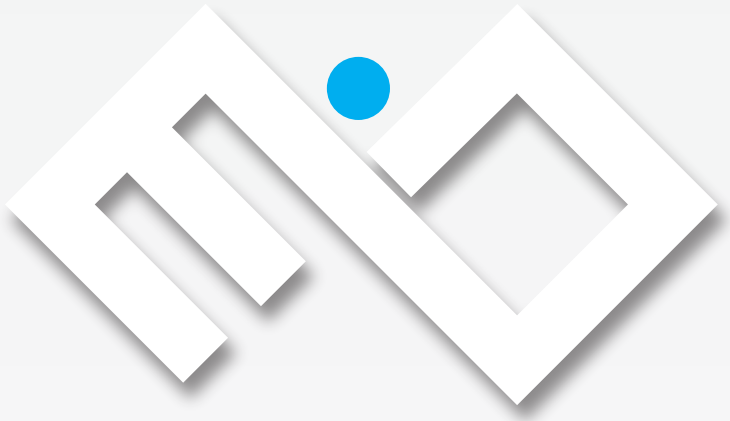


EDAIN

WHITEPAPER

version 1.0/2021

© 2021 Edain Technologies AG

EDAIN

Content

1. Abstract
2. Terms
3. EDAIN - Extended Data Inventory
    - 3.1. Introduction
    - 3.2. System operation
    - 3.3. Stage of data
    - 3.4. The evolution of data
    - 3.5. Knowledge industry
    - 3.6. The transformational journey of data to knowledge
4. Tradable License Keys (TLK)
    - 4.1. Blockchain applicability
5. C+8 Technology®
    - 5.1. C+8 System
    - 5.2. C+8 Prime Elements
    - 5.3. C+8 Knowledge Vault
    - 5.4. C+8 Applications
    - 5.5. AI & NLP
6. Blockchain
    - 6.1. Philosophy
    - 6.2. Why Xiden
    - 6.3. ERC20 Token
    - 6.4. Xiden layers
        - 6.4.1 Decentralized Internet Private Networks
        - 6.4.2 Smart Distributed Resources (SDR)
    - 6.5. Application environment
    - 6.6. EDAIN ERC20 Smart Contract
        - 6.6.1 Transfer Functions
        - 6.6.2 Add to stake
        - 6.6.3 Reward
    - 6.7. Proof of Stake
        - 6.7.1 Total stacking supply
    - 6.8. The compound function
    - 6.9. Governance
7. Conclusion
8. Objectives

© 2021 Edain Technologies AG

1. Abstract

EDAIN is a fully developed and functional AI-powered big data analytics system. Its function is to autonomously collect and process as much raw, n-dimensional data from the global datasphere as possible for the purpose of creating new knowledge at a rate never before achieved by humans (or machines). EDAIN uses a revolutionary patented data model called C+8 Technology to capture and process huge volumes of data - currently from thousands of different sources.

The EDAIN concept came to be more than 40 years ago as Prof. Dr. Hardy F. Schloer contemplated the global widening knowledge gap and the obvious adverse effects it was having on our global society - while at the same time realizing what the future of data creation was to become and the opportunities this data explosion would create for humans to improve their quality of life, if it could be properly harnessed.

As an outside-the-box system designer from a very young age, Dr. Schloer was regularly innovating large scale solutions through complex system engineering. Over the course of a distinguished career of innovation, the foundation of what has since become the EDAIN knowledge ecosystem was eventually born as a solution to the human knowledge gap.

Then unnamed, and renamed several times since, the idea behind Dr. Schloer's vision was to create an electronic data aggregation system that would serve as a centralized global repository of all man's available knowledge. This repository would be akin to a modern-day Library of Alexandria that served similar role for human development from ancient Egypt where the literate could vastly expand their knowledge horizons in one central place. Of course, we didn't have the internet then.

Today, C+8 Technology has been developed successfully and is a 'living, breathing' data ecology that is continuously, dynamically and autonomously capturing and processing data for the purpose of creating knowledge consumable by humans and machines, at scale. The digital beneficiary of C+8 Technology is the Global Knowledge Vault – the electronic version of the Library of Alexandria, but with a variety of modern technological benefits that allow it to be distributed anywhere, to anyone – easily, inexpensively, without bias and in real-time.

How do we do this?

If you asked everyone you knew what superpower they wished they had, most of them would say, "to be able to see the future." It is well known that the answers to every problem we're confronted with are hiding right in front of us in the form of data. And we have so much data now, that rather than it serving as the great oracle we know it can be, we're actually choking on it because the volume is so vast and so much of it, unstructured. Thus, by actively capturing significant volumes of data and using the proprietary tools of the C+8 Data Model to process it, software applications are developed using

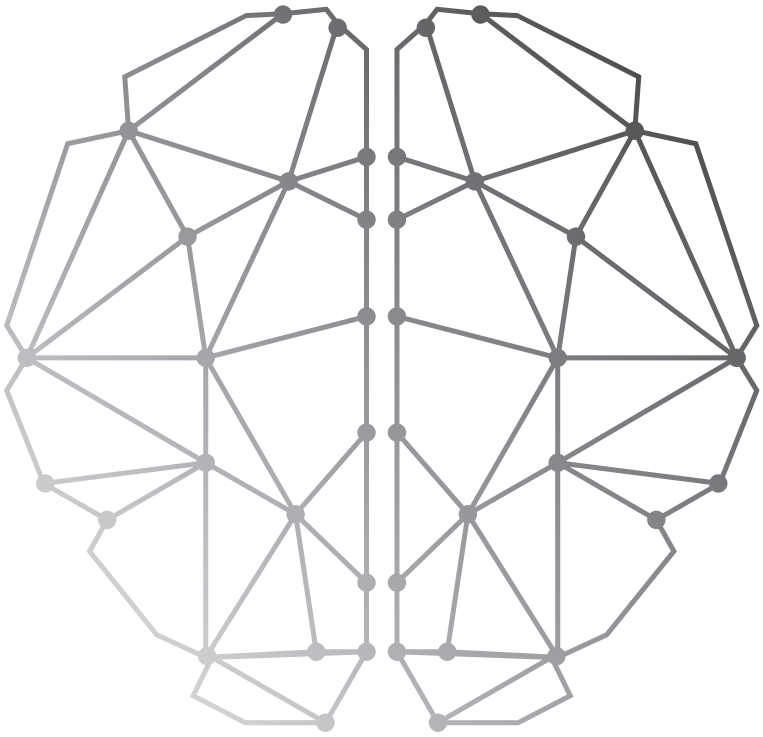
the proprietary tools of the C+8 Data Model to process it, software applications are developed using C+8's processed data as knowledge outputs.

> Important to note is that the uniqueness of the knowledge created within the EDAIN knowledge ecosystem, priority is assigned to how this knowledge will be made available to its human users. As such, modern visualization tools will be utilized in the development of all EDAIN knowledge apps. As humans are an emotional species, we assign great value to how we "see" information. The more engaging the information, the more value we tend to assign to it. Using the old adage, "a picture is worth a thousand words", we know that the visual presentation of knowledge makes it more actionable and generally in a shorter amount of time, because it increases our ability "to relate" to it.

Among its many disruptive qualities, a big one is that C+8 Technology generalizes unstructured data allowing data the opportunity to 'intercommunicate' through our system. This will allow for breakthroughs in prediction we've not seen before. Generalizing unstructured data is a catalyst for the development of artificial intelligence on a massive scale.

Evidence that Dr. Schloer's breakthrough is transformative is that the EDAIN project has attracted reputable partners that have become vested in different ways. For one, leading blockchain technology developer CryptoDATA Tech have joined the EDAIN network as its developer, and DELL Computers as its infrastructure partner, providing the back end that powers the massive computational systems that help create knowledge for the C+8 Knowledge Vault.

Access to this C+8 Knowledge Vault 'oracle' is provided exclusively by the EDAIN project and using EDAIN's proprietary tradable license key (TLK) payment system.



2. Terms

- **EDAIN**

EDAIN is both: 1) the entire knowledge ecosystem, and
2) the knowledge ecosystem's exclusive internal currency (EAI) and transactional system.

EDAIN is a complete, holistic, end-to-end knowledge creation ecosystem. The EDAIN knowledge ecosystem is managed by Switzerland-based Edain Technologies AG. Included in the EDAIN knowledge ecosystem are the C+8 technologies and related assets. Among them are the C+8 Data Model (the data analytics engine) and the C+8 Knowledge Vault (the central repository that stores all raw, processed data and knowledge).

- **TLK**

TLK = tradable license keys.The EDAIN knowledge ecosystem's internal currency are tradable license keys (TLK) and their name are also EDAIN. In the EDAIN system, tradable license keys are a convertible medium of exchange consumers use to purchase knowledge products that are made available as apps in the Edain App Marketplace.

- **C+8 Technology®**

C+8 is a data-importation and transformation engine that allows data to fully self-organize through a complex process of data atomization and systemic association with event causality.

- **C+8 Knowledge Vault**

The C+8 Knowledge Vault is the centerpiece of the EDAIN knowledge ecosystem. It is the physical, electronic storage facility for all of the raw processed data and knowledge as produced by C+8 Technology®. It is the entity from which all developer apps are created and knowledge is its product.

- **C+8 Apps**

C+8 apps are those specifically developed by any authorized software developer using knowledge from the C+8 Knowledge Vault. C+8 apps are commonly referred to as knowledge apps for their utilization of knowledge data as their raw materials.

- **Edain App Marketplace**

The C+8 App Marketplace is the online app store where all of the C+8 apps are made available to consumers. It functions similarly to the Google Play or Apple App stores and for generally the same purpose.

- **AI (Artificial Intelligence)**

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

- **NLP**

Natural Language Processing, or NLP for short, is broadly defined as the automatic manipulation of natural language, like speech and text, by software. The study of natural language processing has been around for more than 50 years and grew out of the field of linguistics with the rise of computers.

- **Data**

In computing, data is information that has been translated into a form that is efficient for movement or processing. Relative to today's computers and transmission media, data is information converted into binary digital form. It is acceptable for data to be used as a singular subject or a plural subject. Raw data is a term used to describe data in its most basic digital format.

- **Information**

Information is stimuli that has meaning in some context for its receiver. It is a set of data in context with relevance to one or more people at a point in time or for a period of time. Information is more than data in context—it must have relevance and a time frame. Information is considered to be singular.

- **Knowledge**

In the hierarchical structure of knowledge, it is widely discussed that knowledge begins as data in some form, where it is then processed or paired with other data to some minimal extent where it becomes information. Information then becomes knowledge when two or more established units of data or information are correlated making that union dynamic and actionable. In essence, knowledge is the end product of data interaction(s). We often refer to the example of the harvesting of a tree in a forest as data, where it then is made into wood pulp as a more valuable product before becoming paper in its final consumer form where its peak value can be realized.

- **Blockchain**

Blockchain represents a digital ledger that is decentralized (data is distributed in the network), immutable (data is stored in blocks and cannot be altered thereafter), scalable (easy to replicate for fast growth), transparent (all data can be verified), confidential (data displayed according to access clearance) and incorruptible (validation is decentralized by parties's devices), jointly maintained by multiple parties and which is using cryptography to ensure the security of data transmission and access, data storage consistency and data tamper-proof.

- **Decision Point**

Decision Point© is the trade name of a financial technology (fintech) software application developed by Prisma Analytics, GmbH. Decision Point© is published and made available to its target customers on the Refinitiv platform. Refinitiv is an American-British global provider of financial market data and infrastructure.

- **C+8 API**

A C+8 API is a traditional application programming interface that allows for a software application the ability to "talk to" data somewhere in the C+8 knowledge ecosystem. A C+8 API is generally provided to 3rd party software developers, allowing them to extract agreed data sets from the C+8 Knowledge Vault.

- **Infrastructure (IT)**

Information technology infrastructure is defined broadly as a set of information technology components that are the foundation of an IT service; typically physical components, but also various software and network components.

- **Knowledge Industry**

With the successful development of new AI powered data analysis tools that allow humans to finally ingest meaningful volumes of structured data, knowledge will become a utility that will spawn a new 'knowledge industry', much like any other industry today, only providing knowledge in new, engaging methods that allow humans and machines better tools to solve problems.

- **Knowledge Applications**

Knowledge Applications is the term used to describe any software application developed using knowledge from EDAIN's knowledge repository (the C+8 Knowledge Vault) and available exclusively through EDAIN's App Marketplace and using EAI for access to any desired knowledge application.

