

TRAENT PRESENTATION

Italian Distributed Ledger Technology Working Group Presentation

07.11.2022

whoami & traent



Fabio Severino

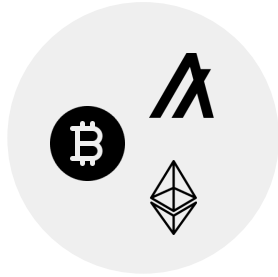
CTO

10 years-experience in developing software products, entrepreneur, leading research and development at Traent

- Founded in 2019 by Federico d'Annunzio & Fabio Severino
- Located in Pisa, Italy
- Easy-to-use Enterprise blockchain solutions based on Traent Era
- Filed 8 international patents



Types of blockchain

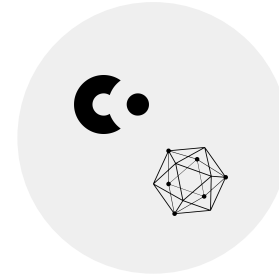


Public (permissionless)

Anyone can be a participant

Every node has the same power
(read/write/validate blocks)

Example: Bitcoin, Ethereum, Algorand



Private (permissioned)

Access is restricted to allowed nodes

Some nodes are more
special than others

Example: Hyperledger

Types of blockchain: pros and cons

Public (permissionless)

Private (permissioned)

PROS

- + Immutable as it can be
- + Maximum transparency

- + Fast transactions
- + Can restrict access

CONS

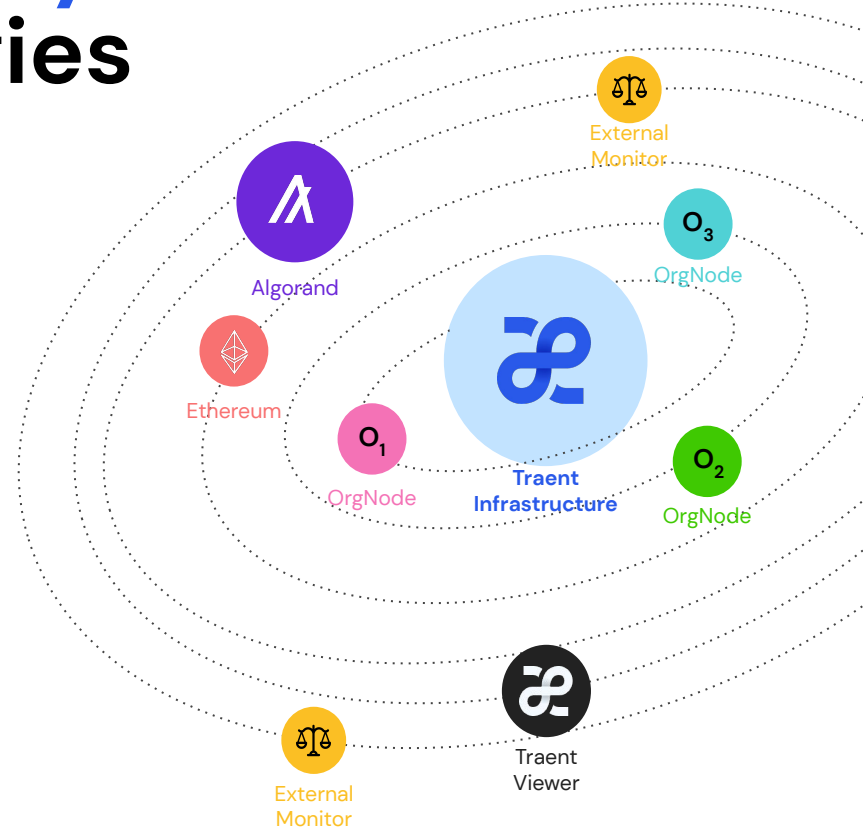
- Forced Transparency
- Very low TPS (transactions/s)
- Very limited storage per transaction
- $1\text{MB} = (20000 * 32768) * 10^{-9} * 178 * 4700 \$ = \sim 550\text{k} \$$
- $1\text{MB} \sim \text{Min } 130 \text{ blocks} \Rightarrow 30\text{min}$
- Cannot remove data (cannot comply with GDPR)

