



## Distributed Ledger and application set for Logistics and Supply chains.

DiLLaS connects supply chains across multiple companies in a trusted way. This trusted logging of supply chain events and trusted sharing of data between authorised parties creates a connected supply chain which allows for waste removal and transparency in supply chains.

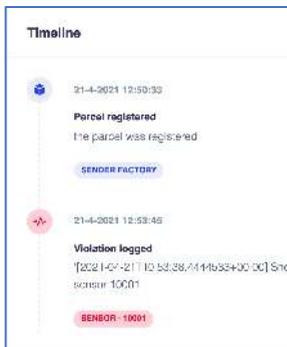


DiLLaS logs and shares essential information like ownership, SLAs (Service Level Agreements), responsibility and conditions of goods in a transparent and tamper-proof way. There is enormous waste in supply chains. Lack of (shared) information leads to unnecessary goods damage, inability to hold parties accountable in case of underperformance and limited ability to learn and improve. When vital supply chain information is obtained, it needs to be logged and shared between parties in a way that all parties trust the information as the undisputed truth to rely and act upon. DiLLaS provides that trusted logging and sharing service using the latest blockchain technology.

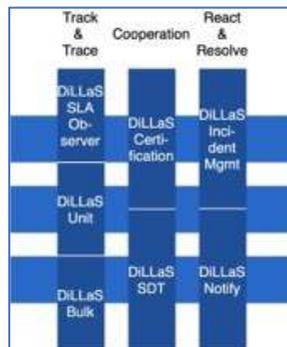
### Key characteristics of DiLLaS:

- ✓ Trusted distributed ledger service
- ✓ Tamper-proof and secure
- ✓ iShare compliant\*
- ✓ Cloud based SaaS
- ✓ Ethereum based
- ✓ Application suite
- ✓ Scalable
- ✓ Authorised traceability
- ✓ SLA management for supply chains
- ✓ Clear ownership in the supply chain
- ✓ Modular setup with Gravity