- **EAI**

EAI is the abbreviation for EDAIN as the tradable license key used exclusively in the EDAIN knowledge ecosystem for any purpose of knowledge acquisition, asset storage or exchange for fiat or crypto currencies.

- **Vesting period**

We use the term "vesting period" to describe how EAI purchased during the presale period are managed through a periodic selling strategy. Edain Technologies uses a vesting strategy for the purpose of protecting investors who may have purchased EAI as a financial investment. Again, the vesting period only applies to EAI purchased during the EDAIN presale period.

- **EDAIN knowledge ecosystem**

The reference to the EDAIN knowledge ecosystem is the reference to the entire system - from end-to-end. This includes everything from data capture to parsing, disambiguating, associating, analyzing and storing to the entirety of the EAI transactional system, including the EDAIN App Marketplace.

- **TLK: as tradable unit of value**

TLK: as tradable unit of value
Like money that can be traded for things of value between any two parties, EDAIN's tradable license keys (EAI) are used for the same purpose, but exclusively for products with in the EDAIN ecosystem. EAI are purchased by a user using fiat or cryptocurrency at whatever the market rate is that that point in time. The purchasing user then owns those EAI and can be used to either:

* purchase access to the C+8 Knowledge Vault through any of the applications offered in the EDAIN App Marketplace
* hold as a store of value
* trade at a future date back into fiat or cryptocurrency

3. EDAIN - Extended Data Inventory

3.1 Introduction

Humanity's most powerful and most complete knowledge creation system. This is EDAIN.

EDAIN is an entire ecosystem of digital knowledge proliferation; it is a symbiotic relationship between man and machine for the furtherance of peaceful human development. It is electronic, computationally powerful, autonomous, real-time, sustainable, holistic and revolutionary. EDAIN is Extended DAta INventory and its knowledge creation is driven by artificial intelligence (AI).

In simpler terms, EDAIN is an end-to-end, modern production facility that is globally scalable and its Product is knowledge that it delivers as a service through software applications. EDAIN's customers are every human desiring to have the best, most complete knowledge possible – on any conceivable subject and at any level of granularity.

Mission
Delivery of knowledge as a utility to every human everywhere, with easy, inexpensive access and without bias.

Vision
Through the continuous capture and analysis of big data, the EDAIN digital knowledge ecosystem will dynamically evolve over time to the eventual point of technological singularity. All the while, the C+8 Knowledge Vault will spur an entirely new 'knowledge industry', where knowledge becomes man's most sought-after utility for its solution engineering disruptiveness. The revolution of the C+8 Technology will come in the form of human bias elimination, transparency, cost efficiency, tradability of knowledge for other goods and services and its ease of transactability for everyone.

3.2 System operation

EDAIN can be defined as - the ecosystem that transforms data from an abstract form to a quantifiable unit that has a variable value depending on the real-time relevance of said knowledge together with its supply and demand.

In the Edain system, information is considered a resource that undergoes various processes to be transformed from a "raw" material into a finished product ready-for-use in any industry.

3.3 Stages of data

For the purpose of explaining the EDAIN knowledge ecosystem's knowledge creation process, we explain how our data "assembly line" works, here. Just like any other traditional manufacturing process, we start with the mining of raw, unstructured data from the global datasphere. We then process that data into a generalized format that allows data to be organized into information by machines for autonomous association whereby information becomes knowledge, where paired together with any other information or sets of information.

As part of the EDAIN processing function, EAI are also created for the purpose of allowing EDAIN's finished knowledge products to be traded between humans and machines.

- **Raw data: EDAIN's raw material**
  (e.g. raw material such as crude oil in its natural form and still in the ground)

Data is an infinite resource that is generated by any element regardless of its status. The resource has been in constant production since the Big Bang and its volume is increasing exponentially as the current reference system evolves.

Data is the only resource that produces even more data where it triggers an action that generates a causal event. For example, imagination, if recorded somewhere, is an intangible element that produces information based on data accumulated over time.

- **Information: EDAIN's work-in-process**
  (e.g. such as crude oil in its extracted, natural form and delivered to a bunkering facility or transport vessel)

In the EDAIN ecosystem, information is gathered without yet being stored in the central C+8 Knowledge Vault where it self-associates with other correlated data/information through a 'tagging' system with properties that can be used when analyzing any type of data or information. In this form, information is stored and with the help of the Blockchain technology it receives the attributes of security and uniqueness.

- **Knowledge: EDAIN's finished product**
  (e.g. crude oil that has been extracted, transported to a processing facility and now ready to use as a fuel or other petrochemical product for its final intended purpose)

The information processed through the complex mechanism of the C+8 platform is transformed into knowledge. Knowledge is a ready-to-use product that can be utilized through various applications anywhere that it is applicable.

Knowledge is information in its final stage of development, where it can be exploited for analysis in order to facilitate optimal decision making for both humans and machines.

An example of EDAIN's knowledge as a finished product might be where a toolmaker needs to determine which steel is best to use in the head of a specialized hammer. Needing to have a certain striking capacity, the toolmaker must decide which grade of hardened steel is best to achieve the desired striking threshold. The toolmaker must have access to this knowledge in order to provide the desired performance that his customer will expect.

- **TLK**

TLK is the tradeable unit of floating value which is used to leverage the knowledge provided by C+8 knowledge applications from the EDAIN knowledge ecosystem. This TLK as a convertible medium of exchange has been designed to be transferred between users on easy-to-access exchange platforms or by direct transfer via smart contracts.

The TLK value is given by the supply and demand generated by users that request access to knowledge through the C+8 platform applications. The conventional system of a supply and demand is adopted as an open, free market within which users can transfer TLK as needed.

- **EAI: EDAIN's utility for trading knowledge**

For the purpose of offering knowledge as a utility to the global marketplace, we have created the EDAIN's TLK that we refer to as EAI. EAIs act as a convertible medium of exchange for access to EDAIN's C+8 Knowledge Vault through its application library (App Marketplace). A consumer uses EDAIN's TLKs as transferable units of value. TLKs are "spent" by their owner for the purpose of accessing the C+8 Knowledge Vault through software applications (apps) or for storing as value (such as the reason someone holds gold bullion in reserve of fiat).

3.4 The evolution of data

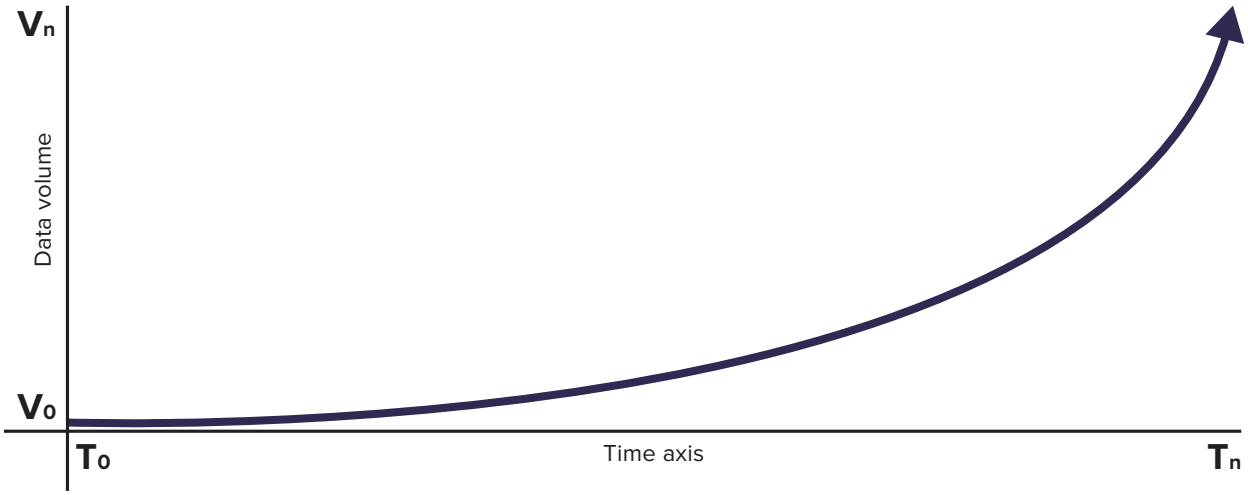
Consider that data is the seed a farmer plants in a field – in this case a wheat plant. At this stage, data is a raw material. In its seed form, it has little value to humans beyond what it could become if nurtured. Where it is properly nurtured, the seed matures to the point that it can be harvested for processing. The farmer harvests what has become of the nurtured seed and takes it to a processing facility.

Our data is now information. The harvested wheat plant is processed where it now becomes flour. In its current state of flour, it is still of minimal value and not consumable for its intended purpose, thus it is a better quality of information. The flour is then shipped to a bakery, where it is mixed with other information (ingredients), baked and output as a loaf of bread where it is now fully consumable. Our data seed has now completed its journey to knowledge – and fully consumable.

Worth noting here is that the seed is indeed actual data. For it is one seed that comprises a proportional value of that season's planted inventory and whereas its harvest and baking into a final product also represent relative proportional values to the food supply chain for that season and then as historical data - which also have varying value over time.

This proves that data, even once its immediate life has passed, remains live data as we continually must look at past data to better understand the present. The example here is that, "last year we produced 1,000 metric tons of wheat, whereas this year we produced 930 in the same space." Understanding relational values such as these, we can then begin to understand the disparity between the two production values such that we might make the process more efficient in the future. This gives credence to the statement that, "knowledge is power".

Data is created as an existing element in our universe. To date, an unmeasurable amount of data has been produced, but never recorded or stored anywhere. However, with the evolution of modern technology, we are producing – and now recording - more data every second than has been produced throughout the entire course of human history.



3.5 Knowledge industry

Everything we do is based on data ;the amount of which we receive and transmit, either consciously or unconsciously, depending on various events and actions.

Data objects can include, but are not limited to, elements such as databases, electronic documents, newspapers, books, and calendars. Information is thus something that can be produced, sold, delivered, and used. For these activities to happen, however, some aspects of the nature of data objects must be properly understood in considerable detail.

Any existing element in a reference system that interacts with another element generates data that can be harvested. Any piece of raw information (data) will interact at a given moment in time with other information and thus, additional data will be generated which will include the status, action and timestamp of the original information.

Raw data will be collected through various receivers and stored either by public or private information sources. The public information sources are the mechanisms that convert raw material (raw data) into information (processed material) for the purpose of providing it to any entity for additional processing and final use as a 'finished' knowledge product.

Information as a product must be used in some way (e.g., read, analyzed, applied, etc.) in order for its value to be realized. Unlike products such as food, information cannot be physically consumed; once it is used, it remains available to be used again. Information also has a lifecycle; it moves from new to old, from specialized to general, and from contested to accepted and its value can also rise and fall over time.

All of these aspects of information affect its value as a product, from the perspectives of both the buyer and the seller. The value of information can also be sensitive to time; new information may cost more to deliver than old. For certain entities or individuals, information that is needed by the end of the day may be worth nothing if it is delivered the following day.

The functions of the information used as a resource can be separated broadly into six categories within the EDAIN knowledge ecosystem: raw data, storage, production, processing, distribution, and ready-to-use.

- **Raw data** - is simply unprocessed data in its most basic form. For example "150" is raw data that only becomes meaningful when correlated with the fact that it was the score of one team in a basketball game. It becomes more valuable when we learn that the game was held in a certain place, on a certain date and with specific players involved. It is either consciously or unconsciously collected at any given moment from any particular source and it has the ability to influence behaviours and patterns.

- **Resources generation -** Data is also produced within a specific industry itself designed to increase the value of raw data for the purpose of providing data upgrade as a service for a profit. For example, companies specializing in data mining use large collections of data to create usable knowledge products such as customer profiles or product purchasing trends.

- **Storage** - both before and after processing, raw data is stored in the C+8 knowledge ecosystem. Storage refers to a process. It does not matter the kind or type of data or information stored, rather it is just the act of storing/keeping in a designated physical place.

- **Processing** transforms data/information into knowledge that can be packaged with the purpose of providing it to the marketplace, either for decision support services or for additional processing and final use as a finished product.

- **Distribution** includes marketing the information that was processed as a finished product and delivering it to the customers who will utilise it further.
  For example, once an electronic database of journal articles has been assembled, proper distribution ensures that potential customers know it exists and that they can access it upon purchase. When the product is delivered to the customer, that individual might be a database administrator or other information professional that can grant "access" of that information to others; rather than delivering knowledge products to customers, they are making them available to people for their use.

