

XIDEN

# Internet of Decentralized Networks.

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# What is Xiden

Xiden blockchain is a new layer of internet consisting of multiple decentralized networks. Through these decentralized networks, smart devices can be integrated into the Xiden blockchain and can distribute their resources, which will then be managed by the blockchain. As a result, all Xiden users will benefit from all the advantages offered by the system, such as privacy, security, and connectivity, as well as all the resources available on the network.

*\*Users with integrated devices get rewards in the Xiden's native asset - XDEN.*

The Xiden network combines technologies such as the Internet of Things with blockchain to develop a protocol that will allow smart devices to perform tasks automatically and autonomously, thus ensuring high-speed data and operational procedures validation. Xiden aims to become an open-source system that will provide users with the opportunity to have a free, restrictionless, and permanent internet connection regardless of their location or device.

## Developed by CryptoDATA

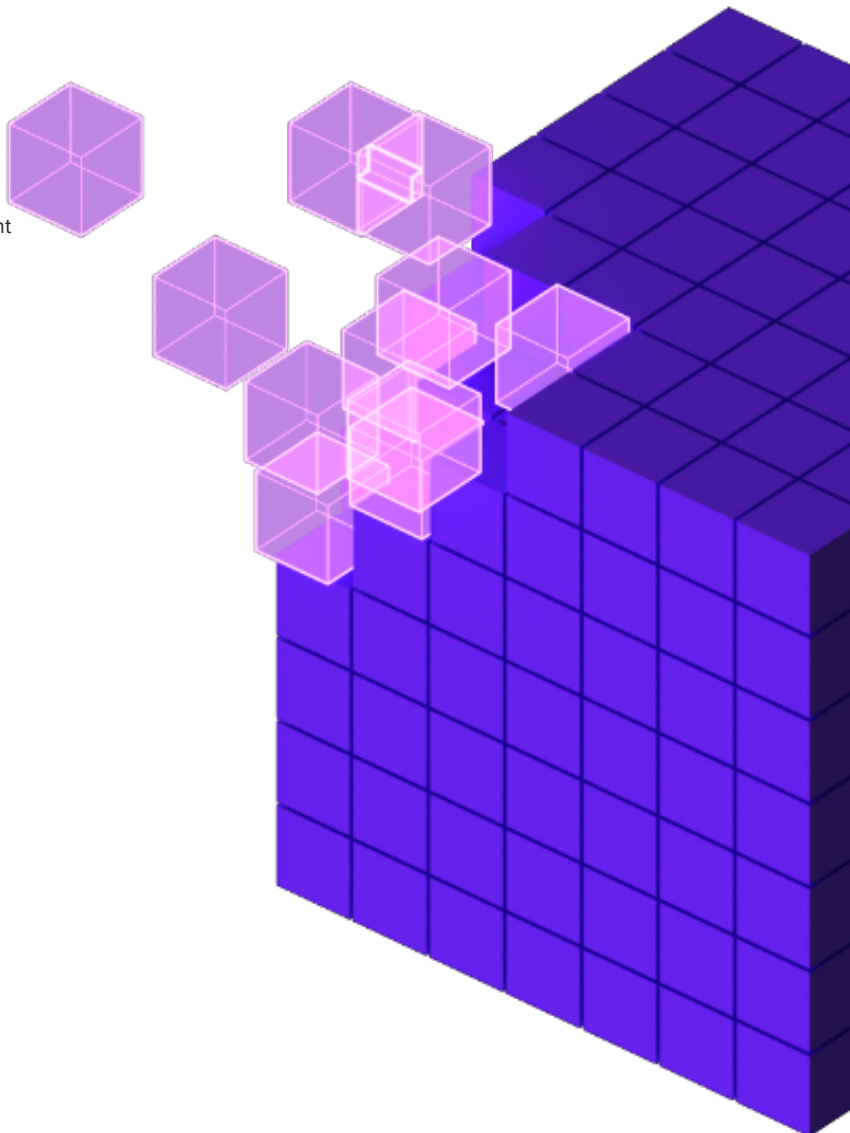
CryptoDATA has developed an energy-efficient blockchain designed to meet the needs of users for fast transaction validation, reduced fees, low energy consumption, and without a specialized equipment requirement. Xiden is geared towards the utility it provides to users by allowing them to create their own ecosystems for the development of platforms or dApps, or increase their overall passive by being rewarded with the network's native asset - XDEN.