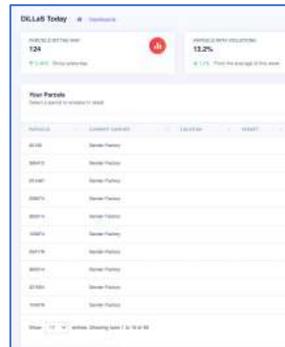
\* roadmap



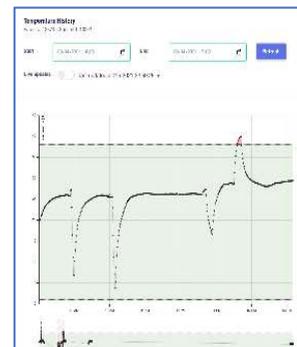
Events logged in the blockchain



Suite of business oriented applications



Dashboard overview as well as detail parcel control over operations

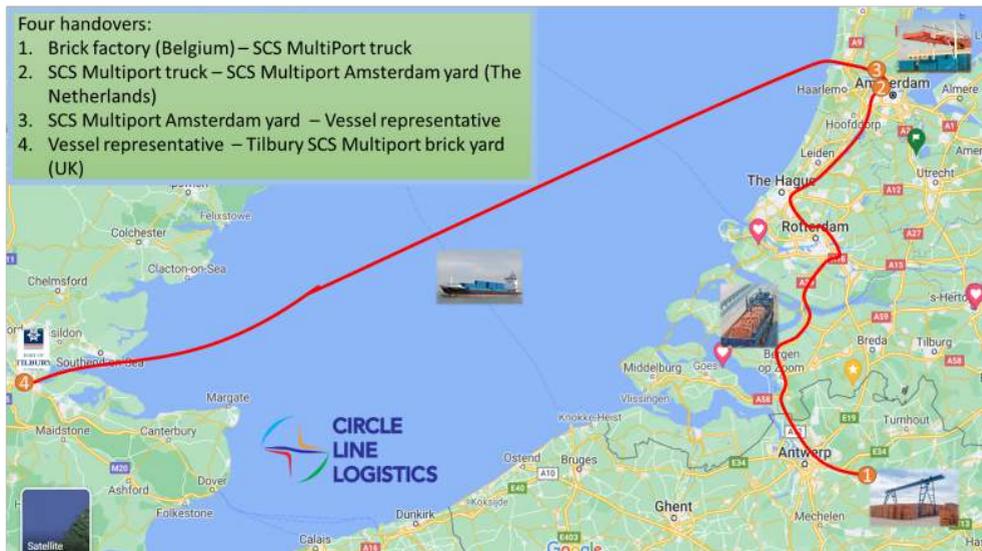


Individual sensor real-time data and history

## Key characteristics explained

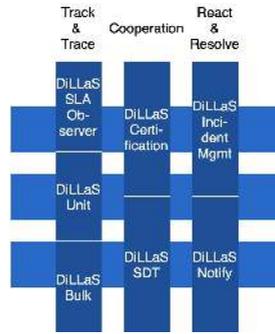
USPs	
Trusted	DiLLaS is trusted as it is tamper-proof, distributed, transparent and uses open source Ethereum blockchain technology.
Tamper-proof	DiLLaS uses Ethereum blockchain technology. Each transaction is verified against the information stored in the nodes. Only when there is consensus the transaction will be accepted. This makes DiLLaS very robust against data tampering.
Distributed	DiLLaS uses multiple (can be set for each deployment) nodes to store and verify the information. These nodes are owned by different trusted stakeholder organisations which ensure DiLLaS' integrity.
Authorised traceability	Parties can trace back every transaction of DiLLaS according to their authorisation and they can be sure that the information has not been altered.
Open source	DiLLaS uses open source Ethereum technology as a base which ensures there is no vendor lock-in, the technology is tried and tested by many in the community and it will continue to be developed.

## Use case example:



A transport company of bricks wants to track the goods during the complete supply chain. A sensor which registers shocks and location is attached to shipments and SLA max levels are set for shocks allowed during transport. Each handover of goods from the brickyard to it's final destination is logged in DiLLaS as well as any violation of SLA levels. The data is made available to authorised parties in the supply chain.

DiLLaS consists of a suite of applications which each add individual value to it's users.



**Track and Trace**

**DiLLaS SLA observer:** Verifies real time data against agreed service levels. This can for instance be IoT sensor data like temperature or shock from a parcel in transit which is compared with agreed min/max levels as agreed between the parcel owner and the transport company. When the IoT sensor measures a temperature above the agreed maximum level this is a violation which will be recorded by DiLLaS.

**DiLLaS Unit:** Tracks the responsibility of undividable parcels / packages across different organisations, for example the transfer of a parcel in a parcel delivery system.

**DiLLaS Bulk\*:** Tracks the responsibility of dividable units of goods (i.e. oil, water, gas,...) across different organisations

**Cooperation**

**DiLLaS Certify\*:** Certifies files associated with parcels in a verifiable way. This can be a picture of goods, customs documents, certificate of authenticity or other files.

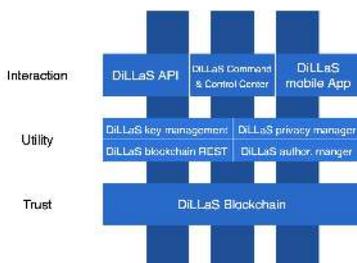
**DiLLaS SDT (Secure Data Transfer)\*:** enables companies in the supply chain to exchange data in a trusted way. Processing rights are logged and SDT can verify adherence to these rights.

**React and Resolve**

**DiLLaS Incident Management\*:** Allows parties in a supply chain to assess and resolve conflicts. When DiLLaS notifies that a parcel is about to violate the SLA temperature level or has violated the SLA then DiLLaS will record this and provide the process monitor with the real time actionable information for resolution or action.

**DiLLaS Notify\*:** provides real time notifications for events in the supply chain and potential SLA violations. This can be in the form of an SMS when a parcel is about to violate the SLA temperature level.