- **Finished product -** Is the stage of processing where data and/or information is consumable for its intended purpose. As in the case of knowledge products from the EDAIN ecosystem, it is through applications made available in its eShop for the purpose of serving as a decision support product. Data/information in this stage of processing is called **knowledge.**

- **Production** - data is also produced within a specific industry – often referred to the “data industry” for the purpose of adding value to raw, often unstructured or unprocessed data. In the data industry, a traditional processing of data is to “clean” data – removing advertisements, links, and other ‘junk’ that makes it more difficult to read by machines or that creates errors in machine analysis. What EDAIN does is different in that EDAIN processes data to the point of knowledge – but not static knowledge, rather EDAIN’s is dynamic knowledge. Dynamic knowledge is knowledge that is always in a state of real-time processing. This is what we mean when we talk about knowledge production within the EDAIN knowledge ecosystem.

- **Valuation** - in the context of EAI, valuation, or value of the EDAIN system’s convertible medium of exchange, is impacted by several factors that revolve around supply and demand like most any commodity or utility. In terms of the value of EAI in a query of the C+8 Knowledge Vault through any developed Knowledge App, the required EAI to conduct the query is largely based on its complexity; more complex queries require more analysis, computational power, data storage and electricity – all of which impact the rate of a ‘query to the system’.

- **Recycling -** data and knowledge within the EDAIN knowledge ecosystem is captured, stored and used for analysis in a fully autonomous process – never touched by humans, except the linguistic and mathematic rules introduced that machines use to make the analysis. But as a central knowledge repository, this process is remarkably efficient that provides efficiency gains from hardware requirements to electricity required to manage the entire C+8 analytics process.

In order to convert raw data into knowledge, we created Edain. EDAIN utilises the six categories aforementioned to exploit data as an infinite resource with applicability in any industry, technology, service or product. It can be considered as a primary commodity.

Our EDAIN system integrates a central element as a repository of logically stored information called Knowledge Vault, part of the C+8 technology, with the purpose of sorting and labeling raw data through digital collection channels for final processing in order to reach a finished product stage as knowledge.

The sorted, labeled, correlated and stored data can be accessed and utilised by humans and machines to make knowledge-based decisions that will generate events which will lead to a new generation of data that will start the process of conversion into additional knowledge, ensuring an infinitely expanding datasphere, applicable in any industry, technology, service or product.

For example, knowledge can be used like any other resource in any given industry. In order to construct a hammer, a craftsman is not only required to have the raw materials - he must also possess knowledge. He is required to know which type of wood will be best suited for the use of the particular hammer to ensure its durability, and to know how to best shape and assemble the materials.

Knowledge is an essential resource in the hammer-making process. It is inarguably the most important ingredient in its development process.

EDAIN's developmental success will usher in a completely new 'knowledge industry', around which other knowledge producers and products will form. The development of a new global knowledge industry will create incredible economies of scale in knowledge transfer that will promote the eventual achievement of technological singularity. This is a big deal and a really bold claim, but it is also a reality of the future of the human species.

The operational components that comprise the EDAIN knowledge ecosystem include;

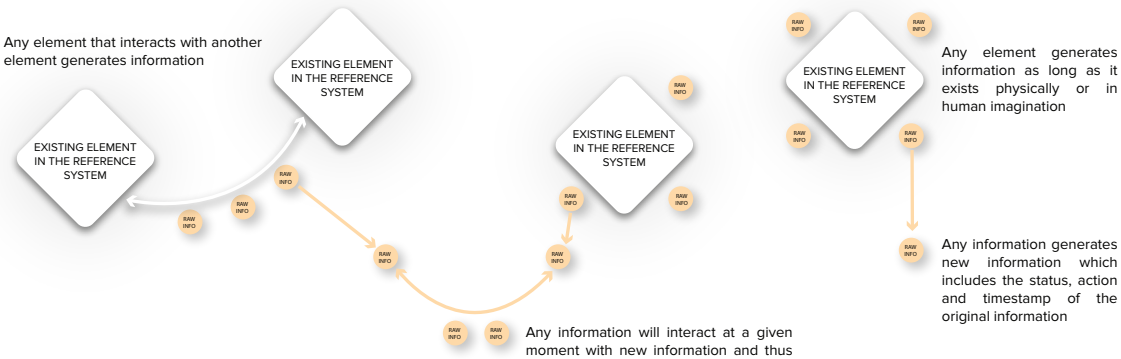
- C+8 Data Processing
- C+8 Knowledge Vault
- C+8 App Marketplace (app store)
- TLK (tradable license keys)

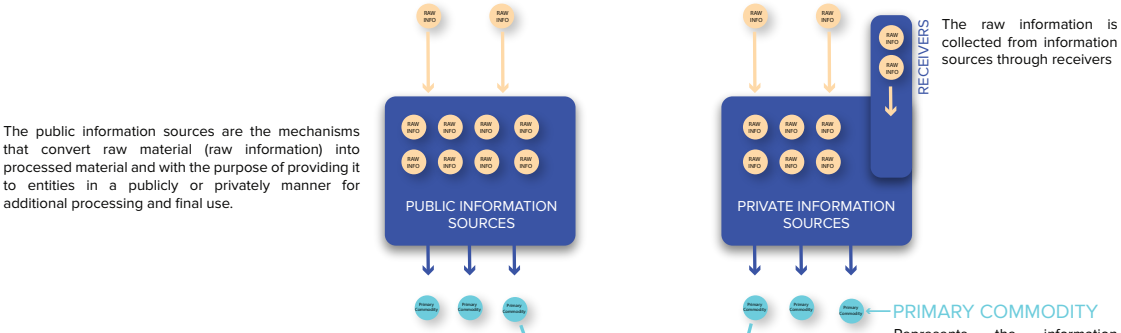
The functional processes that comprise the EDAIN knowledge ecosystem include;

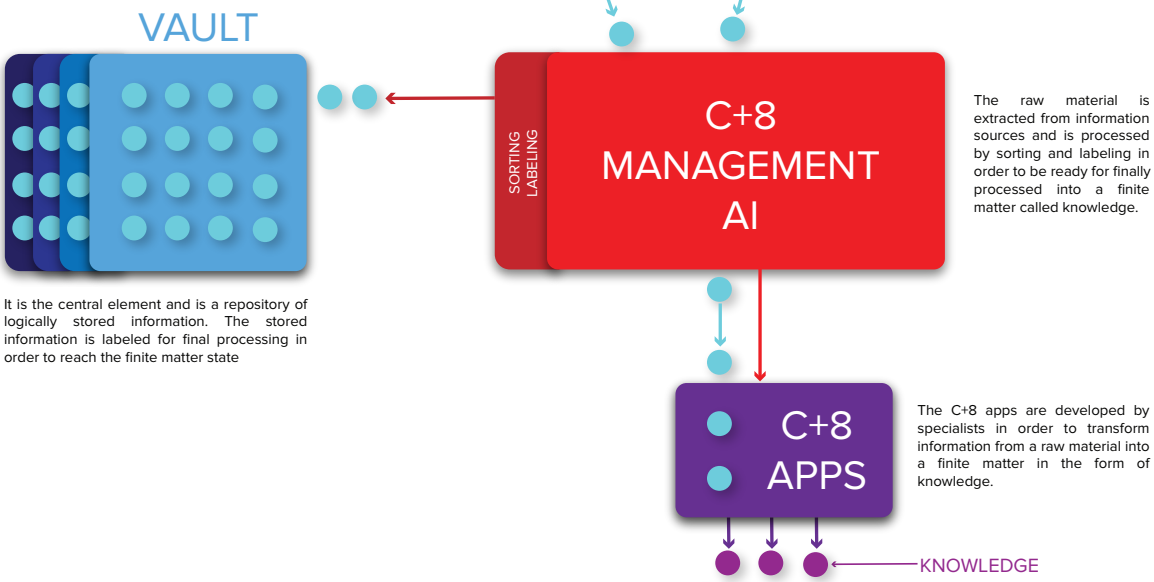
- Data capture
- Data processing
- Data analysis
- Knowledge creation
- Knowledge distribution tools development (apps)
- Knowledge transfer

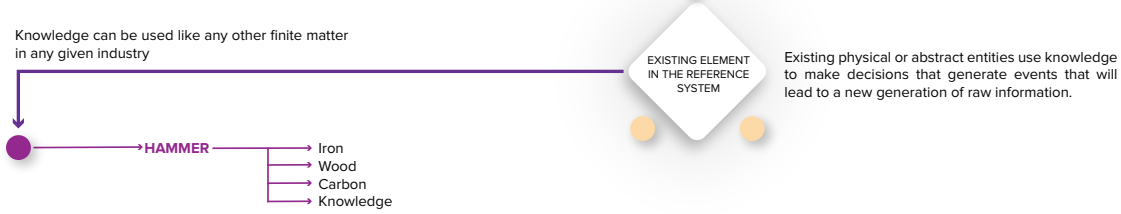
Within this section describing EDAIN, we will adhere largely to the role and journey of data becoming knowledge in the EDAIN ecosystem.

© 2021 Edain Technologies AG









3.6 The transformational journey of data to knowledge

It is generally agreed that knowledge is data that is processed to varying levels such that at a certain point it achieves a value usable by humans to assist in decision-making processes.

Think about this for just a moment to understand why this (knowledge and knowledge applications) is not just for scientists. As just one example - most of us look at our smartphones many dozens of times every day for the purpose of gathering knowledge; what time is it? What is the weather forecast? What is the balance in my bank account? What is the trending news? What did Elon Musk tweet today?

Why do we search these kinds of information sets? Because they help us make decisions throughout the course of our lives - from right now (real-time), to where I might vacation next summer.

Data

In computing, data is information that has been translated into a form that is efficient for movement or processing. Relative to today's computers and transmission media, data is information converted into binary digital form. It is acceptable for data to be used as a singular subject or a plural subject. Raw data is a term used to describe data in its most basic digital format.

Information

Information is stimuli that has meaning in some context for its receiver. It is a set of data in context with relevance to one or more people at a point in time or for a period of time. Information is more than data in context—it must have relevance and a time frame. Information is considered to be singular.

Knowledge

In the hierarchical structure of knowledge, it is widely discussed that knowledge begins as data in some form, where it is then processed or paired with other data to some minimal extent where it becomes information. Information then becomes knowledge when two or more established units of data or information are correlated making that union dynamic and actionable. In essence, knowledge is the end product of data interaction(s). We often refer to the example of the harvesting of a tree in a forest as data, where it then is made into wood pulp as a more valuable product before becoming paper in its final consumer form where its peak value can be realized.

Product

When we talk about a knowledge product, we refer to a product that is created through the introduction of knowledge processed through the C+8 Technology® analytics engine. When a user of an EDAIN knowledge app is able to make a decision through the access to the C+8 Knowledge Vault, that decision (output) is a value-added knowledge product.

4. Tradable License Keys (TLK)

EDAIN's unique tradable license keys are the 'keys' that unlock the C+8 Knowledge Vault.

Further, TLK represents the quantity of knowledge processed within the C+8 environment; a transferable unit of exchange with a value predetermined by a series of factors (always publicly published), and defined by the fundamental properties of Blockchain technology.

Tradable License Keys in the EDAIN knowledge ecosystem are a convertible medium of exchange, representing the value of knowledge that resides within the C+8 Knowledge Vault. Consider TLK's function the same as how fiat currencies worked within "the gold standard" monetary system when currencies were underpinned by an asset that is universally agreed as valuable at a market driven rate. A consumer uses TLK to acquire (pay for) knowledge through software applications developed 'on top of' the C+8 Knowledge Vault.