## Owned by users

Xiden is a blockchain that functions only if the registered users maintain their devices permanently connected to the network. The integrated devices are always in control of network operations by validating and controlling the distributed resources. Thus, users are always in control of the system as they can decide when and how their devices' resources are distributed within the network.

## Used by everybody

Any desiring user can be part of the Xiden blockchain in a way that is completely selected by them according to their needs: whether they want to increase their passive income by integrating their devices and performing validations or whether they want to benefit from an infrastructure with different features and layers that allows them to develop dApps or platforms.



# Features

Xiden provides innovative solutions for users and developers, all band together into an attractive feature set.

## 01 - Benefits

### Rewards

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A system built to reward users for their hard work and contribution to ensuring optimal operation of the network. By performing validations, users receive XDEN as rewards.

## 02 - Benefits

### Utility

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A blockchain developed to continuously grow based on the utility it offers to users: facilitates the distribution of resources (computing power & storage capacity) between users and provides an unrestricted and secure Hotspot private network.

## 03 - Benefits

### Free Internet

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Users with registered devices can automatically connect to any Hotspot whenever they are in range, without being prompted for a username or password.

## 04 - Benefits

### Connectivity

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Xiden allows all users to connect to blockchain in order to work through their integrated devices and have all the benefits of this system.

## 05 - Feature

### Low Fees

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Low transaction fees as users are no longer required to pay gas fees for the validation of their transactions. In this system, the RMNodes are block producers and block submitters.

## 06 - Feature

### Fast Transactions

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Users benefit from a reduced validation time for transactions as there is a high number of active validators in the network that have multiple roles.

# Features

07 - Feature

## Low Energy

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The integrated devices are utilized by users for their daily activities with specific energy consumption. The Xiden system does not use more energy in order to use these devices as validators or in the SDR layer.

09 - Feature

## Scalability

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Easy scalable and fully customizable tech stack as the decentralized network's architecture brings together multiple distributed resources.

11 - Feature

## Security

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Protects both registered devices and system users by anonymizing sources, traffic, and entities used as Node relays within the network and it uses consensus mechanisms to eliminate fraud.

14 - Feature

## User Experience

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Built so that it is easy to use by individuals without technical knowledge. Comparable to Web2, low fees transactions, instant (deterministic) transaction finality.

08 - Feature

## Interoperability

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Native support for connection with compatible blockchains through secure bridges that meet the needs of the users.

10 - Feature

## Modularity

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High customizability, extensibility, upgradeability, short time-to-market, and community collaboration for ensuring future sustainable development.

12 - Feature

## ETH Compatibility

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Compatible with Ethereum blockchain. Industry dominance, established tech stacks, tools, languages, standards, and enterprise adoption.

15 - Feature

## Developer Experience

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A blockchain built to give developers an easy-to-use platform to develop dApps. Equivalent to ETH, no protocol level knowledge required, no token deposits, fees, or permissions.

# Developer Experience

Xiden is an environment for developers, which facilitates the development of applications necessary for the Xiden community, the crypto community or technology enthusiasts.

## Frameworks

A blockchain built for developers that includes all their familiar tools: HardHat, Truffle, Web3.js, Ethers, Metamask, Solidity, EVM, Remix IDE, and others.



### Ethers.

Ethers is a Wallet and dApp Browser for your Web Browser. It keeps your private keys safe while making dApps easy to use.