- Less secure
- Not auditable. No guarantees to external agents that the data has not been tampered with. New nodes or external players have to trust a private blockchain network without having any control over the verification

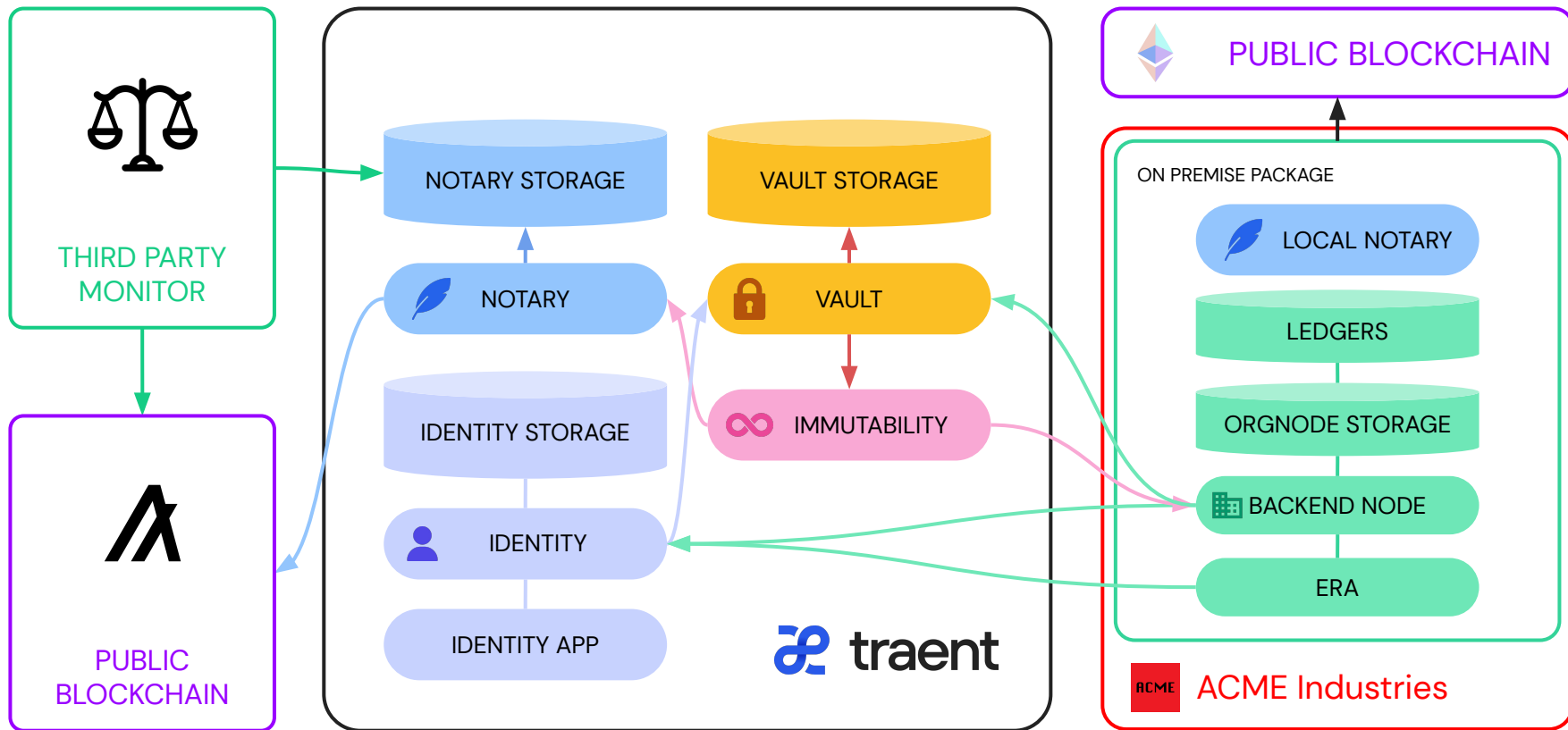
at traent we develop **hybrid blockchain technologies**

a novel technical solution to enable **real-time** and **data-intensive** applications on **blockchain** while ensuring **auditability** of private ledgers.

