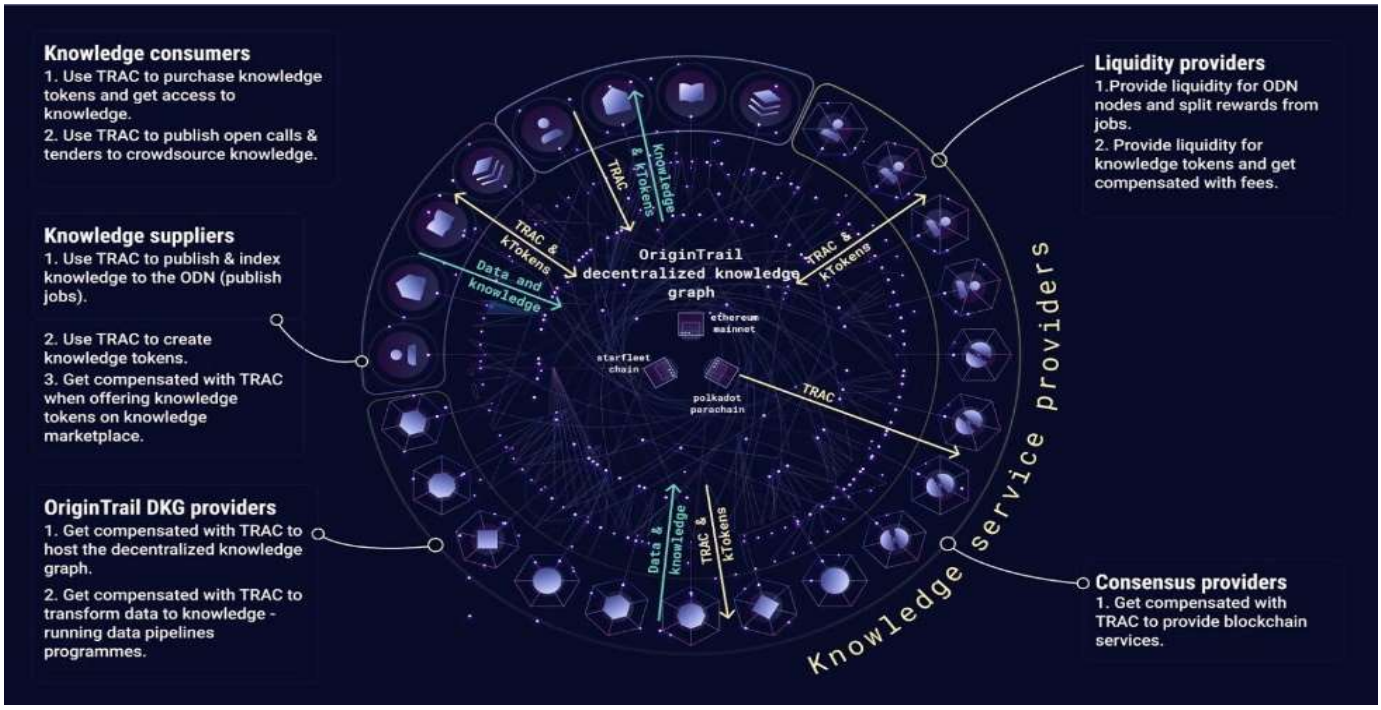
It is important to note that OriginTrail uses a blockchain layer which presents an independent
system and thus adds additional cost depending on the chosen underlying blockchain for some OriginTrail functionalities. In case of Ethereum being the underlying blockchain, this
means that a small amount of gas (Ether) is also needed to store the necessary hashes on Ethereum for storage operation.
$TRAC is required to perform all operations on the DKG. It is a utility token that drives the entire network:

- ✓ **Publishing and updating assets** – asset creators, such as enterprises, organizations, companies, even individuals must use $TRAC to compensate OriginTrail node runners for holding their data for a period of time. This will be the main driving for TRAC's tokenomics.
- ✓ **Collateral on OriginTrail nodes** – node runners must lock up TRAC as a collateral for holding asset publishes. The more $TRAC locked up in the node, the more likely the node is chosen as the asset holder.