### Web3.js.

A collection of libraries that allow you to interact with a local or remote ethereum node using HTTP, IPC or WebSocket.



### Metamask.

MetaMask equips you with a key vault, secure login, token wallet, and token exchange - basically everything you need.



### EVM.

EVM does exist as one single entity maintained by thousands of connected computers running an Ethereum client.



### Truffle.

A personal blockchain for development you can use to deploy contracts, develop your applications, and run tests.



### Hardhat.

Hardhat is an Ethereum development environment. Compile your contracts and run them on a development network.



### Solidity.

Solidity is an object-oriented, high-level language for implementing smart contracts which govern the behaviour of accounts.



### RemixIDE

An open source web and desktop application. It fosters a fast development cycle and has a rich set of plugins.

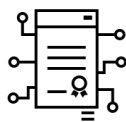
## dApps and Apps Types

A blockchain built for developers that includes all their familiar tools: HardHat, Truffle, Web3.js, Ethers, Metamask, Solidity, EVM, Remix IDE, and others.



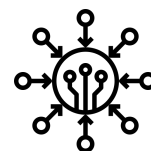
### Nft.

A highly-curated platform for minting, collecting, and selling your NFTs. Start minting your favorite NFTs and increase your passive income.



### Smart contracts.

Create, deploy, and test your smart contract on a highly transparent, secure, and performant platform.

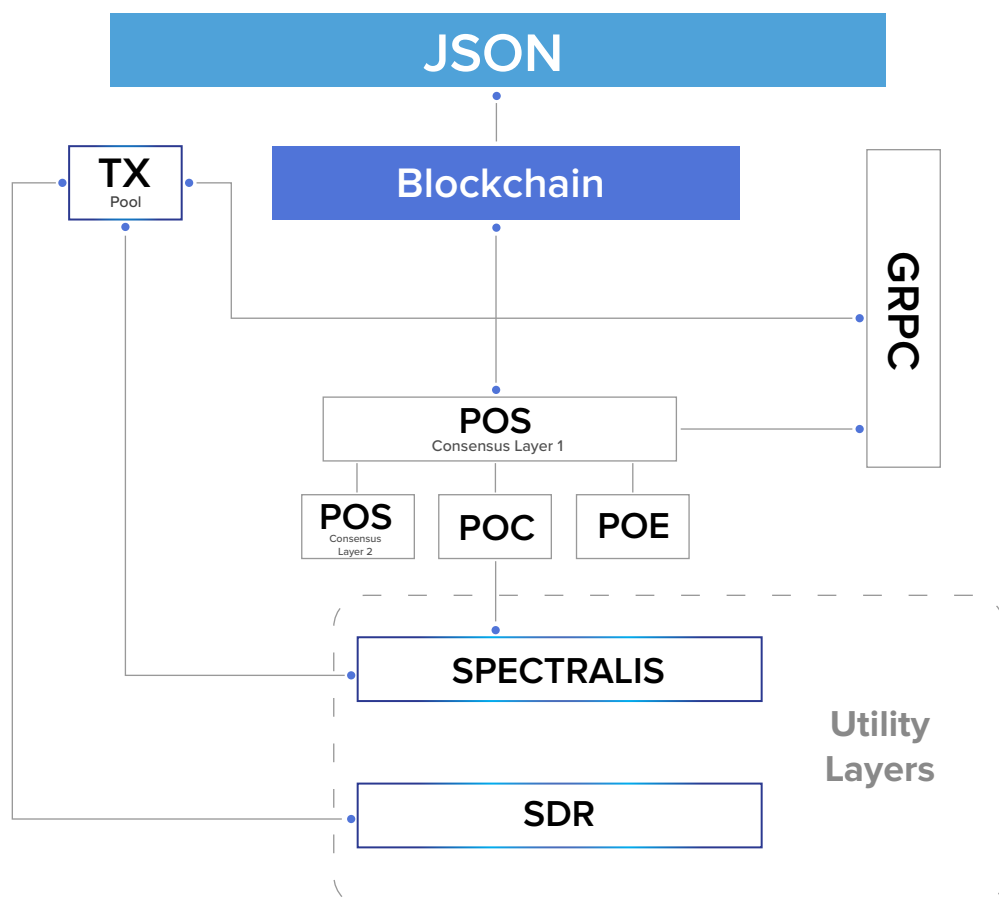


### DeFi.

The magic behind decentralized finance is here. Building DeFi on the Xiden network is super easy and will provide high financial benefits for users in a decentralized manner.

