daat

Authenticity of Things

Pre-whitepaper

Daat is the strongest microchip-based anti-counterfeiting technology for the Internet of Things (IoT), as well as a framework for managing these things. The Daat token (ȡ) enables the Economy of Things (EoT) by fueling the framework.

The primary service is to allow users to verify the origin and authenticity of any object via an ad-hoc smartphone application. Then, an unlimited number of additional services can be plugged into the framework in a modular manner, creating a unique worldwide ecosystem, neutral, decentralized for the EoT, which will benefit to all users and economical actor aiming to join it.

The Daat token (ȡ) is especially designed to fulfill the requirement of the EoT which are not met by other crypto-currencies, particularly in terms of volatility, escrowing, modularity, reputation and cash-flow. It also provides technological and economical sovereignty to the ecosystem.

daat.earth contact@daat.earth @daat_earth

Anti-counterfeiting

Daat core service is to ensure the anti-counterfeiting of physical objects, with a combination of 3 strong and independent layers of high and low tech, that makes it the most secure and reliable anti-counterfeiting technology available today.

Objects are uniquely identified with **hi-tech NFC microchips supporting Bitcoin's cryptographic PKI, signing, en/de-coding, wallet, memory, etc.** (crucial requirements for blockchain logistics, and smartphone integration for end users) and/or low-tech QR Code (of which cloning attempts are detected with geographical scanning inconsistencies). These two indicators are sealed into the objects (or their packagings if too small), and irreversibly destroyed if opened or tampered with (sealing and/or packaging). These two layers of security are enforced by a third layer of visual inspection, when an object is scanned, original pictures from the manufacturer can be fetched, so the user can perform an extra check of unique random patterns (paint splash, colored fibers, glitter dust, hologram, etc.) and tampering attempts. Daat will provide tailor made R&D sealing support for every type of object.

More about the technology on the website of our partner Checkoin.

Humans first

Technological innovation is a double-edged sword, it has the same capacity to improve or undermine human condition. Daat will always stand on human's side.

P2P economy

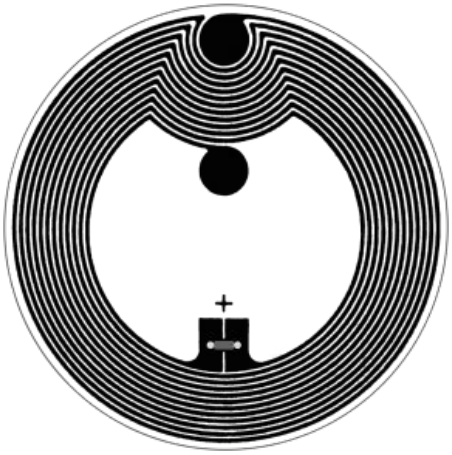
As Bitcoin's decentralized and anti-counterfeiting monetary solutions brought emancipation to the common people, Daat's primary economical focus will be directed towards the development of peer-to-peer Economy of Things, disruptive markets, for the people by the people. A bottom up approach that will fit closely and catalyze upper, traditional and more monolithic economical layers.

Non-connected objects

The permanently connected "smart" grid of IoT objects can be as convenient as it can be invasive, privacy threatening or getting out of control. Therefore Daat's primary IoT focus will be directed towards non-connected objects. Typically, inert microchips that comes alive via NFC, only when users chose so, by approaching their smartphone near the object. Therefore controlling when and what data is exchanged via their smartphone settings. Daat will always make the choices that keep human souls standing above the material world instead of getting trapped into it.

Full smartphone support

To make sure that a NFC microchip is totally unforgeable and tailor made for the blockchain, it must be able to exchange read-write asymmetrical cryptographic information with the smartphone. Unlike Android, Apple products do not support these functionalities. However, Daat has developed a unique solution that overcomes this Apple limitation, which is a crucial requirement before implanting the microchip into the ecosystem, especially regarding widespread use of iPhones into luxury circles.