Easy. Actually scalable.
Fast. Cheap.



High level design



 era



Era a collaboration platform

Traent Solutions

Every interaction is based on a network of hybrid blockchains

1. Create no-code [smart contracts](#)
2. [Share](#) documents, data streams instantly and messages instantly
3. [Connect](#) any data source to projects and leverage [automations](#)



No additional environmental impact



Authentic third-party validated data



Unlimited data exchange & storage



data privacy & data ownership

The screenshot displays the Era collaboration platform interface. At the top right, there is a blue button labeled "Traent Solutions". The main content area is divided into sections:

- 23 STREAMS** (with a plus icon):
 - Number** 1.618 (with a plus icon)
 - Select** Option 1; Option 2; Option (with a plus icon)
 - Checkbox** Checked (with a plus icon)
 - Currency** 14,45 € (with a plus icon)
- 15 THREADS** (with a plus icon):
 - Feedbacks** 13:52 (with a plus icon)
 - Project updates** 13:52 (with a plus icon)
 - General discussion** 13:52 (with a plus icon)
 - Brainstorming** 13:52 (with a plus icon)
- 2 DOCUMENTS** (with a plus icon):
 - Project scope brainstorming** Today, 11:23 (with a plus icon)
 - Technology architecture** 12 Ap (with a plus icon)

A vertical sidebar on the left contains several icons: a blue square, an orange square, a red square, a green square, a yellow square, and a blue circle with a white symbol. The bottom right corner of the interface features the Era logo, a blue circle with a white symbol.



Era a collaboration platform

Traent Solutions

Era allows creating, managing, and sharing projects with colleagues, business partners, and external parties with granular permissions.

Each project is regulated by a **Workflow** and can contain:

1. Streams
2. Documents of any type
3. Threads

The screenshot displays the Era collaboration platform interface. On the left is a sidebar menu with the following sections:

- era** (logo)
- Projects** (selected)
- Templates
- Archived
- PROJECTS LABELS**
- + New...
- Priority
- ASAP
- ESG compliacy
- ASAP
- Marketing team wips
- More

The main content area shows a list of projects:

- Horizon 3030 application** (DRAFT): Last update: 2 days ago. Documents include General Sales Condi..., Non Disclosure Agre..., Privacy Policy - GDP..., Tech specs (.RAR), and Placeholder document.
- Patent application for mobile device** (DRAFT): Last update: 2 days ago. Documents include General Sales Condi..., Non Disclosure Agre..., and Privacy Policy - GDP...
- Bando Far Fas** (ACCEPTED): Last update: 2 days ago. Documents include General Sales Condi..., Non Disclosure Agre..., Privacy Policy - GDP..., Procedures (.JSON), and Placeholder document.
- Sustainability research** (START): Last update: 2 days ago. This project has no documents. ADD DOCUMENT
- ESG compliance** (START): Last update: 2 days ago. This project has no documents. ADD DOCUMENT

At the bottom of the sidebar, the user profile for Alice Watson, Chief Executive Officer, ACME Indus... is visible.

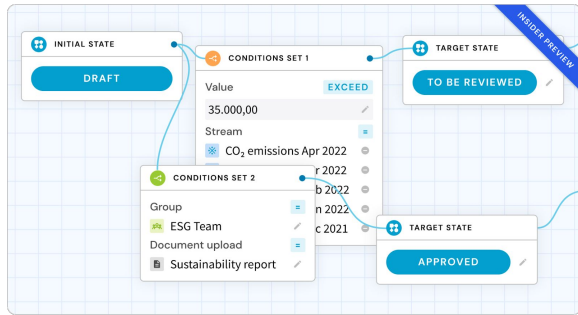


Era Workflows

A **workflow** is a smart contract that regulates a project

As all blockchain concepts in our solution, the user can understand from the UI the stage of the project and the actions they can perform.