# Architecture

Xiden is a blockchain with a hybrid architecture, combining Ethereum and Polygon Edge's PoS architectures, over which we have integrated the PoE and PoC improved consensus layers to meet all the needs of users.



## 01 - Architecture

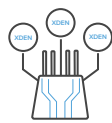
### Core

Xiden's core is based on Polygon Edge, and Ethereum and it represents a new modular and extensible solution based on a development framework compatible with Ethereum blockchain network, sidechains and general scaling solutions.

02 - Arhitecture

# Consensus

Consensus mechanisms allow distributed systems to work together and stay secure. For example, consider a group of people going to the cinema. If there is not a disagreement on a proposed choice of film, then a consensus is achieved.



## Proof of Staking

A consensus algorithm that ensures the conformity of every device aiming to become a validator by submitting a predetermined quantity of XDEN.



## Proof of Existence

A consensus algorithm used to ensure that all devices integrated into the system are genuine, connected and function within the system.



## Proof of Connectivity

A consensus algorithm that ensures a specific data or digital transaction is associated with a timestamp and a signature.

03 - Arhitecture

# Utility

Xiden blockchain was developed to continuously grow based on the utility it offers to users: facilitates the distribution of resources between users through the Smart Distributed Resources (SDR) layer and provides an unrestricted and secure Hotspot private network through Spectralis.

01 - Utility

## SDR

A utility layer integrated into the Xiden blockchain that collects all the resources distributed by the network's registered devices and makes them available for all users, in a decentralized manner, according to their needs.



### GPU.

An important resource of computing technology used in a wide range of applications, including graphics and video rendering.



### CPU.

The brain of all digital systems, the CPU is responsible for doing all the work. It performs every single action a computer does and executes programs.



### Storage.

High storage capacity as every device registered in the network provides storage capacity and computational power.

02 - Utility

## Spectralis

A network that forms an internet layer of virtual tunnels to allow users to improve their privacy and security on the Internet. Any registered device can connect automatically to a Spectralis Hotspot without admin permissions, but the unregistered devices will be prompted for username and password as for any other Hotspot. All Spectralis-connected devices will benefit from the network's features.



### VPN.

Used to secure traffic through an encrypted VPN tunnel and safeguard user privacy from third parties.



### TOR.

Elements used to anonymize and protect the sources, traffic, and entities that are used as relay Nodes within the network.



### VOBP.

Used architecture and cryptographic algorithms to encrypt communication sessions between devices and the Hotspot.



## 04 - Xiden Ecosystem

# Xiden Ecosystem

The Xiden ecosystem consists of multiple participants who perform all the functions required for the optimal operation of the system, as well as providing a solution for the needs of network users.

## 01 - Xiden System

## Validation Power

It is the ability of a device to query and process a volume of data within the Xiden network to perform all the consensus functions required for the optimal system's operation. Each validator can perform different roles, from validating the other participants and verifying data integrity to submitting blocks in the chain.

## 03 - Xiden Participants

## Realm MetaNode

A central validator master node, part of the PoS consensus layer. It is a participant that fulfills multiple functions to ensure the network's operation. An RMNode must hold 2,000,000 XDEN locked in stake and consists of a hardware layer and a software layer that must meet a set of technical requirements in order to function.