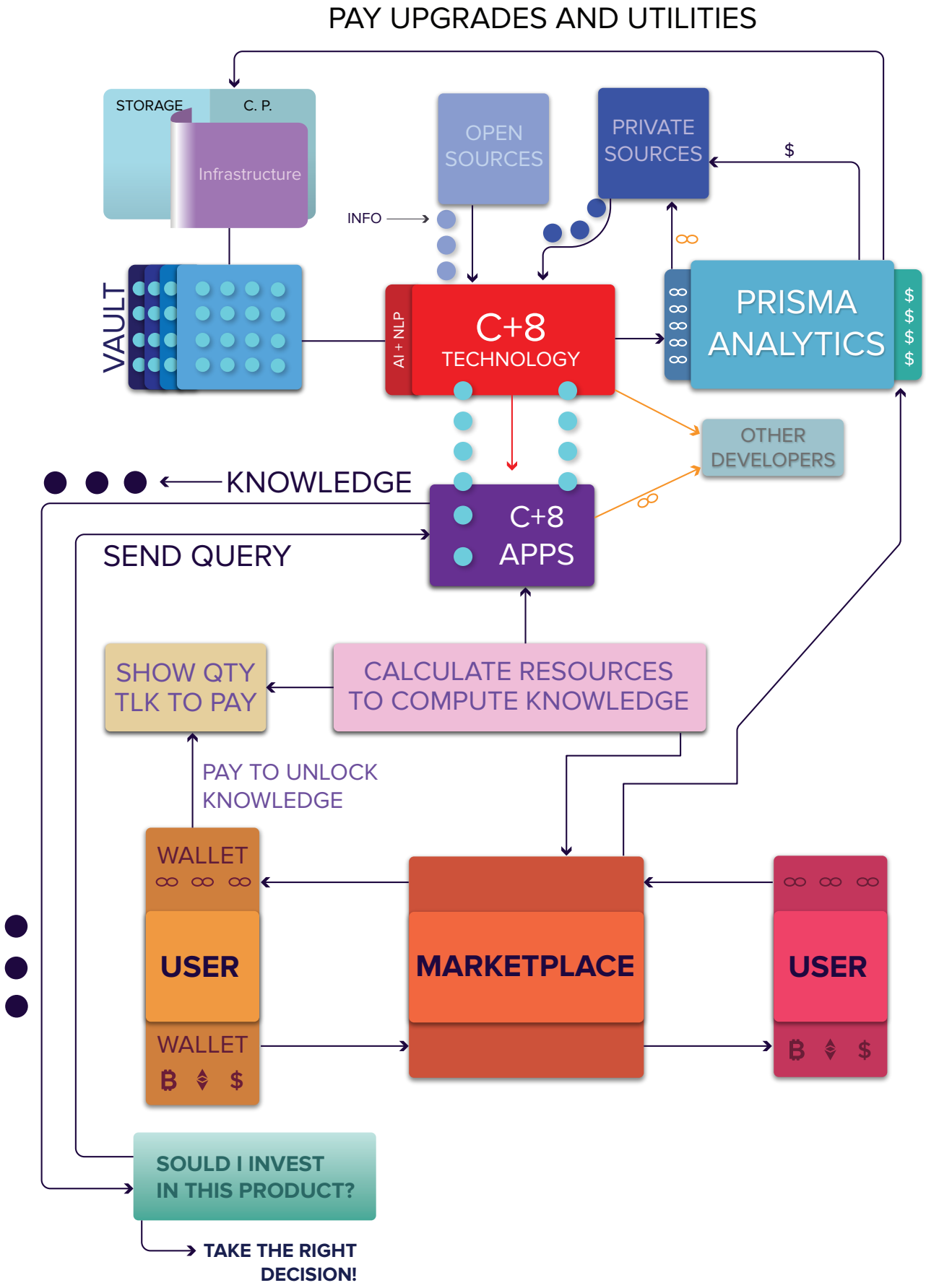
Every 'query' into the C+8 Knowledge Vault will have a different price in TLK. For example, a query about Elon Musk news over the past week regarding BTC will have a different price than all publicly available knowledge about Elon Musk over the past year - as the data sets and computational power required to return each result will be different. And, the exact same query today will likely have a slightly different price tomorrow. Again, the TLK pricing algorithm will always be published publicly so that every consumer wishing to know how they are being charged can see exactly how TLK pricing is calculated.

For EDAIN TLK users, this represents the optimal method to access the information required for a decision-making process. To access current or subsequently developed applications derived from our technology by any licensed entity, users are required to pay with tradable license keys for access to EDAIN's vast knowledge environment.

Lastly, the TLK license key system uses blockchain architecture because people must know about transparency of knowledge value and to be sure that what they know is valued and secured by a decentralized and incorruptible system.

EDAIN (EAI) – for the sake of clarity, the EDAIN knowledge ecosystem has its own medium of exchange; a unit of value also called EDAIN and using the acronym "EAI" as an abbreviation. For the function that EAI serves, we term it a "tradable license key", much in the same way a consumer gets a license key when they purchase certain kinds of software or similar electronic products.

© 2021 Edain Technologies AG



4.1 Blockchain applicability

- **Transparency**

In order to ensure the integrity, validity and data transfer transparency between users we use Blockchain technology architecture for tradable license keys.

The system's transparency is ensured and maintained by the possibility of public auditing of the Blockchain code that defines the properties of the transferable TLK units. The TLK system works on the ERC20 system (Ethereum) and is represented by the following smart contract:

https://github.com/EdainAI/edain-smartcontracts

- **Authenticity**

A total of 470,000,000 TLK is issued for the Edain system's operation.
Each tradable license represents a unique code [section of the "reference" category] that is automatically generated when the smart contract is live

- **TLK validation**

The tradable license authentication system uses Blockchain technology. Thus, each tradable unit that is utilised for any action/transaction is verified in a decentralized way by the validation system provided by the Ethereum Blockchain.

- **Security**

TLK is a new system that supersedes the current licenses in the global market. The current licenses main issue is represented by the duplication, corruption or cracking of applications running on the current license system. The new TLK system is based on the Blockchain technology, therefore, its security is built on decentralized, incorruptible and unbiased validation of unique codes without unnecessary human intervention.

- **Traceability**

The implementation of blockchain technology provides the opportunity for all the users to audit the system at any time, the number of TLKs and their use. This new type of tradeable licenses allows us to monitor the transfer between users, as well as its purpose.

This feature is of high importance for the sustainable development of the system because each user will be confident that the number of licenses is real and that it is only used to access the information provided by the C+8 applications.

5. C+8 Technology®

C+8 Technology®, as designed and patented by Prisma Analytics GmbH, is the data processing and analytics engine around which the entire C+8 knowledge ecosystem revolves. C+8 was designed as an artificial intelligence-based technology patterned after human reasoning for the purpose of resolving many systemically limiting problems in the field of data science.

C+8 processing creates a reliable, unbiased and precise abstraction of the present world, as it continuously changes over time. The result is an ever-expanding accumulative stream of knowledge and real-time intelligence that tracks people, places, things, groups, events, technologies and trends as objects, complete with their complex associations to each other. All objects identified in the system can be traced from the origins of their detection, in relation to other relevant objects and through their evolving real time states.

It is the Internet's purpose to ratify knowledge through the accumulation and manipulation of ever-expanding data. It is the purpose of C+8 Technology to systematically create knowledge. In the case of C+8, knowledge creation is a byproduct of its primary function; the automation of data collection, generalization, association and analysis.

C+8 is a data-importation and transformation engine that allows data to fully self-organize through a complex process of data atomization and systemic association with event causality.

C+8 Technology is a 'complete' and holistic data transformation engine that is designed to:

- Serve as the world's first centralized, yet distributed, global knowledge database
- Serve as an open library of knowledge, available to all of humanity
- Function fully autonomously
- Function with near-zero human bias
- Serve as the foundation for an eventual, globally scalable, bias-free monetary system
- Develop into a (decentralized) central bank with a scalable currency whose value is underpinned by the very knowledge that is created from the very system that autonomously creates it.
- Generalize unstructured data, allowing unification of the vast oceans of fragmented data/information for the purpose of accurate analysis.

Maturation of C+8 Technology will produce incalculable changes in human evolution. In essence, a system with C+8's function will, for the first time, allow humans to predict the future with increasing certainty over time.

See more on:
https://edain.ai/static/media/C+8-whitepaper.52f206fc.pdf

5.1 The C+8 system

"C+8" is a reference to causality + the 8 prime object elements that guide the entire function of the C+8 data model. The C+8 Data Model and its 8 Prime Object Elements are bound by the central element of Causation. This strict configuration of cognitive engineering is what powers the EDAIN knowledge ecosystem's ability to extract knowledge contained in the logic and structure of ordinary language.

5.2 The C+8 Prime Elements are:

- **Causality**

The object Causality15 is understood as the relation between an event and a second event, where the second event is understood to be a consequence of the first. Causality is also the relation between a set of factors (properties, behaviors, functions) and other such phenomena. Causality is a prime feature of C+8 and cannot be substituted.

- **Event**

An event is the fundamental entity of observed physical reality represented by a point designated by three coordinates – an action, a place, and a time within the space-time continuum.

- **Concept**

A concept is an abstract or generic idea which becomes defined through specific instances and generalized through associating multiple instances.

- **Group**

A group is zero or more elements forming a complete unit in a composition, or a number of individuals, objects, or abstract units which are either assembled together or have some internal unifying relationship, including being regarded by an external observer as a unit through a defined concept. The membership of any object to become belong to a Group is often determinate by the organizing concept of the group, for example a theme of membership or a commercial organization such as a Corporation or Association.

- **Person**

A person as a cardinal object in C+8 is a real human individual, but also includes the projection of a technological element designed to resemble a human with all its functions and properties, for as long as it stays undetected as technology. Imaginary persons are either Concepts (if virtual) or simply objects (if physical).

- **Geography**

A geographical object constitutes the description, distribution, or interaction of any location, whether it be definite, abstract, or metaphorical.

- **Time**

As a cardinal object, time is the measured or measurable moment or period during which an action, process, or condition begins, exists, continues, or ends; a nonspatial continuum that is measured in terms of events that succeed one another from past through present to future. Time can be referred to as either a hard and precise measurement by using a clock, for example, or as a soft measurement through a general description of one or more time periods.

- **Physical Object/Thing**

A physical object is a material thing, real or perceived through abstract understanding, that includes all living things except what is defined above as a “Person”

- **Technology**

A technology object is any object, its system, or behavior which came into existence willfully and purposefully through the application of individual or systemic intelligence by a natural or artificial agent with the specific goal of providing a solution to a problem or increasing the efficiency of a particular process.

Each and every object of human awareness can be classified and sorted into one or more of the C+8 Prime Elements, providing the basic framework for the powerful generalized C+8 data model.

5.3 C+8 Knowledge Vault

Introduction to C+8 Knowledge Vault

It is the specific intent of the EDAIN knowledge ecosystem to deliver knowledge into the hands of every desiring human, on-demand, in real time and simply – just like the electricity that powers our homes and businesses.

Consider that the C+8 Knowledge Vault would serve as the global university of knowledge — our knowledge oracle, accessible on demand and perpetually and against which we are able to make increasingly complex queries as the C+8 Knowledge Vault's own knowledge repository builds over time.

The C+8 Knowledge Vault will serve as the raw materials for what will become many tens of thousands of targeted knowledge-based applications of a variety so vast it is not possible to identify them all, even by category.

Our proposal

Delivered and functional as an autonomous data collection, analysis and storage entity, the C+8 Knowledge Vault's entire purpose is to make the same, most complete repository of knowledge ever developed – equally accessible to every human.

The concept behind

Envisioned more than 40 years ago by its Founder, Prof. Dr. Hardy F. Schloer as he began observing the growing global knowledge divide, the C+8 Knowledge Vault was conceived as a means to make knowledge accessible to everyone; a 'flat' human knowledge-sphere, essentially.

Its general design and purpose is to allow every human access to the same knowledge, such that we can create incredible economies of scale in our pursuit of solutions to problems that plague the sustainable, peaceful advancement of our global society.

As it stands today, a privileged few have access to the best knowledge sources. Therefore, our most complex problems get the attention of a select few. The adverse consequences of this model are many, not least of which are the underutilization of human intelligence to solve problems at scale and at every level of society.

With the advancement of a burgeoning human population on a planet with finite resources – many of which are now consumed to a point of diminishing returns - we have growing geopolitical conflicts the world over as wealthier nations with larger militaries seek to sequester access to diminishing valuable resources. This must obviously change if we are to peacefully coexist and flourish as an intelligent species on planet earth.

First, the C+8 Knowledge Vault is a very complex system comprised of many parts, but whose foundation is a disruptive innovation called C+8 Technology®. Fundamentally, there are a few underlying and unique features of the C+8 Technology® that make it so distinctly disruptive. Each of them in their own right are profound breakthroughs in the field of data science. These C+8 features are as follows;

- Its design to generalize all forms of unstructured data
- Its ability to allow for the self-organization of data
- Its ability to standardize the measurement of knowledge
- Its removal of nearly every element of human bias in its analytics process

Lastly, the C+8 Knowledge Vault is designed to allow every human the ability to contribute their own data to the knowledge ecosystem for remuneration in EDAIN. Consider the implication of a system that is continuously fed raw data through a reward scheme that both remunerates with a medium of exchange that will help pay living expenses, while also returning a dynamically improving knowledge repository that makes living sustainably a simpler and more natural process for all of us.

5.4 C+8 Apps

Knowledge. Delivered as a utility.

Software applications (apps) are the core gateway into the C+8 Knowledge Vault. It is through apps that C+8 processed knowledge will be made available to their users.