In other blockchain solutions it is necessary to have programming skills to create a smart contract. With **Era**, they can be made with our visual editor.



era
Tires Sustainability Pilot
Tires sensors and gateways applied to tires pilot to measure sustainability

WORKFLOW
FINALIZED

CURRENT STATE
Finalized
At this stage you cannot make changes to the project.
Streams locked
Documents locked
Approvals locked

AVAILABLE FLOWS
All approved
IN REVIEW
Editors have chosen
Reject quorum

ERA PROFILE
PERSONAL WIP GUESS

LEDGER INFO
Alice Watson
Chief Executive Officer, ACME Industries

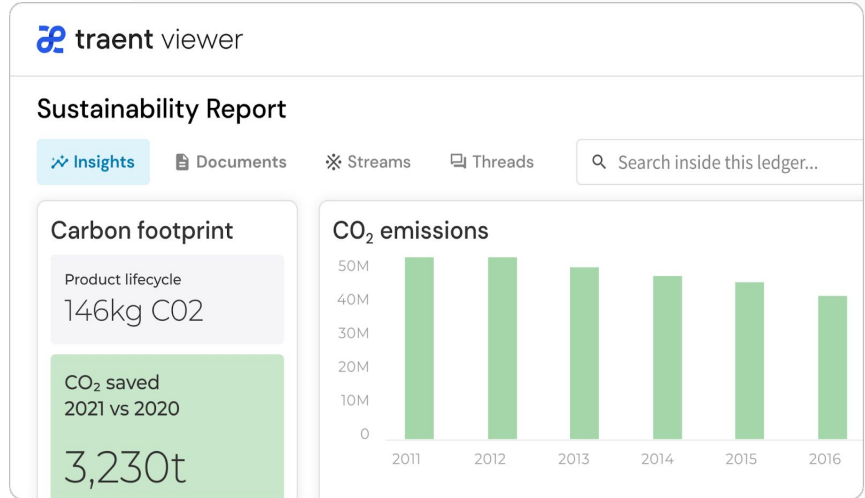
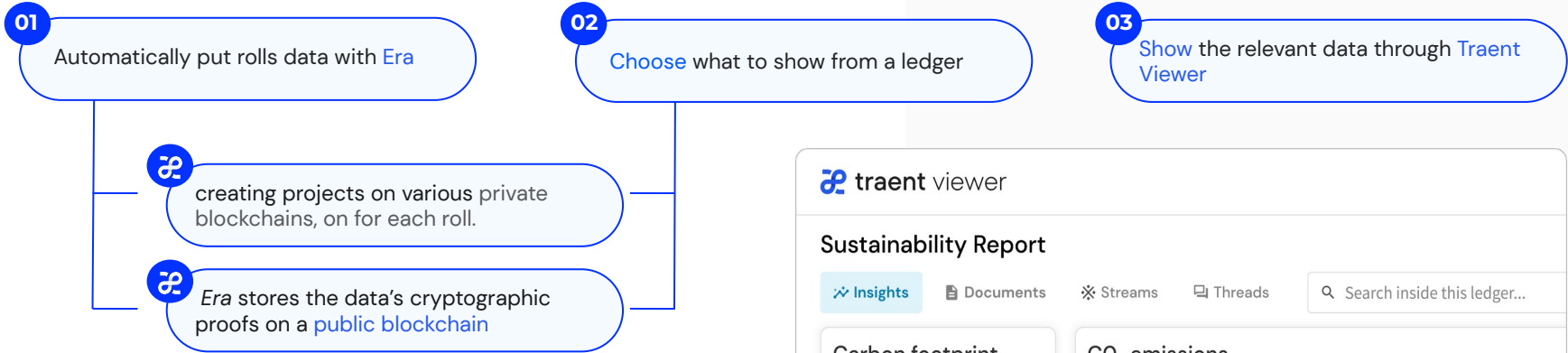
34 STREAMS
Currency 14,45 €
Number 1.618
Text Lorem ipsum sit dolor amet...
JSON code <this is the snippe...
Date 22 April 1990