$TRAC holders will also be able to:

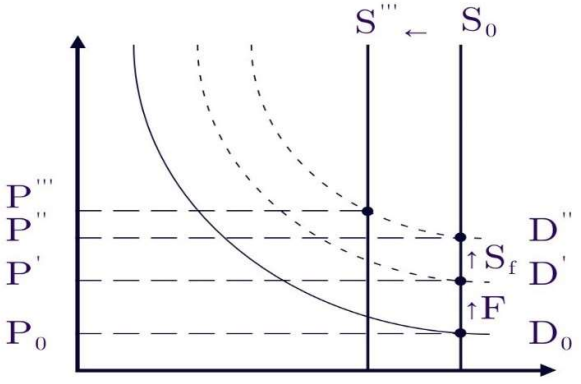
- ✓ **Delegating to nodes** – token holders who do not wish to maintain a node have the possibility to delegate their TRAC to node runners, and in return obtain a portion of the rewards.

- ✓ **Keyword staking** – Assets owners (enterprises, organizations, companies or individuals) can lock up TRAC to have their assets prioritized in a search result for a particular keyword, similar to Google AdSense. This is akin to a decentralized form of marketing spending in Web3 fashion.
- ✓ **Data marketplace** – TRAC as a fungible token under ERC-20 standards is transferable and usable in any way ERC-20 assets are. TRAC can therefore be used in smart contracts that allow TRAC to be used as a compensation token for selling or buying assets. Data creators can earn from ownership of valuable data assets.



The price of a $TRAC token should be well-correlated to the usage of the OriginTrail Decentralized Network:

1.When data gets published on ODN, the publisher creates a certain demand for TRAC that is used to compensate the nodes in the network for holding the published data. **(D0 move to D')**
2. At the same time, the same demand gets created for TRAC that is put as collateral for that particular job. **(D' move to D'')**
3.While that collateral gets locked, it effectively also lowers the entire available supply of TRAC. **(S0 to s''')**
4. with this "triple effect" the price of TRAC move from **P0 to p'''**



6 ORIGINTRAIL IN REAL LIFE

The OriginTrail Ecosystem growth is primarily based on real world adoption of Web3 technologies with utility.

The OT protocol together with the DKG are so powerful already and we can see it in the many cases and applications that are using it for the past 5 years. Below we represent the main ones **(in the Links you can watch the solution in action):**

AidTrust - is a joint Trace Labs and BSI product that utilizes OriginTrail to bring visibility and trust to pharmaceutical supply chains. It ensures that donated medicines reach the intended patients, even in complex environments. AidTrust allows NGOs and pharmaceutical manufactures to monitor movement of donated products through the supply chain, highlights risks, and supports real time decision making - all based on trusted data.

TECHNOLOGIES USED

The Supplier Compliance Audit Network (SCAN)- is an association of importers that was formed to eliminate foreign factory audit fatigue associated with Supply Chain Security importing criteria within the US Customs Trade Partnership Against Terrorism program (CTPAT). SCAN importing members have combined annual sales of over USD 1.36 trillion and source from factories around the world. Today, SCAN has more than 21,300 factories in its database, with several hundred new audits conducted monthly. All of the audits are secured utilizing the OriginTrail Decentralized Network and comply with SCAN's rigorous data privacy requirements.

TECHNOLOGIES USED

Certification - BSI is using the OriginTrail Decentralized Knowledge Graph to safeguard the validity of over 200k training certificates issued every year. The OriginTrail-based application developed for BSI enables quick verification of any certificate based on trusted data that is secured on the OriginTrail Decentralized Knowledge graph and underlying blockchains.

TECHNOLOGIES USED

Rail Travel Safety - Ensuring the safety of train travel by tracking every piece of rail track material used by SBB, the Swiss national rail company. Together with OriginTrail ensure real-time availability of quality traceability information for individual parts involved in their systems to deliver one of the world's most reliable rail journeys.