Over time many thousands of apps will be built on top of the C+8 Knowledge Vault and they will include everything from B2B (business apps) to B2C (consumer apps) and B2G (government apps) and vary from very simple to very sophisticated. Although we provide a few random examples below, the eventual kinds and types will be vast – too many to identify even by category.

Included among B2B apps will be tools that assist businesses to operate efficiently through decision support features, such as;

- Helping to identify appropriate suppliers
- Determining whether a certain investment is a logical choice
- Brand management
- Consumer sentiment about new products
- Identifying stocks that are good investment opportunities
- Customer alert tools to help identify coming risks
- Business strategy analysis assistance

B2C app examples developed atop the C+8 Knowledge Vault will ultimately contribute to the majority of users within the EDAIN knowledge ecosystem. Some random examples of B2C applications will offer features that include the following;

- Personal, real-time AI assistant that evolves with its user over time to become a 'smarter' version (an avatar of its human host) of self and more capable of making decisions than its human user.
- Family management products that help plan time and money that is capable of evolving in real-time as events happen.
- Various financial management tools that come to "know" their human users.
- Health management products that will include sophisticated diagnostic tools and preventive consultation – also with real time analysis.
- Dating analysis tools; real-time analysis of partner candidates.
- Fake news detection tools.
- User talent analysis (what careers might be best suited for the user).

Eventual B2G applications will also be varied and like everything in the EDAIN knowledge system, will evolve to match user needs. Examples of B2G tools made available in the EDAIN App Marketplace, are:

- Infrastructure investment analysis tools (should we build this park in the city?)
- Real time speech/proposed legislation analysis (how are people feeling about speech content?)
- Security analysis tools
- Resource management analysis tools
- Treaty analysis tools
- Constituent analysis tools

5.5 AI & NLP

Natural Language Processing (NLP) is a branch of Artificial Intelligence (AI) that enables machines to understand the human language. Its goal is to build systems that can make sense of text and automatically perform tasks like translation, spell check, or topic classification.

NLP allows machines to break down and interpret human language. It's at the core of tools we use every day – from translation software, chatbots, spam filters, and search engines, to grammar correction software, voice assistants, and social media monitoring tools.

C+8 Technology is an AI driven data analytics engine and uses NLP as part of its analytics process. Our NLP tools are all customized by our own internal linguistics teams. C+8 places a heavy emphasis on NLP development in its effort to accurately analyze the data it processes.

6. Blockchain

6.1 Philosophy

The intent of the Edain project is to give humanity access to knowledge in a way that users around the world are already accustomed to. The main objective is to embed information in a coherent structure, converting it into a familiar industrialized form where users can perform and make knowledge-based decisions.

Based on the experience of the project development teams and on the analysis conducted on the Blockchain technology, we have come to the conclusion that blockchain does not necessarily mean cryptocurrency, but an innovative technology with high-performance properties.

The Edain project utilizes the Blockchain architecture in order to ensure its security, decentralization, transparency, traceability and uniqueness. The optimal solution for the construction, development and operation of the Edain project is represented by the ERC20 system and the construction of smart contracts.

6.2 Why Xiden

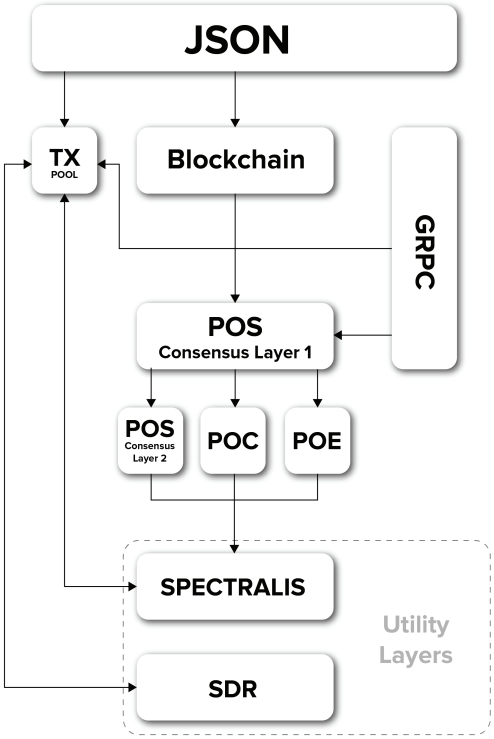
Xiden is a programmable blockchain, a peer-to-peer platform developed by CryptoDATA Tech where developers can build applications and control valuable assets without the presence of a third party. It represents a highly complex technology that has already passed the testing period which will ensure the optimal operation of the Edain system.

Its purpose is to enable developers to build and publish smart contracts and distributed applications (DApps) that can be used without the risks of downtime, fraud, or interference from a third party. Furthermore, Xiden's ecosystem provides developers with useful tools to jump-start development. They facilitate the development of DApps and reduce the effort for users to connect to the blockchain.

Xiden is a Polygon Edge fork in which a new consensus algorithm and extended utility layers have been implemented. Polygon Edge architecture was chosen because it is a modular and extensible solution based on a development framework compatible with the Ethereum blockchain network, sidechains, and general scaling solutions.

Xiden uses existing Polygon modules that allow communication with multiple blockchain networks and comply with the ERC 20 and ERC 721 standards. This allows the initiation of data transfer between blockchains using Bridge solutions. Xiden is a blockchain with a hybrid architecture, as Xiden's Core is Ethereum and uses Polygon Edge's Proof of Stake architecture, over which we have integrated the PoE and PoC improved Consensus Layer.

We decided to deploy Edain on the Xiden blockchain based on multiple valid reasons from which every person involved in the project will benefit. Edain is a continuously-expanding project that aims for rapid scaling requiring a fully decentralized database such as Xiden. Within the Edain exosystem, more than 130.000 news per day are being parsed and analyzed, resulting in an immense influx of data.



Edain's mission ever since the beginning has been to make actionable knowledge accessible to everyone at a low price. If the costs of storage capacity and computing power would increase from our end, we would also be forced to increase the price of queries executed by users on our C+8-based apps. For example, if Edain should have been deployed on the Ethereum blockchain, the cost of using the C+8-based apps would be extremely high. Imagine a cost per search of $0.01 and a gas fee of $30.

In addition, Edain provides a complex sentiment analysis at a level that has never been done before and requires high computational power. Xiden is an ecosystem in which everyone wins. It has a decentralized architecture consisting of a Smart Distributed Resources layer where users can add resources and receive rewards.

Xiden provides the decentralized resources, computational power, and storage capacity required for the optimal operation of the Edain ecosystem in order to ensure its long-term sustainable development.

Furthermore, the Edain project is based on the following Xiden blockchain principles:

- Simplicity: easy to operate and use.
- Universality: Xiden blockchain provides an internal Turing-complete scripting language, that can be utilized to construct any smart contract or transaction type that can be mathematically defined.
- Modularity: the parts of the Xiden blockchain are designed to be as modular and separable as possible.
- Agility: details of the Xiden protocol are not set in stone. Due to its scalable architecture, modifications required for performance, improvement, and optimization can be operated at any point in the development process.
- Non-discrimination and non-censorship: the protocol does not attempt to actively restrict or prevent specific categories of usage. All regulatory mechanisms in the protocol are designed to directly regulate the harm and not attempt to oppose specific undesirable applications.

6.3 ERC20 Token

By definition, the ERC20 token is the virtual representation of an asset in the Ethereum reference system. The ERC-20 represents a standard for Fungible Tokens, in other words, they have a property that creates each Token to be precisely the same (in type and value) of another token.

The Edain tradable license key is built into the Ethereum system in order to use its architecture and functionality.
The simplicity of the system provides the support and the possibility to build a smart contract that validates the functions of the Edain system.

The problems that the Edain project solves are represented by both the transformation of information from a raw matter, with no logical value unless assembled, into knowledge, and ensures ownership of the transfer by adding value in relation to current assets or services. In order to successfully achieve this, we have chosen the TLK as the knowledge unit of measurement. The TLK operates as a verifiable, virtualized physical asset.

*Hashing is one way to enable security during the process of message transmission when the message is intended for a particular recipient only. A formula generates the hash, which helps to protect the security of the transmission against tampering.
In simple terms, hashing means taking an input string of any length and giving out an output of a fixed length. In this context, the transactions are taken as input and run through a hashing algorithm which gives an output of a fixed length.
In order to be verifiable and to maintain the value, the TLK asset must be able to be stored and contain the right of ownership.

The smart contract, through the ETH system, facilitates the automatic check of the Edain tokens validity represented by the TLK unit of measure. The terms of the smart contract are presented in [GitHub] and to ensure the logical and correct operation of the system.

6.4. Xiden layers

6.4.1 Decentralized Internet Private Networks

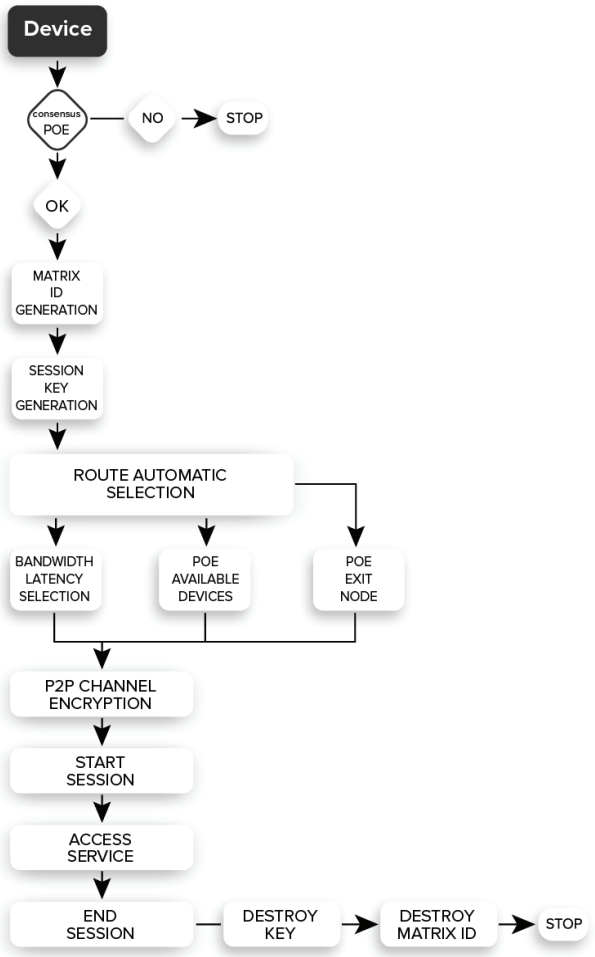
The Xiden project aims to build a new layer of decentralized internet to ensure that it cannot be controlled or manipulated by organizations or third-party entities. The main purpose of this Internet Layer is to eliminate the possibility of censorship and to allow everyone access to the world wide web.

The Xiden network is built on integrated devices such as routers that will be owned by users and will be located in multiple locations around the world. The routers can open Hotspots called SPNs (Spectralis Private Networks) to which smart electronic devices can automatically connect in order to access the Global Internet.

The implemented protocol allows the opening of a connection only after an exchange of P2P encryption keys has been successfully completed between switches, has been successfully validated by the Proof of Existence consensus, and in an automatic manner, without human intervention.

A key attribute of the XIDEN network is the provision of privacy for all network users. The Hotspot is a public network owned by users and, therefore, architecture and algorithm have been implemented in order to protect the digital identity of both the connection provider and the users who are part of the connection. The management of this network is executed automatically by a Layer of the XIDEN blockchain. This means that there is no human intervention that could intervene in the manipulation or tracking of data, metadata, traffic, and identities.

The Spectralis Private Network combines elements of TOR and VPN architectures to anonymize and protect the source, traffic, and the entities that are used as relay Nodes. The Spectralis protocol allows the user to select their exit point as the location. It cannot select a specific output node, it can only select the geolocation where it needs to exist with the new identity.



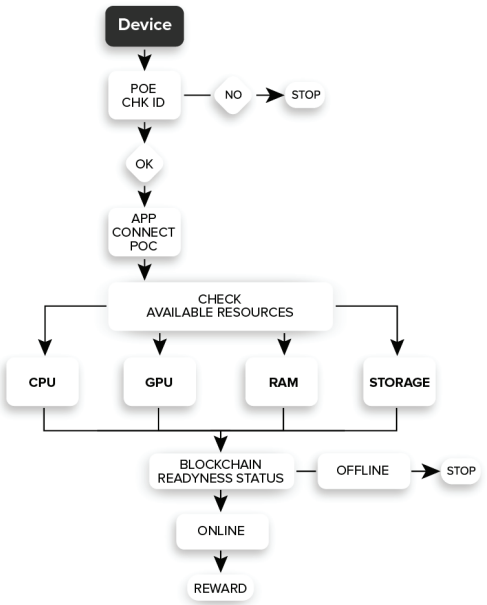
6.4.2 Smart Distributed Resources (SDR)

Another layer that defines the XIDEN Blockchain is called Smart Distributed Resources (SDR). The SDR layer forms a network with a decentralized architecture and provides computing power and storage for all participants with smart electronic devices registered in the XIDEN network.