THREADS
DESCRIPTION
At this stage changes to the project are not allowed.
ALLOWED AGENTS
Administrators, Editors
CONSTRAINTS
Streams locked
Documents locked
Approvals locked
Threads available

Data sharing, how does it works?

Granular data disclosure

Direct browser access to blockchain data by third parties outside the network



Fast track transparency for general public & auditors





fully auditable blockchain content

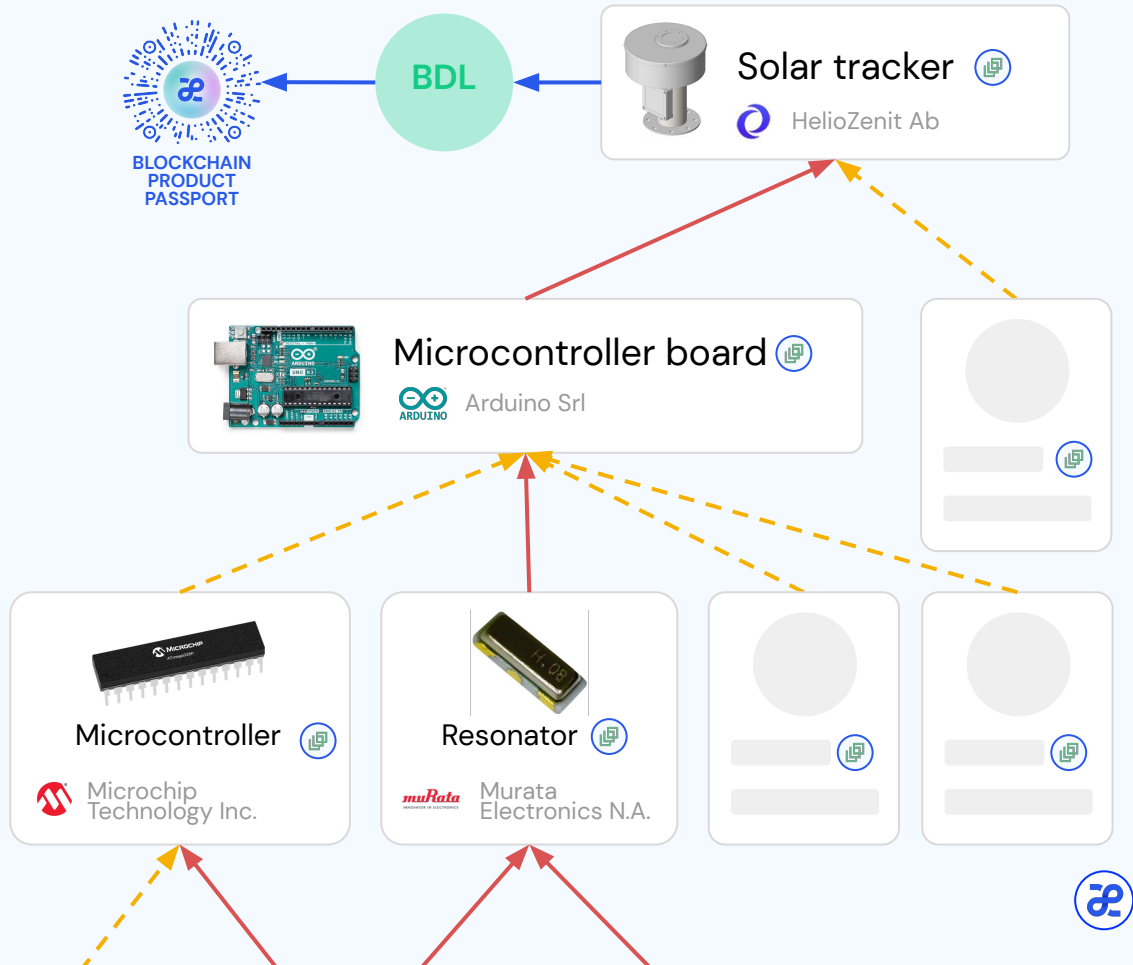


Case study

A project can be made of several interconnected blockchains.

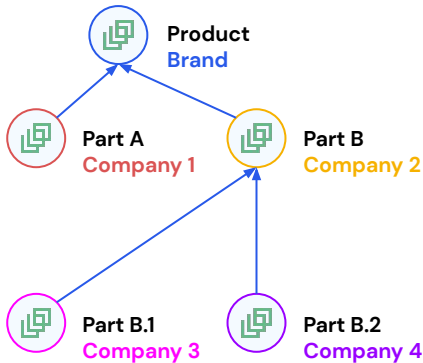
In a supplychain, each **data owner** that is part of the network can choose to either disclose it fully, or in a **granular way** to maintain **confidentiality** and competitive advantage (e.g., prices, supplier details, technical specs...).

-  GRANULAR DATA DISCLOSURE
-  FULL DISCLOSURE



Data visualization

Each part, down from the raw materials, is linked up to the final product in a **linked tree of blockchains**. This allows maximum transparency over suppliers, sustainability and ethics.



traent viewer

Giovanna Paola Inghirami

Helimotion PV-4


VtsmTkS5symEpVE61lg0mq/f2...

Supply chain Items Logistic RMA Support

Components inspector

READY

Helimotion PV-4 > ... > Microcontroller...



Microcontroller ATmega328P

NAME: Microcontroller ATmega328P

