



## LITE PAPER

## Kalima Vision

By 2025, 80% of the processing and analysis of data will take place in smart connected objects, such as cars, home appliances or manufacturing robots, and in computing facilities close to the user.

Smart city, supply chain, healthcare industry, automotive industry,... all these sectors use connected devices networks to collect, manage and analyze data, it's the IoT.

Kalima protocol ensures the integrity of the data transmission and the immutability of the data storage and the possibility to monetize the data collected.

More generally Kalima is a new way to interconnect objects, people and services with trust and to bring new possibilities to monetize data.

Blockchain demand for industrial applications DApps will rise in the coming years. Industrial players will need to have strong scalability and will require to have clientside smart contracts instead of on the cloud. The Kalima protocol is particularly well designed for industries and companies using IoT data collection and storage with edge computing facilitated by client-side smart contracts.

Major companies have already been using Kalima for a few years.

André Charles Legendre CEO of Kalima







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## Summary

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## Kalima Blockchain

Everyday, massive amounts of sensitive data are collected and transmitted by IoT, Internet of Things, in the major industries.

Smart city, supply chain, healthcare industry, automotive industry... all these sectors use connected devices networks to collect, manage and analyse their data, it's the IoT.

Kalima was built to secure, facilitate and accelerate the data collection, transmission and storage of the industries using IoT systems.

Kalima Blockchain ensures the integrity of the data transmission and the immutability of the data storage and the possibility to monetize the data collected.

## KALIMA MAIN CHAIN AN ECOSYSTEM FOR INDUSTRIAL PLAYERS

**Kalima Ecosystem** is a decentralized network of **independent permissioned blockchains** called **Kalima Privachains**. It's a third generation of blockchain like Cosmos and Polkadot proposing blockchain interconnection as a new paradigm to solve the decentralization objective and achieve scalability.

Each **Kalima Privachain** is independent with **its own governance and can be interconnected, or not**, with another Kalima Privachain or with Tezos and soon with Lightning networks, Polygon and Cosmos hubs.

The interconnection of blockchains is for us the way to help developers and businesses to adopt blockchain technology at an industrial level. Blockchains on **Kalima Ecosystem** are either **permissioned blockchain**, where only predetermined nodes can see the ledger and participate in the consensus.



#### This multichain

**approach** aims to solve transactions speed issues and bring smart contract on the edge for blockchains.

This opens an all-new world of possibilities for combining blockchain and IoT.

### **END-TO-END BLOCKCHAIN COMMUNICATION**

**Designed for industries needs** 

Kalima was built to secure, facilitate and accelerate the collection, transmission, storage and the monetization of data for industries using IoT systems.

Thanks to the possibility of building its own private blockchain, a Privachain can independently secure its data from collection to transmission for any industry using IoT.

Examples of Kalima blockchain classical use case :

#### 1. An alarm is triggered in a nuclear site which has its own Kalima Privachain

The information is immediately collected and secured on the blockchain.
The information is quickly transmitted to a computer or worker connected to this alarm to allow a very rapid intervention thanks to Kalima low delay.
All the important and confidential data are converted from and to and by Kalima.

> All the important and confidential data are secured from end-to-end by Kalima.

#### 2. A smart building company wants to monetize its data thanks to Kalima

> The building is equipped of gateways to collect environment related data.

> These connected gateways transmit the data to the blockchain and store it.

> From here the company can monetize its data using Kalima main chain and token.



Possible thanks to Kalima Blockchain

### KALIMA IS CURRENTLY THE MOST POWERFUL IOT BLOCKCHAIN



### **Mature & Scalable**

Kalima blockchain is already used and approved by many industries since few years.



## Client Side Smart Contract

Guarantees more scalability, safety and freedom to the parallel chains.



## **Fast & Secured**

Optimized to reduce delay. Latency lower than 1s. 1000 tx / second / blockchain.



Memcached, heartbeat, a unique tx/block are developed to reduce energy consumption.



### **PrivaChains**

Kalima Ecosystem is composed of independent public chains and private chains, the PrivaChains.

### **KALIMA PROTOCOL**

An ecosystem of decentralized parallel blockchains

Kalima Blockchain has been **designed from scratch to meet the requirements of modern data**, including data from the Internet of Things.

Kalima provides **client-side smart contract** to all these networks and can run Al models in smart contracts. We believe that the future of blockchain applications relies on a multichain approach.

Kalima blockchain provides real time data for an exceptionally **low environmental impact** with a **very low transaction cost** combined with **low latency**.

With a very small memory and CPU footprint, **you can embed Kalima in small IoT devices**. Kalima smart contracts are executed at the Edge. Kalima acts as a second layer blockchain for Tezos, Lightning network, and will implement Cosmos Inter-Blockchain Communication Protocol (IBC).

Kalima Blockchain provides data lakes which expose authorized data from one or several blockchains to run different types of analytics, dashboards, visualizations, statistics, big data processing or machine learning to have a clear vision on your data. **Kalima client nodes can run in mobile device and in small form factor IoT gateways.** 



Embedded Kalima Blockchain in small IoT devices for an end-toend blockchain communication.