## 05 - Xiden Participants

## Validators

The validator is a physical network node that verifies and validates the integrity of data within the system. CryptoDATA's developed devices, Minter Guardian, BASM laptop, HiDR, and IMPulse K1 smartphones, have validator roles within the Xiden network. They must be registered in the network through the Minter Guardian Hotspot.

## 07 - Xiden Participants

## KrateR Pool

A KrateR Pool can be opened by a Guardian Node, and it centralizes the distributed resources from the registered devices.

## 02 - Xiden System

## Booster Power

It is given by the resources integrated into the SDR layer. As regular devices have different specifications, performance, and applicability, they cannot be integrated and rewarded as system validators. However, these devices can be part of the SDR layer and increase the total validation power of all the validators of a KrateR Pool. The users can be rewarded with up to 20% booster power as each device, regardless of specifications, increases total validation power by 1%.

## 04 - Xiden Participants

## Minter Guardian

A redefined smart device which functions both as a WiFi point unlocked by a Router and a light validation node which holds 1,000 locked XDEN. It verifies the conformity of both data and the system's integrated devices, contributing to the network's operation and providing resources for decentralized computing power and storage capacity.

## 06 - Xiden Participants

## Boosters

Any regular smart device can be connected to the Spectralis Network by requesting a connection from a Minter Hotspot. A booster device will increase the validation power by 1% by distributing its resources to the network. More boosters can increase the total validation power by up to 20% to receive higher rewards for their work.

# XDEN - Digital Transferable Asset

The native asset of the Xiden blockchain that serves as cryptofuel for the system and ensures its optimal functionality.

01 - Digital Transferable Asset

## Transferable

Can be transferred between users at any time, according to their needs.

02 - Digital Transferable Asset

## Valuable

Its value is given by the utility it has in the services and functions of the system, but also from the supply and demand available in the free market.

## How to get XDEN

01 - Mark

### By validating transaction

Each validator who meets the consensus conditions is rewarded for its work within the system.

02 - Mark

### By integrating devices in the SDR

Every device that makes its resources available to the system is rewarded with XDEN.

03 - Development

### By developing dApps and Apps

App developers can make applications that use the Xiden infrastructure. To provide access to the respective apps they can request XDEN.

04 - Trading

### From the market

XDEN is an asset that can be transferred between users. Therefore, both its transferable feature and the ecosystem it is part of can help the supply and demand, and thus, market speculators can purchase it from frontline users.

## Own a RMNode

To own a Realm Meta Node you must deposit a minimum of 2,000,000 XDEN in stake. This Xden amount is always controlled by the owner, which means you can withdraw it at any time.



# How it Works

The Xiden system has been built so that each network participant has an active role and helps other participants while benefiting from all the advantages and features of the system, from rewards to free internet and infrastructure.

**01** To ensure an optimal system operation, validators that maintain the integrity and conformity of data are required.

**02** The system consists of 30 Realm MetaNodes (RMNodes) to which the Minter Guardian devices can connect as light validators that perform multiple tasks. RMNode's sole duty is to register the blockchain blocks and submit them.

**03** The other light validators can connect to the system via a Krater Pool. The Krater Pool can be opened with the help of the Minter Guardian device, which distributes the tasks and verifies the integrity of the other network validators.

**04** The device resources are distributed into the SDR layer via the Krater Pool and the Spectralis Private Network.

## CryptoDATA devices as validators

CryptoDATA devices have validator roles in the system. They automatically distribute their resources to the network.

## Regular devices as boosters

Regular devices available in the market, have different specifications and for that reason the users are required to manually integrate them into the SDR layer via Spectralis network to boost their validation power.