DESCRIPTION: The ATmega48A/PA/88A/PA/168A/PA/328/P is a low power, CMOS 8-bit microcontrollers based on the AVR® enhanced RISC architecture. By executing instructions in a single clock cycle, the devices achieve CPU throughput approaching one million instructions per second (MIPS) per megahertz, allowing the system designer to optimize power consumption versus processing speed.

TYPE: Dual Axis

MANUFACTURER: Microchip Technology Inc.

SPECIAL MICROCONTROLLER FEATURES:

- Power-on Reset and Programmable Brown-out Detection
- Internal Calibrated Oscillator
- External and Internal Interrupt Sources
- Six Sleep Modes: Idle, ADC Noise Reduction, Power-save, Power-down, Standby, and Extended Standby

MEMORY: 180°

Components

- Helimotion PV-4
- Enclosure
- Controller
- Ardino Uno R3
- Board
 - Microcontroller ATmega328P
 - AVR CPU Core
 - SRAM data memory
 - EEPROM Data Memory
 - I/O memory
 - ALU
 - Stack Pointer
 - Low power crystal oscillator

Items

| NAME | SERIAL NUMBER | SHIPPED |
|----------------------------|---------------|-------------|
| Helimotion PV-4 | AA-2470123 | 12 Aug 2021 |
| Helimotion PV-1 | AA-8370125 | 12 Aug 2021 |
| Helimotion PV-2 | AA-2470124 | 12 Aug 2021 |
| Helimotion PV-3 | AA-2470125 | 12 Aug 2021 |
| Helimotion PV-4 | AA-3670126 | 12 Aug 2021 |
| Board | | |
| Microcontroller ATmega328P | | |
| Resistor | | |
| Jumper wires | | |
| SRAM | | |
| Clock | | |
| Flash Memory | | |
| Actuator | | |
| Light sensor | | |
| Mount | | |
| Helimotion PV-1 | AA-2470125 | 12 Aug 2021 |
| Helimotion PV-4 | AA-2470128 | 12 Aug 2021 |



Thank you