SDR is an eco-friendly concept as its implementation aims to bring together all devices that have or have had a utility for the owner user. In this system, the resource management is done automatically by the SDR layer in order to not affect the activity of the device and facilitate specific access to the respective device by the other users of the network.

Many devices such as smartphones, computers, or servers have become obsolete with the advancement of technology and operational requirements, and recycling them represents a difficult option. Current up-to-date smart electronic devices are not being utilized at full capacity at all times, even though they maintain the same power consumption. Through the SDR layer, the owners will be incentivized for making their resources available to the network and this process will not affect their performance for regular activities in any way.

This concept empowers users to utilize their smart devices' power in different areas. It represents a good thing as these devices use only a minimum level of their energy output to function for their intended purpose, and do not need special reconfiguration to be used on this blockchain.



6.5. Application environment

This environment is designed to maintain the interoperability of networked systems and to keep up to date with the versions of DApps that are built to run on the Blockchain core.
The Blockchain core supports the development of applications in the form of smart contracts and, thus, multiple DApps and NFT protocols can be developed to run on the network infrastructure, but also to use the computing and storage power of the devices provided by the entire network.
Blockchain is compatible with the following Frameworks so that it is easily accessible to a wider community and interoperable with other technologies in various blockchains such as:

- HardHAT - an environment developers use to test, compile, deploy and debug DApps based on the Ethereum blockchain. As such, it helps coders and developers to manage many of the tasks that are inherent to developing dApps and smart contracts.
- Truffle - a development environment, testing framework, and asset pipeline for blockchains using the Ethereum Virtual Machine (EVM).
- Web3.js - a collection of libraries that allow users to interact with a local or remote Ethereum node using an HTTP or IPC connection. The web3 JavaScript library interacts with the Ethereum blockchain, it can retrieve user accounts, send transactions, interact with smart contracts, etc.
- Ethers - The ethers.js library aims to be a complete and compact library for interacting with the Ethereum Blockchain and its ecosystem.
- Metamask - a browser extension designed to make accessing Ethereum's Dapp ecosystem easier. It also serves as a wallet for holding ERC-20 tokens allowing users to access services built on the network via the wallet.
- Solidity - an object-oriented, high-level programming language used to create smart contracts that automate transactions on the blockchain.
- EVM - The Ethereum Virtual Machine is the software platform that developers can use to create decentralized applications (DApps) on Ethereum.
- RemixIDE - an open-source web and desktop application. It fosters a fast development cycle and has a variety of plugins with intuitive GUIs.

6.6 EDAIN ERC20 Smart Contract

Per definition a "Smart contract" is a piece of code hosted on a blockchain network and encapsulates all parts of the "agreement" inside its source code. The smart contract is distributed amongst all nodes of the blockchain network thus inheriting the security, permanence and immutability that a blockchain offers.

Edain Smart Contract is written in Solidity language and the platform where it's functions are executed it's EVM. Solidity is one of the most widespread languages for writing smart contracts and it was first introduced by the team behind the Ethereum projects. Other blockchain networks capable of hosting and running smart contracts implemented the Solidity language.

EVM stands for Ethereum Virtual Machine and it is embedded inside each of full Ethereum nodes capable of running contract bytecode. To put it into layman's terms an EVM is a virtual machine that can run inside a node and it's only function is to run the smart contract methods, it acts as an attorney overwatching that every term enforced by the smart contract involving two or many parties is fulfilled.

In regards to the above mentioned, the Edain team decided that the best solution for a smart contract is creating an ERC20 compliant token written in Solidity and hosted on the Ethereum blockchain network. As mentioned before the "terms" of a smart contract are found and can be audited by anyone with an understanding of the Solidity programming language and knows a great deal of how and when things are run inside an EVM hosted on Ethereum blockchain. This narrows down the amount of people to very few. In this regard below you will find every method and feature of the Edain Smart Contract explained to more easy to understand terminology.

As a list of features the Edain smart contract implements the following protocols and methods:

- Inherits all the function of ERC20
- It it coded with the possibility to change some of the function, thus implementing UPGRADABLE function
- BURNING of tokens is implemented for some of the functionality
- MINTING new tokens is possible until the maximum total supply that is CAPPED at 470.000.000 EAI
- SNAPSHOTS function was implemented to create an image of the current state of the balances of all EAI token holders and saved on the blockchain for future use.
- As an emergency mechanism the contract has a PAUSE function
- To incentivize EAI holders the STAKING function is implemented with an annual interest of 10%
- VESTING is put in place to safeguard the price and volatility of the EAI token

ERC20 - is a standard defined by Ethereum and is implemented for a token. The most basic functions of this implementation require it to have a name, symbol and decimals. In our case they are name = EDAIN, symbol = EAI, decimals = 18. The first two are very easy to understand, as for the decimals is how much it can have, i.e: 1 EAI = 1.000000000000000000.

Other inherited methods of Edain from the ERC20 protocol are:

- Transfer - used to transfer an amount X of token from Holder A to Holder B
- Allowance - allow an address to give an allowance to another address to be able to retrieve tokens from it.

- TransferFrom - used in conjunction with allowance to make automatic payments, i.e: you can allow a smart contract to take every month the funds to pay for the electricity bill - totalSupply - a function that will return the license keys available in the Edain ecosystem. - balanceOf - returns the balance of a holder.

UPGRADABLE - the main functions of the smart contract may not satisfy the needs of our ecosystem in the future. Because a smart contract bytecode (source code compiled for the EVM machines) is saved on the blockchain network, it is impossible to change it. To deploy new changes a new smart contract address (where you can find the code on the blockchain) will need to be created and all the token holders swap manually or automatically the balances. Making this a nightmare for both users and developers.

Using upgradability Edain Smart Contract can implement any new functions without losing the current address and holder balances, thus making it easier to upgrade to a better and widely accepted source code (terms in a normal contract).

BURN - token holders have the ability to burn any of their current balance and allowance of EAI License keys. With this in mind after the ending of the sales periods any of the license key balance in those wallets will be burned and made available for the users that stake the license key. This ensures a more decentralized license key allocation. Whenever a user will stake their license keys the stake amount will be burned from the Staker wallet making it impossible for them to spend. Using snapshots and the burn mechanism the security of the EAI is enforced making it safer against attacks targeted at Edain holders.

MINT - this function can create new tokens. For example, right when it was deployed on the blockchain the mint function was called to mine and create the required supply to the owner's wallet. From there the funds will be distributed to other wallets each with their own purpose, i.e: sale supply, marketing funds, developers allocation, etc. The minting also occurs when a staking reward must be distributed and also refund the burned staked amount from the account, i.e: an account will stake 100 EAI for one year. First the 100 EAI is burned from the owner's wallet (to avoid double spend), then at the end of the year the user will want to unstake the 100 EAI and receive his reward. The smart contract will mint 100 EAI as owner staked amount and 10 EAI as staking reward.

CAPPED - the team behind Edain decided that a final maximum total supply of EAI in the market can not exceed 470.000.000 EAI. That means any of the staking, burning, minting functions of the smart contract will not work if this cap is reached. Based on the function of demand and supply when the cap is reached the price and volatility of the EAI will make it a more desirable asset.

SNAPSHOT - When a snapshot is created, the balances and total supply at the time are recorded for later access.

This can be used to safely create mechanisms based on token balances such as staking rewards or weighted voting. In naive implementations it’s possible to perform a "double spend" attack by reusing the same balance from different accounts. By using snapshots to calculate staking rewards or voting power, those attacks no longer apply.

PAUSABLE - like a normal pen and paper contract, if special cases appear and it is required, the smart contract can be paused. This means that any of the functions: license key transfer, staking, burning - are paused and will not be executed until the unpause function is called.

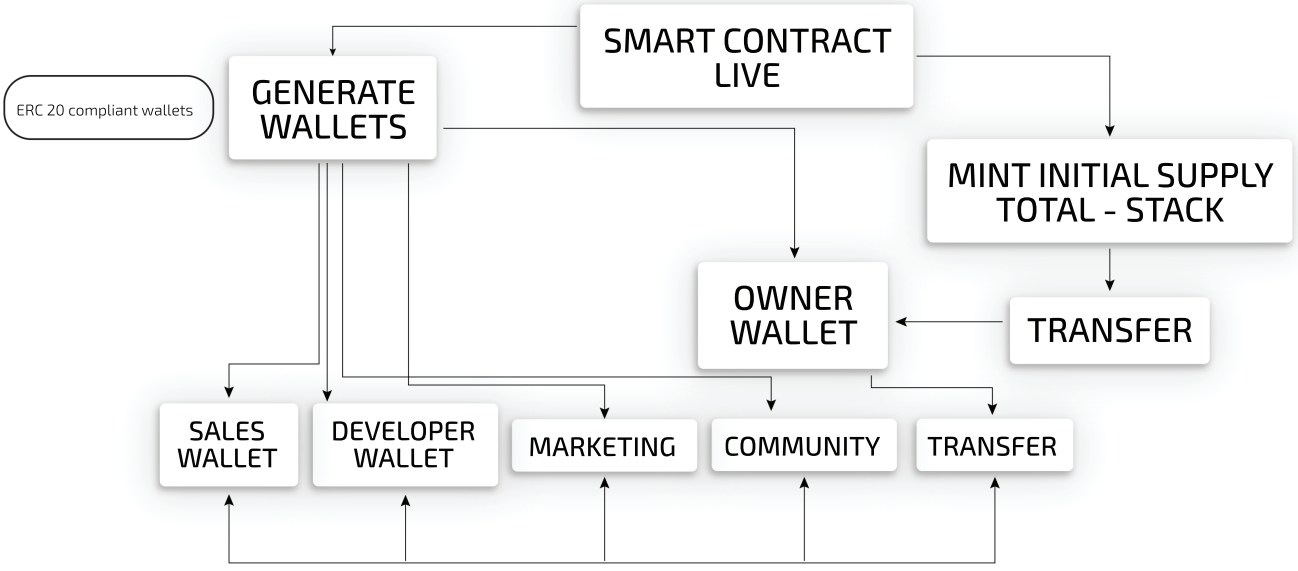
STAKING - allows users to participate in securing the network by locking up tokens. Consequently, users are rewarded for securing the network in the form of native license keys. Staking is available within Edain from the first day of its operation from 29.09.2021.

The higher the amount of crypto-assets you pledge, the higher the rewards you receive. The rewards are distributed on-chain, which means the process of earning these rewards is completely automatic. All you have to do is to stake them. Edain implements 10% annual interest. These coins will be minted until the maximum cap is reached.