Ecosystem

For the benefit of every participant of the Daat ecosystem, and for the value of the Daat token, essential requirements for growing a fair, stable, healthy and strong ecosystem will be met, thanks to:

Open Source

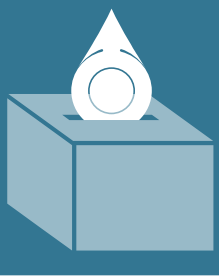
Daat's code as well as all related software and toolkits will be made available for free to anyone as Open Source.

Decentralized

In order to guarantee economic freedom to everyone Daat operates on a blockchain with smart-contracts, there is no central authority to grant or restrict access to the ecosystem.

Standardized

In order for the Daat framework to meet industrial requirements as well as flexibility, every type of services will be independent from each other and standardized as REST APIs. Service providers can then make their service instances available to anyone by registering them along with the corresponding service type, smart-contract and Daat cash-flow. In the same manner, any person or application can transparently browse, subscribe, unsubscribe and pay services on-the-fly. New types of services can be freely added/forked according to the needs of the ecosystem, by anyone, in organic collaboration. Some core services such as registering objects, ownership swap, etc. will not be modular like services but hardcoded into the core smart-contract of the framework.

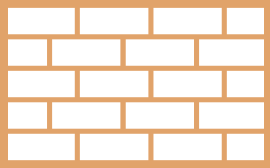


DAO

Long term development and management of the Daat ecosystem will be decided by the users via a Decentralized Autonomous Organization (DAO). Vote weight upon a choice will be proportional to amount and duration of any Daat wallet associated associated to the selected choice.

Funding

Users can vote to allocate funds for several projects, from the DAO token reserve for non-profit projects and bounty tasks, and from private funds for for-profit projects.



Robustness

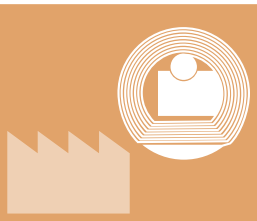
The weakest single point of failure in a smartphone app based technology is the source from where the app is installed for the first time, that will later on scan all microchips by default on the device. Therefore, a decentralized pool of servers' domain names and IPs will be randomly registered in the microchip (unless the manufacturer overrides it) as the entry point of for the first scan of a Daat microchip. Each server owner will have the responsibility of presenting basic HTML analysis about the scanned object, and propose a store (or a .apk/.ipa) to install the proper app that respects the standards of the ecosystem (neutral, modular, etc.). The servers owners will be designated or revoked by the users via the DAO regarding their respect of such standards.

The DAO voting system will also allow users to establish consensus for critical updates of the core smart-contracts of the framework.

Your idea here...

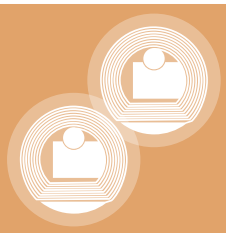
Early products

Beside products manufactured by every entity of the ecosystem, the Daat entity will propose internal products and services. These products can be purchased in priority with Daat tokens at their fixed price at the time of sale, regardless of the Daat token exchange rate when purchasing the product. Therefore Daat token owners have the option to HODL or buy real products without loss of value.



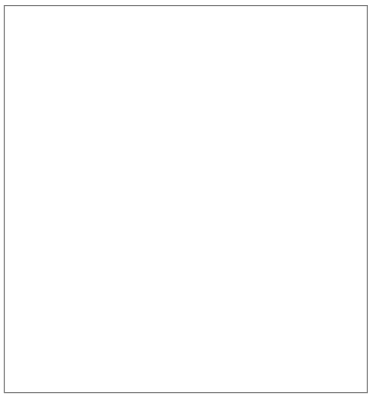
Industry

Manufacturers will have the possibility to purchase audit and R&D services for their anti-counterfeiting challenges, as well as microchips and secured packagings.



Coins

Original gold coins and Bitcoin SatoriCoins secured by Daat.



Services for users

Origin

The universal information provided by the Daat framework about objects is their origin. The trust of the identity of the origin is a core base feature of Daat. But it does not mean that the origin can be trusted, this depends on the origin's reputation, user knowledge, appreciation, due diligence or third party services of audit, certification and ethics.