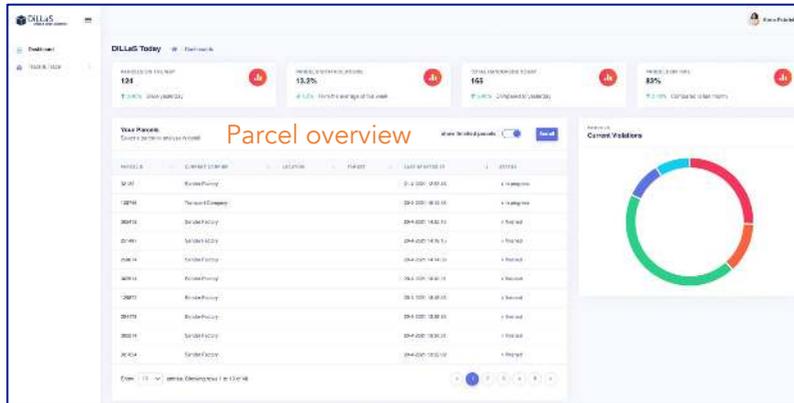
\* Partially available / in roadmap



**The DiLLaS architecture:**

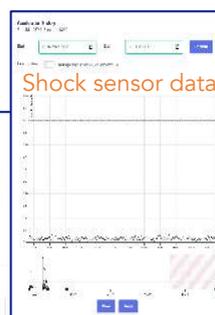
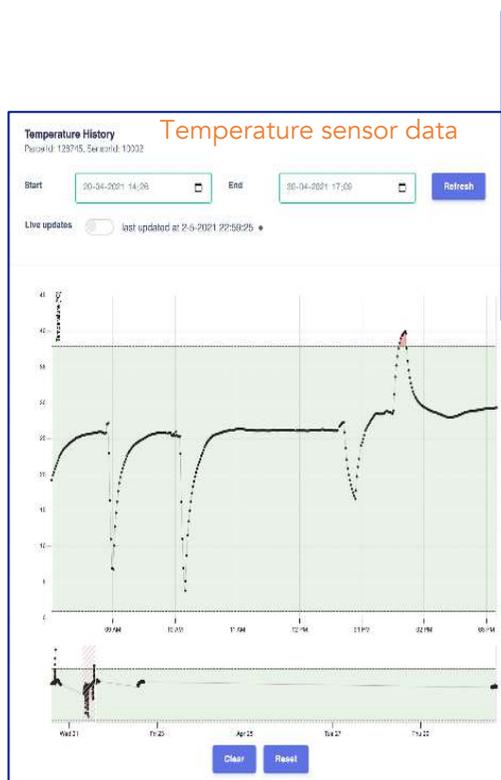
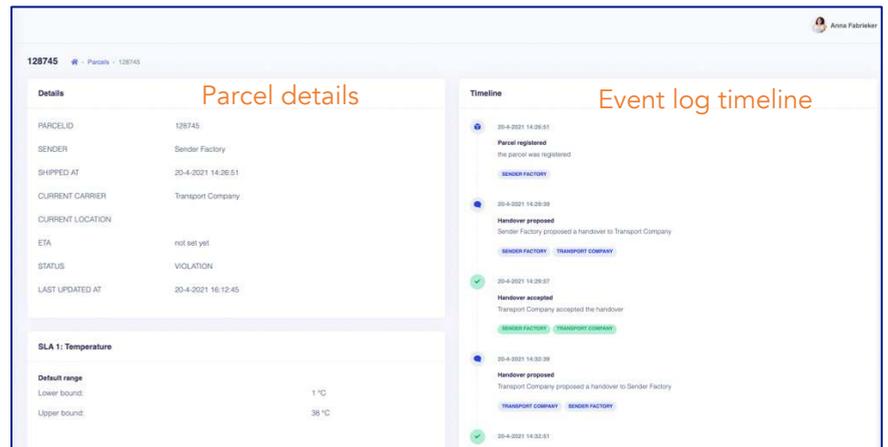
- ✓ modular usage of the applications
- ✓ Easy integration with external I/O's
- ✓ Data privacy ensured
- ✓ Network with smart contracts and non-fungible tokens (NFTs, ERC721 compliant)

User interfaces for insights and control over the supply chain:



DiLLaS dashboard: shows the overview of all parcels and provides actionable information fast. For instance - parcels with SLA violations like a too high temperature of goods in transport are highlighted for immediate action to prevent damage.

Parcel control: shows the information on a single parcel. All events like handovers, SLA violations, location are displayed. All events are logged in the blockchain for tamper proof storage and undisputed fact collection.



Sensor data: Data from sensors in the field are collected and verified against SLA levels. SLA violations are logged as an event in the ledger. Real-time as well as historical sensor data can be viewed through an easy user interface.

Smartphone application: allows SLA setting, handovers, shows status and violations