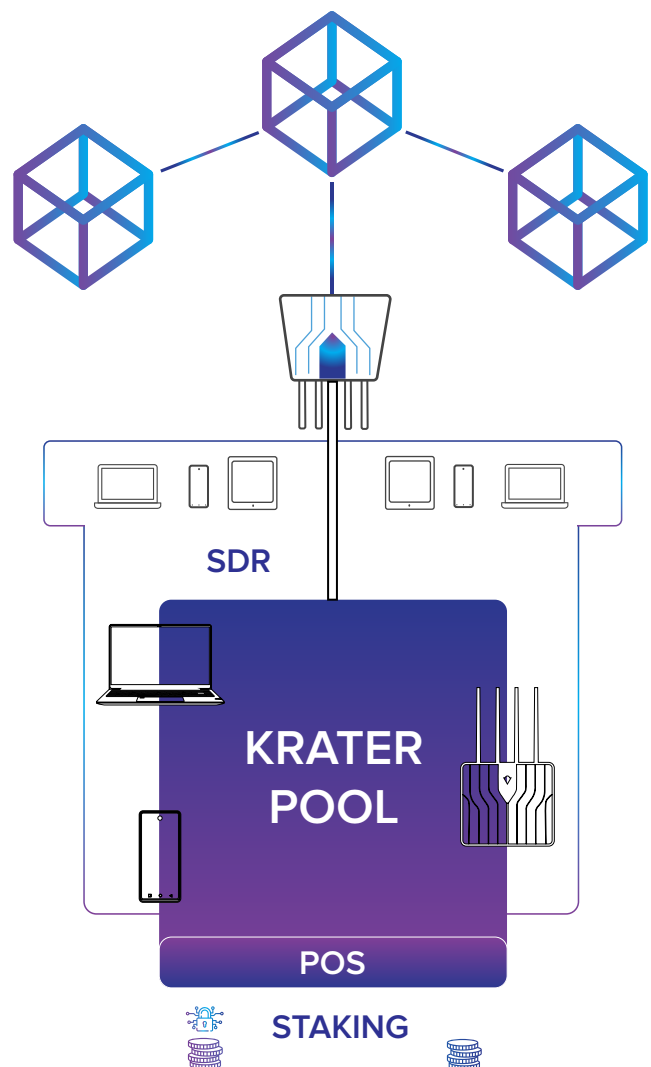
**05** To activate a Krater Pool a user must deposit a minimum amount of 1000 XDEN in stake. This represents the most important condition to become a validator. The minimum amount represents the owner's guarantee.

## Locked XDEN

The 1000 locked XDEN amount can only be obtained by purchasing the Minter Guardian device during the First Age. The locked XDEN can be unlocked only on Private Difficulty.

## XDEN acquired from the market

Users can acquire XDEN from the market and stake it to become validators.



# Rewards distribution

Rewards are distributed according to the work performed within the system. They can be obtained according to the difficulty selected by the users (Private or Public).

## Validation Power

The total validation power is accumulated from all the validators available in a Krater Pool and based on it, users receive rewards.

## Available Resources

Users receive more rewards for integrating their devices via the Spectralis network according to the resources distributed to the SDR layer.

## Mining Difficulty

Difficulty can be Public or Private. It can be influenced by XDEN circulating supply, price, and the number of registered validators.

## Devices Uptime

Rewards are given every 24 hours according to the total validation power of that period. The validation power is calculated based on how long the devices have been online at any given moment in that period.

**Get rewards without being influenced by difficulty and validation power.**  
**Own a Realm MetaNode**

## How to Own a RMNode

To own a Realm Meta Node you must deposit a minimum of 2,000,000 XDEN in stake. This Xden amount is always controlled by the owner, which means you can withdraw it at any time.

## Collect Gas Fees

The owner of the RMNode obtains all gas fees from the validations made by his RMNode without being influenced by the validation power or difficulty.

## Rewards by Competition

There is a competitive system between all the RMNodes. The higher the XDEN amount available in staking, the more chances you'll have to make more validations and thus, collect more gas fees.

# Difficulty

Difficulty is the indicator resulting from a Xiden blockchain calculation formula. These formulas are influenced by Total Supply, Circulating Supply, Validation Speed, and the Ecosystem's Need for XDEN. It is split into Public Difficulty and Private Difficulty to meet the needs of each validator owner but also to maintain an efficient distribution of XDEN in the system.