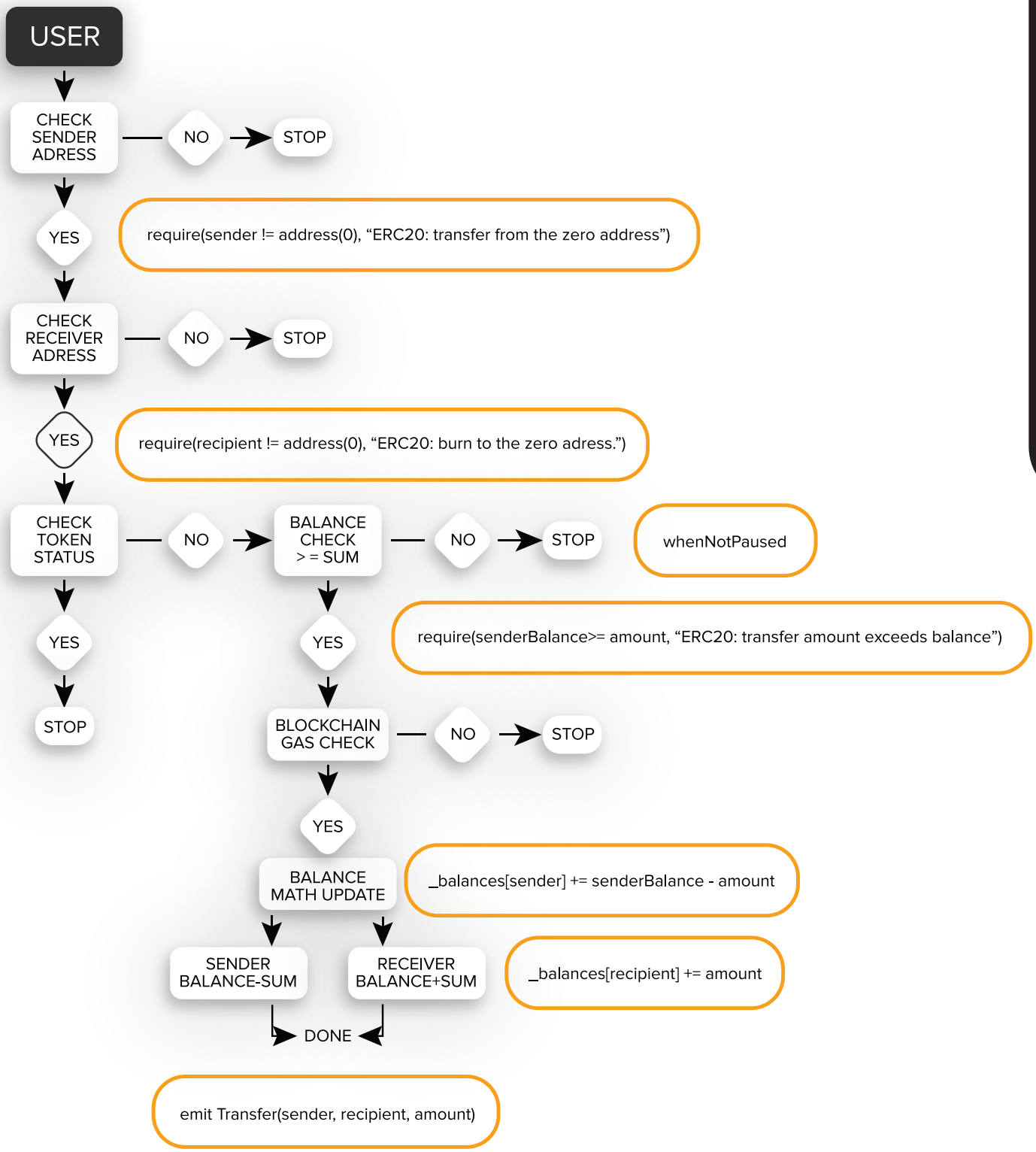
VESTING - - a certain amount of tokens that are held aside for some period of time for the team, partners, advisors, and others who are contributing to the development of the project. Smart contracts usually lock a certain amount of funds until contract conditions are met.

Edain's long term commitment plan has implemented a two-year vesting schedule with different conditions for each of the categories you are a part of in the ecosystem, for example, 20% of all license keys issued from the date of the license key generation event, they could easily create supply fluctuations that can be detrimental to the license key ecosystem and price. In simple terms, this creates a definite risk for the given token stability.

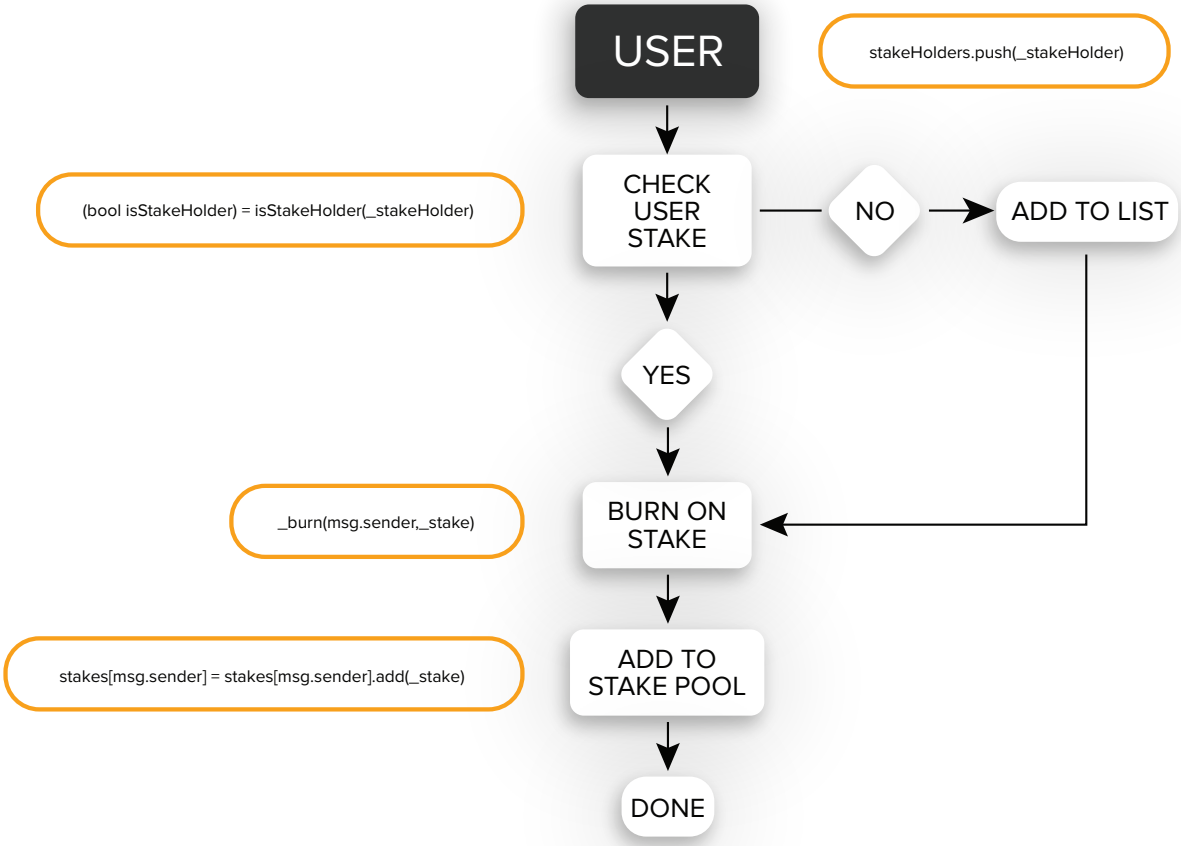
The vesting process is in some ways similar to the central bank's reserve fund. The bigger the reserve usually means the stronger the fiat currency is. And the more flooded the market is with banknotes, the less their value becomes. It is a rough example of why having a certain amount of tokens vested for a period of time can help a newly established project level the price and popularity of their tokens.