Ownership

The default ownership method is the physical possession of the object in the owner's hands. Which is great for privacy and objects that are meant to circulate from hand to hand (cash, gold, silver, offline crypto cold wallets, etc). However in some cases an object can have its owner registered on the blockchain, thus nonetheless objects cannot be counterfeited, but they can't be stolen for resale either. In the same way as for cryptocurrency wallets, physical objects are owned by those having the corresponding private keys. Daat wallets do not only hold ownership of Daat tokens, but ownership of physical goods. Ownership can simply change hands when the former owner validate the new owner's key, via Daat's smart-contract, which irreversibly swaps the keys.

Sale

Swapping ownership is a simple operation when giving an object. However it can be a little more tedious in the case of a sale, especially for distance selling. For such cases Daat's smart-contract proposes an escrowing option when swapping owner keys of a object.

Alice wants to sell her bag to Bob by postal service for ⃰10. Bob provides his new public key to the smart contract along with the ⃰10. The ⃰10 remains held by the smart contract and ownership assigned to Alice until Bob validates it. So Alice has the guarantee that the Daats are available, but must send the bag in order to receive them. Same for Bob, he must validate the transaction when receiving the bag in order to get the ownership, which triggers the transaction of the ⃰10 to Alice's wallet.

The developer of the application used for the transaction can take a fee, a simple business model to distribute free applications while having steady income, which can be applied to many of the Daat's services.

In order to handle exchange rate volatility, Alice or Bob can use a stable amount expressed in Earth (see the "Stability" chapter below), or subscribe to standardized third party insurance on-the-fly (see the "Insurance" paragraph below). Or set a minimum amount in Daat, and subscribe to a third party service to complete the transaction in fiat currency, off-Daat.

Following this principle, shops or manufacturers can set themselves as owners until the product is sold, for controlling price and preventing theft.

Privacy

Daat puts individual freedom and privacy as its number one priority. Hand to hand circulation of goods leaves no undesired tracking data behind, no transaction needs to be recorded, the hand to hand exchange is the transaction. In the case of private keys of ownership, their are entirely anonymous.

However, if owners wish so, they can make their identity public, for fame, or prove that some object belonged to a famous person. Persons having the object in their possession can also attach messages and pictures to it, so the life of the object can be browsed by the new owners.

Additional personal data management and KYC services can be proposed, then limits on privacy are left at the discretion of the users, optionally backed by ethical audit services.

Remunerated legitimation

Owners of Daat wallets have the possibility of performing an investigative work, in order to verify the identity and viability of the actors of the ecosystem. Once they have identified the public key of a legit actor of the ecosystem, they can be remunerated by associating their wallet to the public key of the said actor (with optional validation and/or KYC). Which allows them to benefit from a share of the non mandatory transaction fees of the economical activity related to the products (or services) of the said actor, within the Daat ecosystem, in proportion of the number (and time) of Daat allocated to the said actor from their wallet. Thus, owners of Daat wallets can be remunerated for securing the network, reinforcing the reputation of the actors that they find healthy and legit. This securing is not without flaw, but it allows to significantly smooth down in an organic way the reputation work that can be backed, refuted or adjusted by audit services.

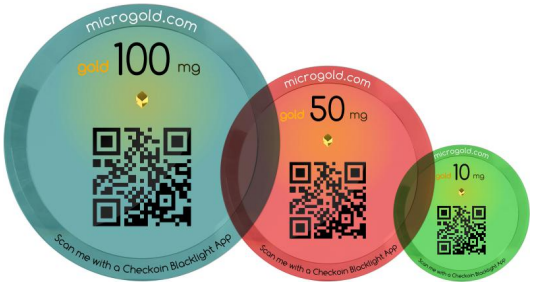
Value

Once the crucial authenticity information of an object is validated, many extra informations and services can be proposed, the most obvious being the value of the object. To do so, the first type of service proposed by Daat is the real-time estimation of an object. Anyone can propose their standardized REST API biddings to traditional marketplaces and exchanges, for any type of object (like other services they are payable via built-in Daat cash-flow, and prices exclusively expressed in Daat). So scanner applications can display real-time estimation of the object (converted back to fiat or any value system chosen by the user). As anyone can also tag any object with a buy/sell amount, in the long run prices will be evaluated directly from the Daat blockchain instead of traditional marketplaces.