## Public

The public difficulty is the calculation formula that influences the amount of rewards received by a Krater Pool when that pool has been set to receive rewards from the collected gas fees available in the RMNodes.

### Example

**An amount of rewards in XDEN obtained in addition to the amount of staked XDEN.**

If you deposit 1000 locked XDEN in stake and have a validation power of 49, with a public difficulty of 1777.07, after a month, you will earn 0.85 XDEN. That means you will have 1000 XDEN in staking and 0.85 XDEN earned.

\*The 1000 staked XDEN can be locked or unlocked, and the 0.85 XDEN earned are by default unlocked. That means that the 0.85 XDEN earned can be staked or sent to market according to the user's needs.

## Private

The private difficulty is the calculation formula for a Krater Pool that has been set to receive rewards in the form of unlocking the 1000 locked XDEN received by the user for free in the first Age when purchasing a Guardian Node.

### Example

**The total amount of locked XDEN in staking will not change.**

If you have a validation power of 49, with a private difficulty of 761.60, in a month, you will unlock 1.99 XDEN. This means that the total amount available in staking will be divided as follows: 998 locked XDEN and 2 unlocked XDEN. The unlocked XDEN can be further staked or sent to the market according to the user's needs.

\*If the 2 unlocked XDENS are withdrawn, the total available amount in the stake will be 998 XDEN. Thus the staking condition of having a minimum of 1000 XDEN will not be respected, and as a consequence, the Krater Pool will become inactive.