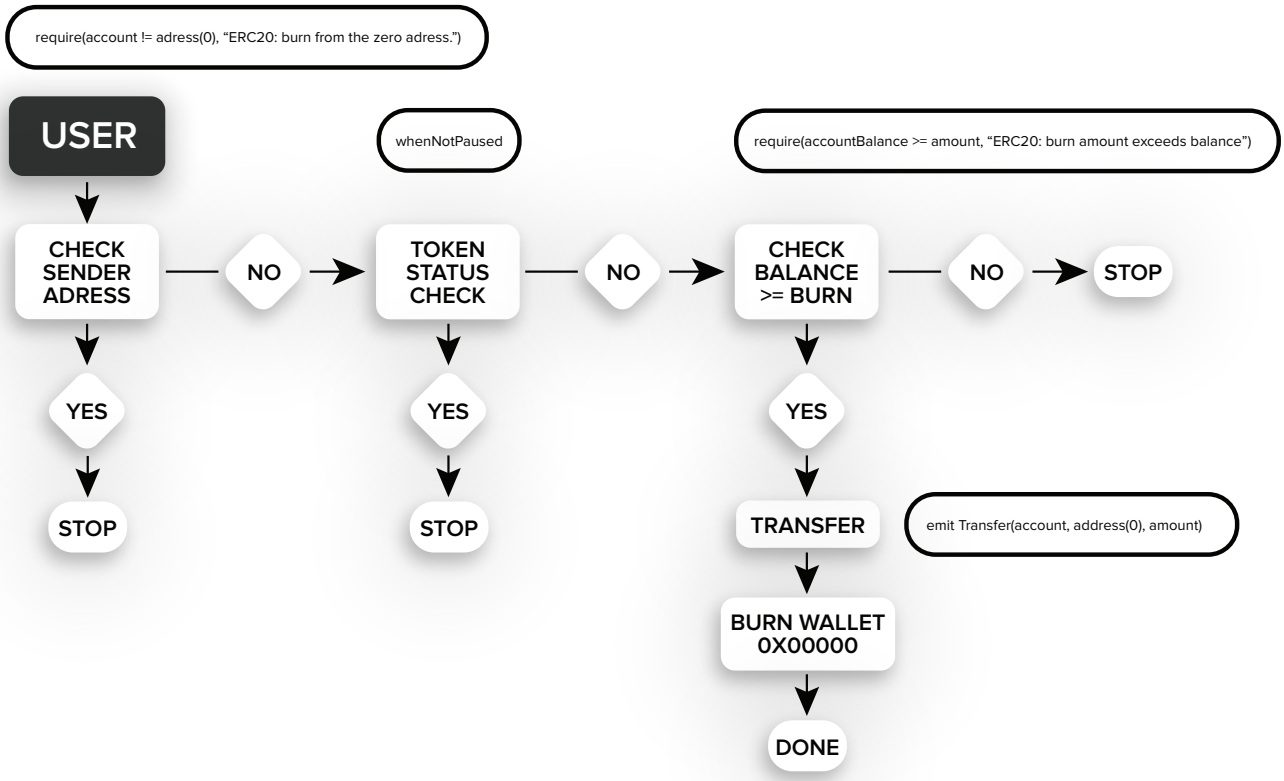
6.6.1 Transfer Function



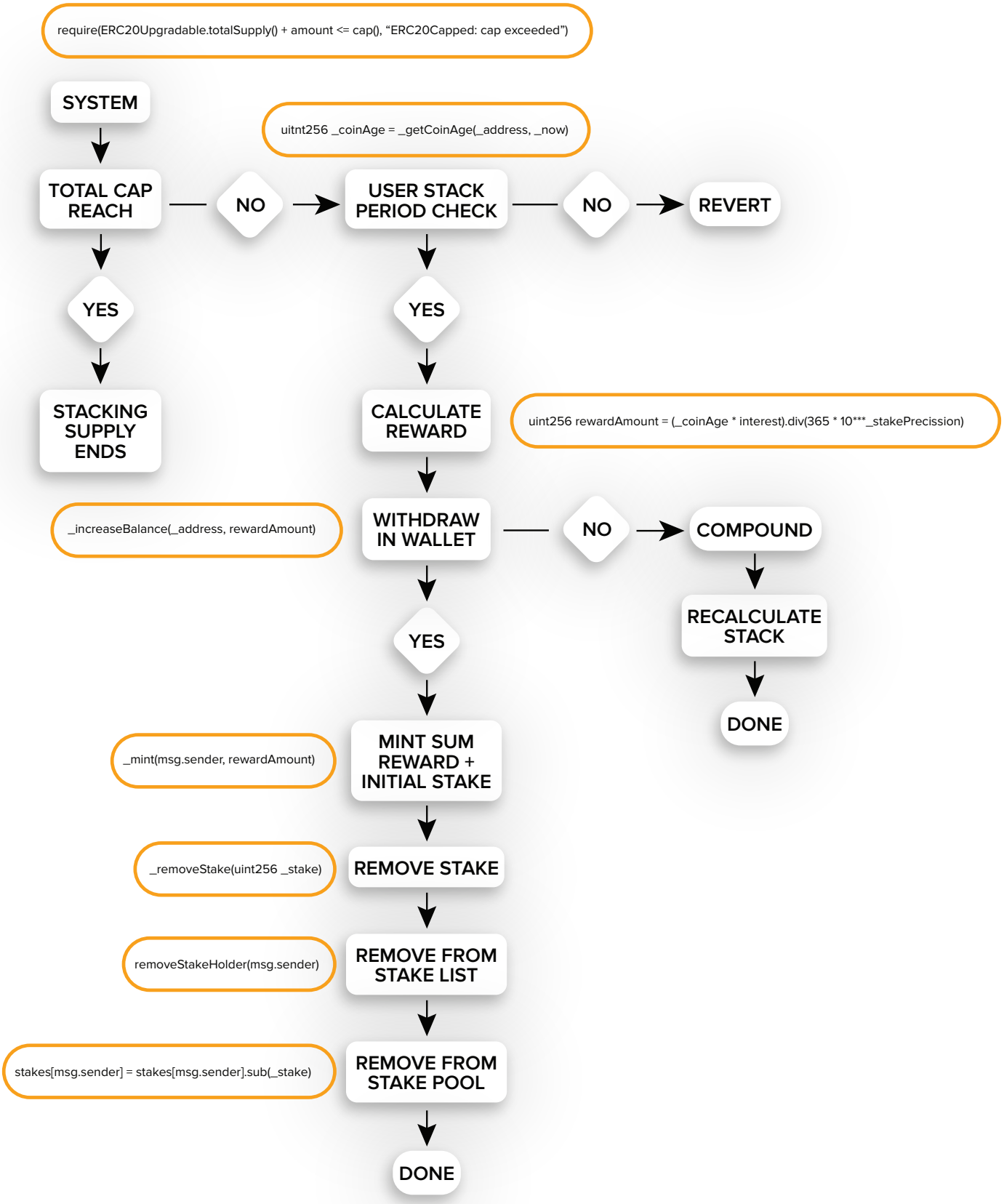
6.6.2 Add to stake



6.6.3 Burn



6.6.4 Reward


require(ERC20Upgradable.totalSupply() + amount <= cap(), “ERC20Capped: cap exceeded”)
SYSTEM
uitnt256 _coinAge = _getCoinAge(_address, _now)
TOTAL CAP REACH
NO
USER STACK PERIOD CHECK
NO
REVERT
YES
YES
STACKING SUPPLY ENDS
CALCULATE REWARD
uint256 rewardAmount = (_coinAge * interest).div(365 * 10***_stakePrecission)
_increaseBalance(_address, rewardAmount)
WITHDRAW IN WALLET
NO
COMPOUND
RECALCULATE STACK
DONE
YES
_mint(msg.sender, rewardAmount)
MINT SUM REWARD + INITIAL STAKE
_removeStake(uint256 _stake)
REMOVE STAKE
removeStakeHolder(msg.sender)
REMOVE FROM STAKE LIST
stakes[msg.sender] = stakes[msg.sender].sub(_stake)
REMOVE FROM STAKE POOL
DONE

6.7 Proof of Stake

The architecture of the Edain ecosystem is based on the Proof of stake (POS) concept in order to ensure a sustainable and high-performance development.

The TLK represents the Edain system's key which unlocks knowledge to facilitate the process of making optimal decisions. The attachment of the POS concept in the Edain architecture attracts a wide range of participants who can obtain revenues not only from the knowledge analysis, but also from the TLK retention for extended periods of time.

The POS system is a concept that provides stability in the TLK validation as it rewards those who continue to stake, thus reducing the possibility of voluntary intervention (pump and dump).

Stake calculation formula

```
uint256 rewarded = (_coinAge * interest).div(365 * 10**_stakePrecision);
```

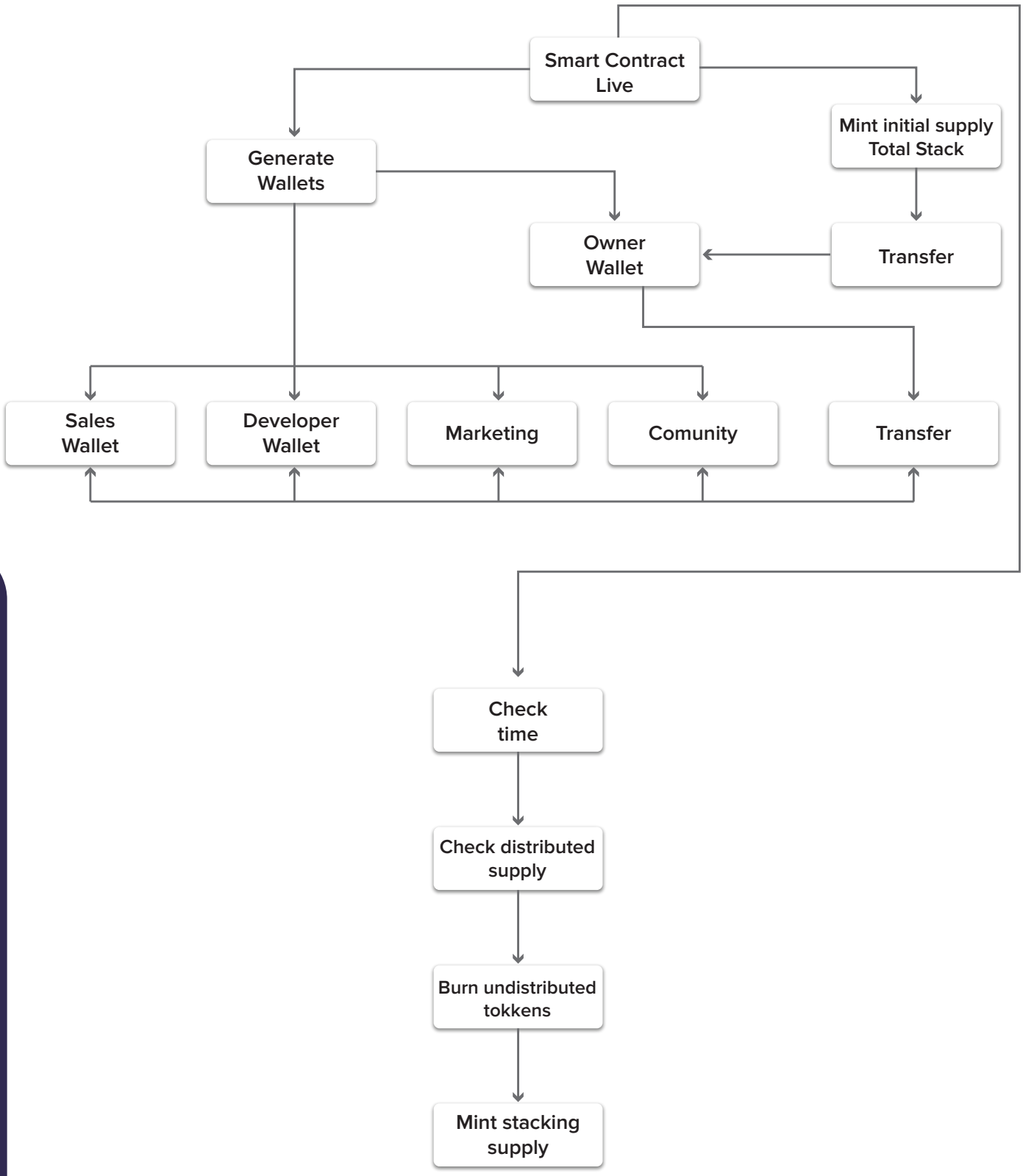
The required condition in order to ensure the reward's validity is that the user will keep the deposit in the stake address for a period of 30 days. If the amount deposited is withdrawn before the required period subsequently the reward counter will start from zero until a new stake sum is deposited.

If only a partial amount of the deposited sum is withdrawn, the reward will be obtained only on the remaining stake deposit sum.

6.7.1 Total stacking supply

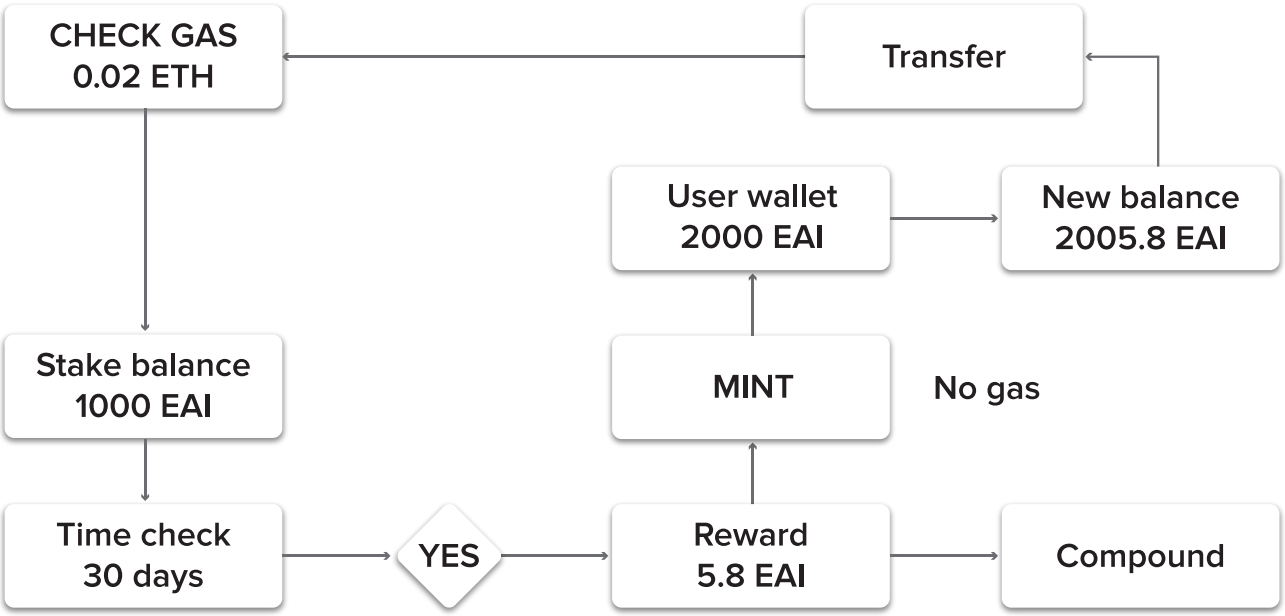
According to the tokenomics section in the business plan, a percentage of 10% of the total amount of currency has been secured by the developers as Mint for stakes. Following the end of the presale period, when all functions of the Edain smart contract will be enabled, the remaining amount of TLK that has not been distributed for the purposes for which it was generated, will be made available in the stake deposit.

This function will increase the competitiveness in the Edain system between C+8 users, knowledge consumers, traders and those who want to obtain a passive income. As the stakes will be higher and the TLK value will increase, the Edain system will expand exponentially.


Smart Contract Live
Mint initial supply Total Stack
Generate Wallets
Owner Wallet
Transfer
Sales Wallet
Developer Wallet
Marketing
Comunity
Transfer
Check time
Check distributed supply
Burn undistributed tokkens
Mint stacking supply

6.8 The compound function

As the Edain system is developed based on a solid analysis of the accumulation of economy and functionality, it was decided to implement a selective reward function. Each user has the possibility to select the wallet address where the reward will be sent in order to eliminate the transaction fee (gas), in the event of a different use depending on user requirements.



6.9 Governance

The licensing rights of the C+8 Technology® are controlled by Prisma Analytics and the TLKs are utilized by users as payment for access to knowledge via licensed C+8 software applications.

The TLK pricing for single queries to the C+8 Knowledge Vault is determined by a fixed formula that includes the following variables: C+8 system maintenance, depth/amount of information involved in the output, computational requirement to perform the analysis.

7. Conclusion

The EDAIN knowledge ecosystem with its C+8 Technology data analytics engine and tradable license key gateway system is designed to deliver knowledge to every human equally, transparently, inexpensively and without bias.

It is believed that successful deployment of EDAIN will enable hundreds of millions of people equal problem-solving capabilities and will dramatically shrink the systemic knowledge gap that exists in the world today.

At the same time, EDAIN will spur the onset of an entirely new knowledge industry for its flattening of the world's knowledge base and popularizing of knowledge delivery in a new visual representation framework making knowledge more engaging and usable for the many. In doing so, EDAIN will change how people come into possession of knowledge, and further how we extract value from data.

Additionally, this EDAIN knowledge ecosystem brings some firsts to data science and to our understanding of causality. Namely, with the development of this AI powered data analytics system, we are beginning to be able to:

- Generalize unstructured data
- Measure knowledge in a logical way that can become standardized
- Allow data the ability to self-organize in a bias-free machine environment

8. Objectives

The overarching goal with EDAIN's C+8 Knowledge Vault is to build the world's most complete and trusted knowledge repository and to make it indefinitely available to every human being on exactly the same terms. Ultimately, making knowledge so openly and equally available to everyone will measurably reduce the knowledge gap that has been systemically widening since about the mid-twentieth century.

Of the many obvious consequences of a human knowledge gap, two are glaring; one is that we drastically limit the problem-solving capabilities of our global society to "the haves". The second is that it (the knowledge gap) further exacerbates wealth inequality across our societies that creates social tension that we are witnessing today in many countries around the world in the forms of protests, civil unrest, governmental instability, the polarization of societies everywhere and armed conflict.

Both cause conflict that could otherwise be mitigated if knowledge were more evenly distributed, or made available via mechanisms designed for this purpose.

This is the purpose for which the C+8 Knowledge Vault is designed.