Allows developers to build Dapps in simple languages: Java, C#, C, Java Script, Python...



**Multichain** 

Kalima Blockchain is interconnected with major blockchains: Tezos, Ethereum, Bitcoin, Cosmos.

## Build a decentralized IoT network with gateways powered by Kalima Blockchain

Kalima Blockchain is installed on IoT gateways including LoRaWAN gateways around the world to create a new decentralized IoT network providing real world qualified data to the Kalima ecosystem.

Join Kalima and take part in this new decentralized IoT network to provide and monetize your data to the world.



## **Use Cases & DApps**

The fund raised by the ICO will allow Kalima to recrute and assist developers, creators and companies around the world to develop their own DApps on Kalima, thereby contributing to the growth of the Kalima ecosystem.

To launch and boost this ecosystem Kalima built three companies in charge of creating sector-based DApps:

Kalima Inc in the United States, which will develop Dapps in the energy, automotive, industry 4.0 and Food&Beverage sectors.

Kalima Middle East, which will take care of developing Dapps in the nuclear and oil industries.

Kalima Systems in Europe, which will develop Dapps for the new economy, the luxury sector and smart cities.

## **KALIMA IS A MATURE TECHNOLOGY**

Used by many industries everyday

Kalima is **safer, faster, cheaper** than the traditional industrial data-managing tools. Kalima develops its own DApps dedicated to the Industry and has a **very efficient development API** which allows all independent developers to develop DApps as well as parallel chains.

Major industries are already using Kalima :

- Enedis 1st electricty distributor in France.
- **ArcelorMittal** The world's leading steel and mining company uses Kalima LoRaWAN devices
- **Tenneco** One of the world leaders for automotive products.
- **Spie** European leader specialized in electrical, mechanical and climatic engineering, energy and communication networks.

Interconnected objects and networks are used in the most important industries globally. The potential market for Kalima is therefore substantial and grows each and every day.

- Industry Supply Chain Automotive, aeronautical...
- Healthcare Industry Hospital, specialized medicine.
- Energy Industry Nuclear, gas, oil, electricity ...
- Financial Industry Payment system, payment apps.
- **Connected Infrastructures** Smart city, smart buildings.
- Identification System Recognition systems, identification apps.

Kalima will be used by all these industries in a few years.



## WHERE DAPPS CAN TAKE ADVANTAGE **OF KALIMA CLIENT-SIDE SMART CONTRACTS**

Kalima develops its own use cases and DApps dedicated to IoT industries, but Kalima's functionalities allow developers to develop **a** multitude of use cases based on the integrity of data transmission and the **immutability of data storage**.

Kalima enables companies and developers to create applications by building bridges between the physical and the digital world including the possibility to monetize the data collected.

#### **Digital passport**

A digital passport of your equipment is primarily an authenticity certificate or NFT, completed by a temper proof and secure storage of all data history of your equipment. Applications exists in the Healthcare, Pharmaceutical, Luxury, Building, City, Aggrotech, Food and Beverage industries.

#### **Digital twin**

A digital twin of your equipment give you a real time image of your equipment. Applications exists in Supply Chain, Healthcare. Infrastructures, Insurances, Building, City, Aggrotech and smart economy industries.

#### Pay per use, utility token

Manufacturers and Users of machines receive transparent information through Kalima to allow pay per use. Use measurement is translated in utility token quantity.

#### Asset tokenization

An asset tokenization platform bringing together sellers and buyers. It provides an automated processing with the use of Smart Contracts. Asset tokenization opens doors to many new business models. Applications lie in Arts, Movies, Luxury, Metaverse, Infrastructures, Real Estate, new mobility and smart economy industries.

#### Payment token

"Payment tokenization" is now synonymous with ease, trust and security, since it is one of the best data protection strategies that can be integrated into the different payment ecosystems. The benefits it brings to sellers and consumers have enabled it to spread quickly with low transaction costs. 12



## **A NEW POSSIBILITY TO MONETIZE DATA**

Kalima's initial goal is to create a new standard for Blockchain IoT applications. More generally, Kalima is a new way to interconnect objects, people and services with trust and to bring new possibilities to monetize data.

Kalima empowers enterprises and developers to build the next generation of sustainable Blockchain applications building bridges between the physical and the digital world. Kalima client nodes can run in mobile devices (Android an iOS) and in small form factor IoT gateways.

Kalima provides real time data for a distinguishingly low environmental impact along with a very low transaction cost.

### **TOKENIZATION OF THE INTERNET OF THINGS**

We want to help developers create their own token designed for their business model inspired by their ideas.

Kalima will allow to deploy your own custom token to monetize your business models converting physical data into a liquid token tradable in the community. All smart contracts created by the community of developers will use the technical standard token form of Kalima Ecosystem known as "KL20". This standard defines a common list of rules for all Kalima tokens such as the name, symbol supply and how transactions are approved and how they can be transferred.