TECHNOLOGIES USED

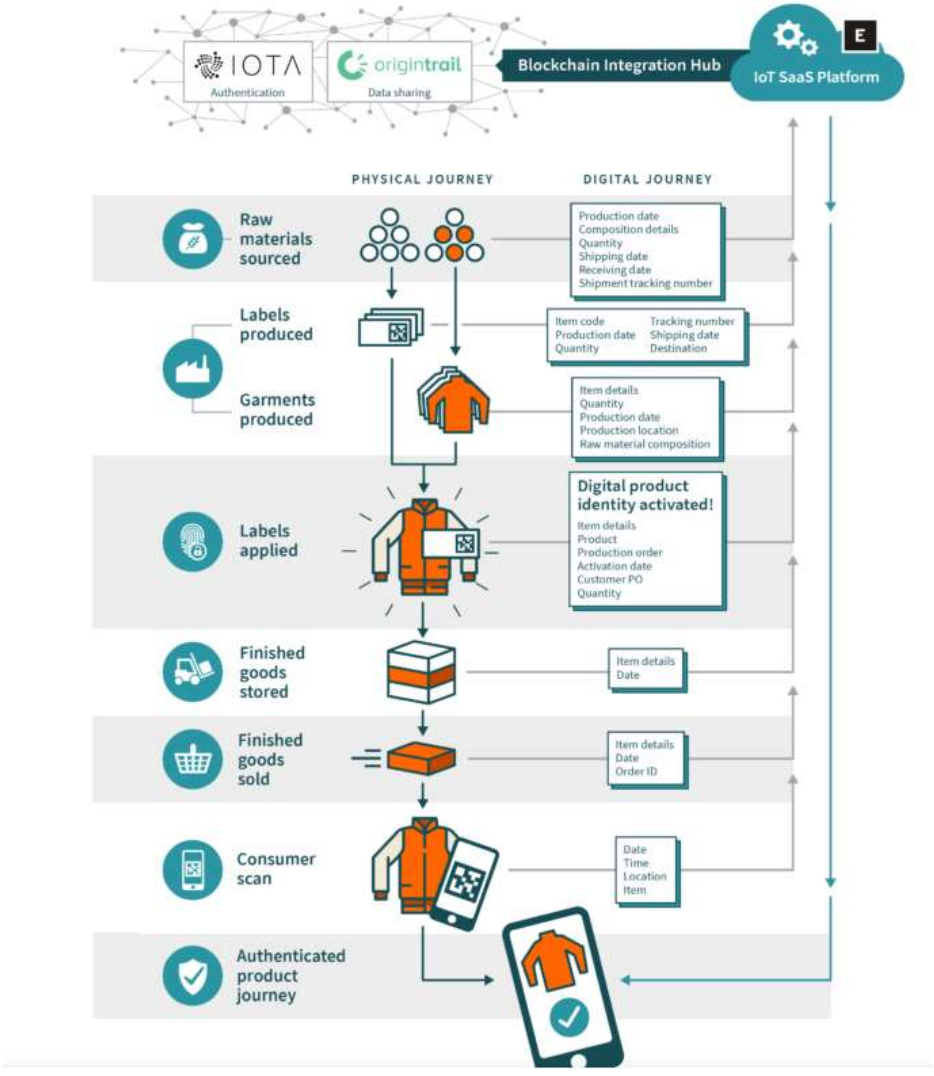
Food Traceability - By scanning a QR code, consumers can meet farmers and learn about animal-friendly conditions on their farms. Perutnina Ptuj - the largest poultry producer in

TECHNOLOGIES USED

Southeastern Europe uses the nOS-based Provenance app, which harnesses the power of the OriginTrail protocol. Consumers can trace the poultry back to the farm, which able them to make informed purchase decisions.

Fashion & Apparel Traceability - Matthew Williams, the fashion designer behind the 1017 ALYX 9SM brand, wanted to bring greater transparency to the label's supply chain and cultivate deeper connections with the consumers. By scanning the unique digital code on an item's label with their smartphone, consumers can view the garment's journey and track it all the way from the factory to the point-of-sale. This raises the bar on the promise of transparency and sustainability in the apparel industry.