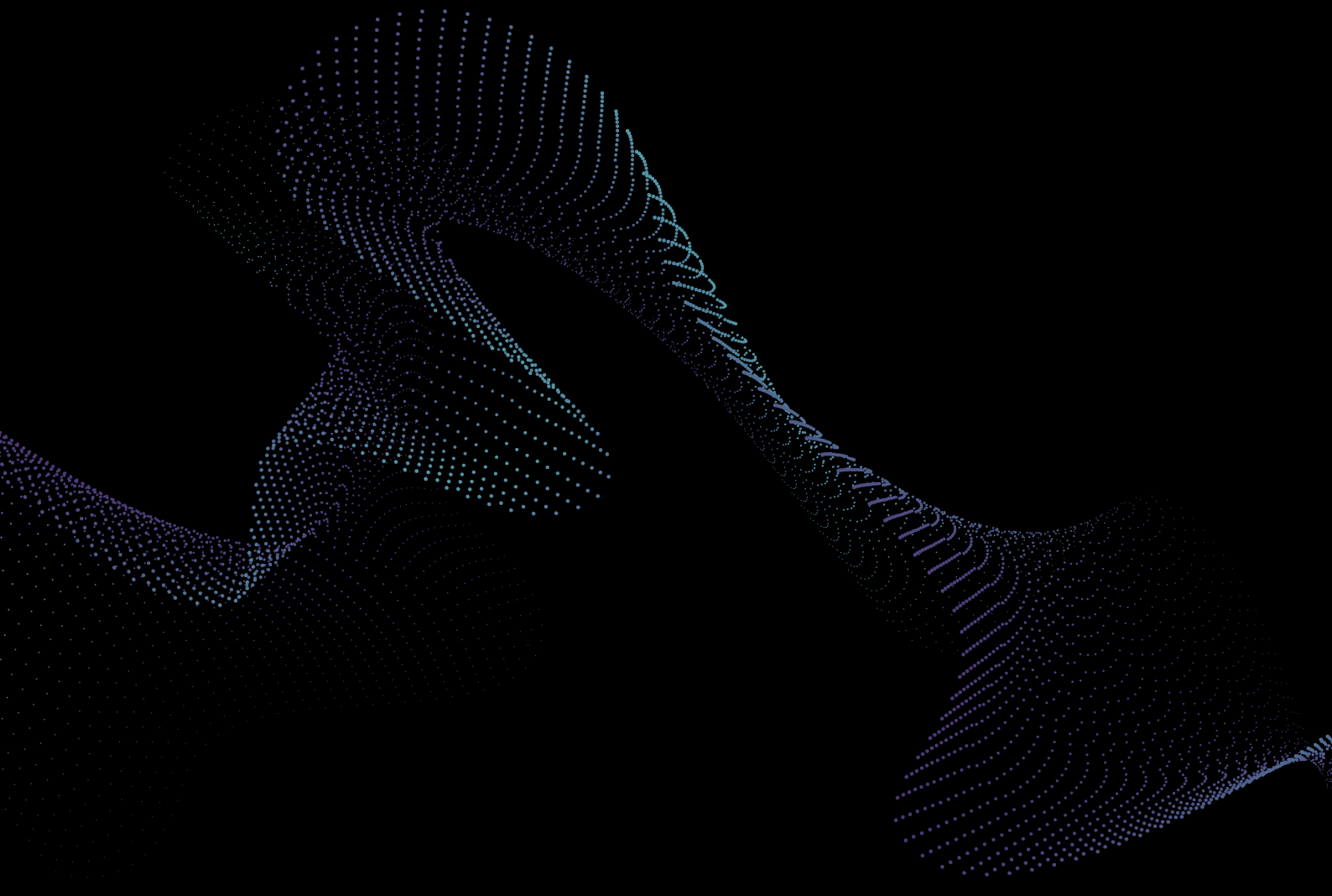
# Age

Each Age brings different operating procedures, standards, and rules in order to ensure sustainable and continuous development. A predetermined finite number of blocks represent each Xiden blockchain Age. Big Bang represents the current phase of the Xiden blockchain in terms of operation.

# Epoch

Represents the blockchain period given by the number of blocks. At the beginning of each blockchain epoch, a census of the validators is made by checking their status. During one epoch, 100,000 are validated and onle block is validated every 2 seconds.

Age	Big Bang	Meteora	Atlas
Period duration	477 Epochs	477 Epochs	477 Epochs
Number of active RMNodes	10	20	30
Public Difficulty	•	•	•
Private Difficulty	•	•	
Public KraterPool		•	•
Private KraterPool	•	•	•
RMNode Reward Costum			•
Free 1000 Locked XDEN	•		



# About

Who we are and  
why we're doing this

# Developed by CryptoDATA

## About CryptoDATA

CryptoDATA Tech is a Romanian company founded in 2013. It operates in cyber security, encrypted telecommunications, and Artificial Intelligence to provide custom IT solutions.

## Blockchain Experience

CryptoDATA Tech was founded as a mining data center in 2013, and soon it became the largest one in Europe, with more than 5MWh energy consumption. In 2016, the company developed an innovative and revolutionary encryption communication protocol called Voice Over Blockchain Protocol, which led to the development of the first user-oriented devices that utilize Blockchain technology to encrypt and secure communication channels.

## Our Team

CryptoDATA's team is formed of tech-savvy specialists and engineers that share the same passion for technology and for transforming today's society into a better tomorrow. Our culture is to rise above current technology's limitations and share social progress with the world.



# Our vision

CryptoDATA aims to provide both cybersecurity based on decentralization and the means for easily accessible and secure communication for every individual around the world.

# Our business model

CryptoDATA develops products and services based on Blockchain technology, that ensure user security and data encryption, applicable in various fields.

## Research & Development

R&D for innovative products and technologies for every user, we cover the entire range of software and hardware development, from start to finish.

## Encrypted Devices

CryptoDATA develops Blockchain encrypted devices in order to provide secure communication channels and integral protection for users' private data.

## Startups Acquisition

Acquisition of startups that create and promote innovative technologies, products and services that meet the needs of today's society.

## Custom Projects

CryptoDATA provides both ready to use and custom solutions for security, encryption, telecommunications, information transfer and training modules.