### **NFTs ON KALIMA ECOSYSTEM**

Kalima will provide tools to create NFTs and build unique digital assets that represent a proof of ownership. From art and digital collectibles to real estate, NFTs can extend physical assets.



## AREAS WHERE DAPPS CAN TAKE ADVANTAGE OF THE KALIMA PROTOCOL

Where the client-side smart contract has an important utility

- Mobile Worker
- Connected Infrastructure
- Asset's Digital Passport
- Supply chain
- Blockchain for the new mobility
- Blockchain for the automotive industry
- Industry 4.0
- Blockchain for real estate platform
- Blockchain for City traffic analysis
- Asset's Tokenization
- Blockchain for smart Cities and Smart Grid
- Blockchain for Smart Economy
- Pay-per-use solution
- Identity management
- Smart Building & Smart Home
- The 3.0 construction site
- Blockchain IoT for Healthcare
- Blockchain for Agrotech & Food & Beverage
- Blockchain for Insurance Companies
- Blockchain for Luxury products





## Tokenomics

To power this ecosystem, we designed the Kalima KLX token. This token is the native currency of the Kalima ecosystem and can be considered as the cryptographic fuel of the ecosystem. It is the key for developers, companies and investors to build and participate in project development and funding of DApps on the ecosystem.

The KLX token will be used on the Kalima Store Marketplace to use DApps and purchase communitydeveloped services.

Users will be able to transfer their KLX with Kalima's mobile payment apps and exchange them with Tez, BTC and ETH. KLX holders will have active participation in the community by being able to participate in project development, purchase services and vote for project funding.

## **TOKEN, ALLOCATION AND VESTING**

**The Kalima Coin**, **named KLX (ERC20)**, is the backbone of the network. The KLX is the currency on Kalima ecosystem use to monetize Dapps built on Kalima network and to pay transaction fees. The KLX will be first an ERC20 Token during the ICO and will become a native KL20 when it will be bridged with the Kalima MainChain.

#### **KLX LAUNCH**

The number of KLX tokens, the initial value of the ICO, as well as the market capitalization, are initialized according to the means required for the implementation of the ecosystem related to the growth hypotheses and priorities of the project.



Allocation of the first 160.000.000.000 KLX

The rest of the supply, 320 billion, will be produced during KLX lifetime by validators.

#### Total Supply : 480.000.000.000 KLX

ICO Price : 0,00025€ ICO Vesting : No Vesting ICO Hard Cap : 20 millions €



Allocation	%	Vesting
ΙCΟ	Up to 50%	No Vesting
Private Sales	10%	12 months from listing
Team	15%	24 months from listing with 12 months of Cliff
Foundation	12%	12 months from listing
Developers	8%	24 months from listing with 12 months of Cliff
Advisors	5%	18 months from listing with 6 months of Cliff

Token : Kalima Coin – KLX (ERC20)

## **STAKING MODEL**

#### Staker

- A « **staker** », is a KLX holder willing to stake their KLX tokens.
- A minimum of 100.000 KLX is required in order to stake (250€ of initial value).
- Each Staker choses the pool in which they want to stake their KLX.
- The staking lock-up period is of **1 month**.

#### Validator

• Every holder possessing over 0,2% of KLX in circulation can create their own staking pool so as to candidate to become a validator.

• A « **validator** » is a candidate who has accumulated at least 1% of circulating KLX tokens in their staking pool. There will be a minimum of 50 validators.

• Every candidate wanting to become a validator can stake their own KLX.

#### **Master Node**

• A « **master node** » is a Kalima consortium member and must hold 2% of circulating tokens at a minimum. The Kalima consortium elects a minimum of 5 master nodes.

• A master node is also able to stake their own KLX.

#### Rewards

Each validated transaction within the Kalima main chain emits 10 KLX. These KLX are then distributed to validators, including master nodes. Each validator receives rewards based on the proportion of their stake within any given staking pool. Each validator is able to determine their own distribution ratio. This ratio determines the portion of the reward distributed to the stakers having voted for (or staked to) the given validator.

The rewards will be distributed in a weekly fashion.

#### Penalties

In a situation where a validator isn't able to validate a given block in the allotted time, they will receive a temporary participation penalty. Their right to candidate as a validator will be suspended for a duration of 3 months as a mean of promoting the smooth functionining of the network. In the case of purposeful harming of the network from a validator (network attack, lack of bounty conformity) the validator will see their 3 month suspension be extended depending on the severity of their action.

The staking model is subject to future changes based on decisions made by the Kalima consortium.

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# RoadMap & Team

Kalima's experienced team is growing day by day and has already reached important milestones in its evolution.

We are more than ever ready to impose Kalima on the international IoT market.

## **TOGETHER TO AN INTERNATIONAL ADOPTION**

The Kalima Team has a strong experience in IoT and Blockchain



Financial & ICO Advisor

Yannick Delibie

Oscar Lhoste Financial & ICO Advisor US

**Blockchain Business** 

Developper 🄇 Middle East

## Kalima Partners & Users

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