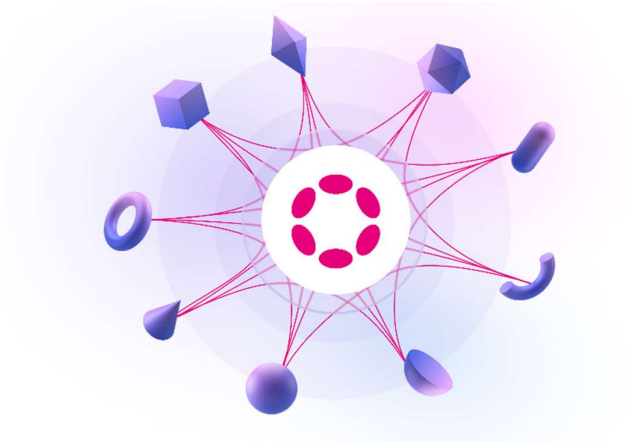
TECHNOLOGIES USED



7 ORIGINTRAIL ON PLOKADOT

7.1 WHAT IS POLKADOT

Polkadot is a sharded multichain protocol developed by Ethereum co-founder and Solidity creator **Gavin Wood**. Polkadot enables scalability by allowing specialized blockchains to communicate with each other in a secure, trust-free environment. It works by allowing different projects to bid for custom blockchains built on the main Polkadot chain, called a "parachain." The parachains can exchange information and transactions in a trustless way via the Polkadot relay chain. In order to secure one, you must pay a certain amount of DOT (Polkadot's native coin) for a 2-year lease. A project can renew itself by paying more DOT each time. Users of the Polkadot network enjoy significantly faster speeds. Ethereum currently processes 13 transactions per second. When fully rolled out, Polkadot expects to process over 1 million transactions per second.



7.2 ORIGINTRAIL PARACHAIN

Since 2020, OriginTrail and Parity (Polkadot Developers) have had a partnership. Parity developers have also contributed to the OriginTrail Parachain codebase on GitHub, highlighting their collaboration. One of the major reasons that OT choose Polkadot is the possibility to empower the DKG with the ecosystem within the Polkadot 100 parachains operate within it.

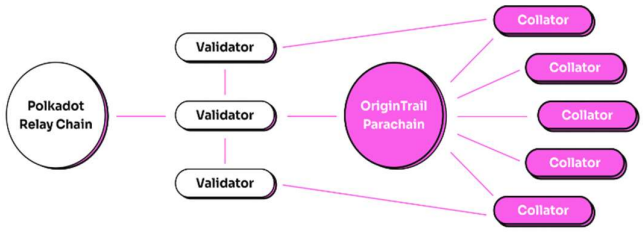
OriginTrail Parachain won the 17th parachain auction slot and its genesis block was created in June 2022. With the launch of the OriginTrail Parachain on the Polkadot network a token was created, The OriginTrail Parachain Token (OTP). The OTP's basic utility is to facilitate the transactions in the OriginTrail consensus layer (similar to ETH used on Ethereum). In addition to the basic utility, OTP is used to:

1.Fees for transactions and smart contracts – OTP will be the transactional currency, and participants can also lock up OTP and enable lower fees on the network by utilizing the "subscription model".

2.Incentives for collators- Collators perform their roles and receive rewards from the OTP network.

3.Collateral for collators- Collator candidates will need to lock their OTP as a commitment to their role in order to receive collator rewards.

The amount locked is correlated to the chance a collator candidate gets placed in the group of rewarded collators.



4.Delegating to collators - Token holders can delegate their OTP tokens to collators who allow their collateral to be increased by third parties, in return for a share of the rewards that the collator is receiving.

5.Voting with $OTP- OTP token holders will have to be locked up for a particular amount of time to receive have voting power on the OriginTrail Parachain network.

6.$OTP as a fungible token- It can be used like other assets in the Polkadot $DOT network, meaning it can be transacted across different Parachains and used in smart contracts.

7.3 $OTP PARACHAIN & DKG

DKG incentives ties the 2 separate systems together to boost network effects for each respective network.

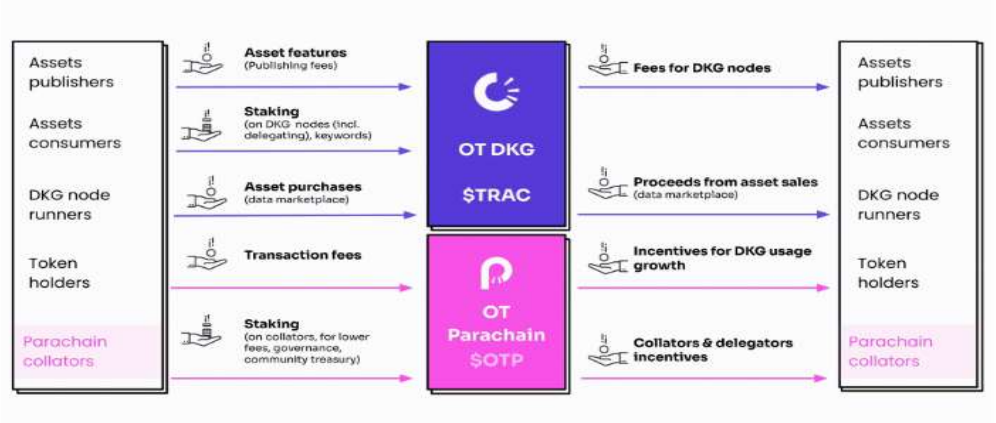
$OTP tokens are distributed among DKG users for their activities of growing and strengthening the OriginTrail DKG:

1. **Providing node collateral** - users that are locking up $TRAC either as DKG node runners or delegators can receive $OTP rewards.

2. **Keyword collateral** - users that are locking up $TRAC for asset discoverability for a particular keyword can receive $OTP rewards.

3. **Publishing/updating assets** - users adding new data to the DKG by publishing assets or updating existing assets can receive $OTP rewards.

4. **Asset marketplace** - users providing eligible bids for assets listed on the OriginTrail asset marketplaces can receive $OTP rewards.



7.4 PARTNERSHIPS WITH PARACHAINS

7.4.1 ACALA

Acala is an Ethereum-compatible smart contract platform optimized for DeFi and scaling DApps to Polkadot. The blockchain has built-in DeFi protocols for application developers to leverage, including a decentralized stablecoin (Acala Dollar — aUSD), a trustless staking derivative (liquid DOT — LDOT), and a decentralized exchange. After they won the first Polkadot auction parachain ever, OriginTrail and Acala announced a partnership by integrating the Decentralized Knowledge Graph on Acala.

Once integrated, the TRAC token on the Acala blockchain could then be used as a base gas token or pay for any transactions, making the process seamless and much less complex for both implementation and handling. This integration will enable any Acala smart contracts or any applications built on top to query verifiably the Decentralized Knowledge Graph and also publish data or assets. The process will be very modular and the connection will be enabled out of the box. This integration is very powerful since it enables infrastructure to not only query a data or asset from the DKG, but also to do verifiable operations within a smart contract based on individual criteria.

In a nutshell, the integration goes in two ways. First, Acala will become another chain OriginTrail extends to, making the DKG accessible. Second, the rest of Polkadot's ecosystem as well as anyone using Acala will get access to the DKG to query and publish data to it.

7.4.2 ENJIN

Enjin are the creators of the ERC-1155 NFT standard. Developing Efinity, a next-generation blockchain to serve as the infrastructure of the decentralized metaverse. Efinity vision is to provide the world's 3.1 billion gamers a home on the blockchain but needed it to be scalable enough to support mainstream games and infinitely extensible. On July 2022 Enjin partner with Japanese publisher Square Enix (creators of One of the most successful video game series of all

time "Final Fantasy") to bring NFT's to the world of Final Fantasy. The NFTs won't be purely digital products they will tied to physical action figures and trading cards. Those NFT's will be minted by Enjin on its Efinity platform, which is built on the Polkadot blockchain.

Enjin together with OriginTrail are planning to empower those NFT's using the DKG, running on the OriginTrail parachain.

OriginTrail also engage with **Kilt** (which is A blockchain identity protocol for issuing self-sovereign, anonymous, verifiable credentials and decentralized identifiers) and **Parallel** (which aim to create the most secure an easy-to-use decentralized platform to empower everyone access to financial services) to build their ecosystem on Polkadot.

Furthermore, $OTP enables cross-blockchain network effects due to OriginTrail Parachain inherent interoperability with other blockchains throughout the Polkadot's interoperable blockchain ecosystem. This way, the potential of the OriginTrail DKG expands to new use cases and utility for all Polkadot based projects with DKG features becoming immediately available and accessible to all respective ecosystems.

8 ORIGINTRAIL ROADMAP

8.1 NOW– V6 TURING PHASE

These days, OriginTrail is switching to the "Turing Phase" (Named after Alan Turing, the father of computer science and artificial intelligence), by deploying OriginTrail v6.

V6 will be performed in 3 stages, sequentially introducing technical layers by switching on one system at a time.

The launch of V6 DKG and OriginTrail's own blockchain layer on Polkadot create a paradigm shift for the OriginTrail ecosystem.

Most importantly, the V6 DKG is transforming data to assets, making them discoverable, verifiable and valuable across Web3. For example, with v6 you will be able to query both the OriginTrail DKG and the Google Knowledge Graph at the same time makes OriginTrail uniquely positioned as the "Knowledge Graph of Knowledge Graphs" — elevating this powerful technology as the centerpiece of Web3.

OriginTrail DKG clients become capable of performing search queries across both Web2 and Web3, opening up a vast space for network effects to kick in.

Analogous to URLs, OriginTrail v6 achieves this paradigm shift by introducing unique global asset identifiers — Universal Asset Locators (UAL) — as the user-owned form of Web3 URLs for any asset, physical or digital. This enables more users than ever to now publish, claim and maintain an Internet of assets. If Google allowed us to discover the world of information, then OriginTrail will give us the ability to discover, verify and supercharge the value of just about any asset we own.

Technology adoption will be further catalyzed through community grants, aiming to grow the DKG with metaverse assets, and intended to transform the community-loved OT Hub to correspond to more types of users and to include these leapfrog OriginTrail technology updates.

Stage 2 kicks in immediately once stage 1 KPIs are stable

Finally, stage 3 will start immediately after stage 2 KPIs are stable and will focus on the migration from the current v5 to the OriginTrail v6 hitting the mainnet (Polkadot). This will include backward compatibility tests, a network update exercise and other related activities.

With the DKG successfully connected to the Parachain we will see the functionality of OriginTrail v6 with over 500x scalability improvements get available for production adoption.

8.2 DKG V7- METCALFE PHASE

The launch of all three stages of the v6 will unlock the OriginTrail Metcalfe phase (inspired by the “Metcalfe’s Law”-Exponential network effects, $\mathbf{V \sim N^2}$, the value of a network is equal to the squared number of the users), which will power network effects, bringing billions of assets to the OriginTrail Decentralized Knowledge Graph, supporting asset marketplace and enhanced tokenomics (delegating and staking).

The integrations, such as with the Acala Network which brings the OriginTrail capabilities to Acala DeFi assets, and the OriginTrail Parachain with its premier Graph Contracts, boost network effects for all assets in the Decentralized Knowledge Graph. This phase due to Q4 2022.

8.3 DKG V8- BERNERS-LEE PHASE

Following the successful growth in the Metcalfe phase on the back of the new features of OriginTrail v6, we will reach the Berners-Lee phase of the roadmap, inspired by Tim Berners-Lee, the visionary behind the Semantic Web.

In this phase (targeting more then 1B assets) we will see the Semantic Web3 Decentralized Knowledge Graph extended with Graph Contracts and expanded integrations with knowledge graph systems. Further DeFi and Web3 integrations and extended Web3 data services for the Metaverse ecosystem. This phase due to 2023 and further.

9 RESOURCES & COMMUNITY

9.1 ORIGINTAIL COMMUNITY

Over the past few years, a core of supporters has been built up.

Those followers (mainly node runners) have been very active in the process of the development of the project. They are even involved in writing code and being part of the decisions process in the project.

Most of the activity takes place on social networks:

OriginTrail Official Announcements

OriginTrail Community Tech Chat

OriginTrail Node Community

Origintrail

TriniZone (The most known blogger covering OriginTrail)

Plokadot

Of course, there are many more channels, like YouTube and Discord that the company have presence.

9.2 PAPER RESOURCES

This paper is based on 4 main sources:

- www.origintrail.io
- www.tracdeepdive.info
- https://origintrailexplained.info
- Medium Articles