Cash

Therefore any object used as a value vector (e. g. precious metals, crypto cold wallets, etc.) can be used as cash by the average Joe, the exact amount can be matched with fiat penies and banknotes. This also enables objects that can circulate from hand to hand to be used as cash, barter, sale, etc.

Furthermore, Daat's NFC microchip has the ability to carry digital crypto cold wallets, fully integrated with the application and ecosystem as cash.



Stability

Stabilizing the volatility of a cryptocurrency is very tedious. Daat does not pretend to solve this problem, however it will leave the door open for any third party services to propose their own stabilization mechanisms, as alternatives to the use of "raw Daat" for validating the payment of the smart-contracts. Daat proposes a simple alternative input/output Daat cash-flow, associated to a dynamic conversion ratio of a stable referential unit, named Earth (⍢). It is up to the users and services to use and implement it. Competition and innovation is open between different Earth, which can also be stabilized by baskets of multiple Earth ratios.

Exogenous Earth can be proposed based on external values (Gold Earth, Euro Earth, etc.). Endogenous Earth can also be proposed, as we know the total number of Daats in circulation, the total number of objects registered on Daat and their value, we can have an simple and accurate reference to estimate the value of the ecosystem. Hybrid Earth can also be evaluated from assets registered on Daat that are also generally used as a value referential (e.g. gold coins).

The holding of any referential assets, and their on-the-fly conversion for Daats required to validate the smart-contract is left to each Earth's third party services. They just need to plug to the Daat built-in mechanism, which simply makes the process transparent and standardized.

Custody

Thanks to anti-counterfeiting microchips, any entity that has physical access to an object can prove anytime that they are in possession of the object. This allows custody services to be proposed to object owners, vault for precious metals, cave for vintage wine bottles, museum for pieces of art, etc. Thanks to their private keys, owners can remotely interrogate their property through the Daat's standardized channel of communication provided by the custody. The trustee can automatically (or manually with its smartphone) establish communication between the object and its owner in order to check its presence (and optionally temperature, humidity, etc.), as well as receiving Daats via the standardized cash-flow, for the services (vault stock, transportation, maintenance, etc.), or pay the owner (e.g. piece of art lending that attracts visitors to the museum).

Bearer bonds

Ownership of an object is performed via the owner's private key, which can be digitally stored in an Daat wallet, or sealed in another physical object as a bearer bond (plastic coin, plastic card, hi-tech banknote, etc.). Thus, non-transportable objects can be traded like cash, while being hold in a custody service. In the same manner cryptocurrencies' cold wallets can be made, with the difference that once the private key being unsealed, it gives access to a virtual good instead of a physical good.

Marketplace

Having access to the public database of all registered objects (except encrypted records), allows any entity to browse and propose services upon it. Such as marketplaces for classified advertising, buying/selling bids (helpful for value estimation), etc.

Audit

Daat framework works upon blockchain services that require no trust between entities. However, everyone can't be an expert on every domain, that's why audit services can be proposed to curate reputations (of objects, manufacturers, custody services, etc.), so users can choose their source of reliable and verified information about the objects they scan.

Logistics

Daat first goal is to be a popular ecosystem, by the people for the people, more oriented towards P2P and B2C. However, intra-industrial and B2B capabilities are also tremendous. That why standardized services for big logistics, production, ERP, etc. will be proposed (product line, supply chain, transportation, stock, etc.).

Insurance

At any level of the ecosystem entities can propose insurance services, for the object itself, the sale of the object, tamper doubts, Daat's volatility, private key loss, etc.

Disruption

Most of nowadays monolithic approaches of markets, manufacture, supply chains, etc. will be disrupted by new practices in the future. Hopefully Daat's non-monolithic modular approach allows the ecosystem to endlessly adapt and pivot around these disruption with new services. How to handle the fact that the very same 3D-printed object can be made in thousands of different fablabs around the world? Or the fact that spontaneous unregulated marketplaces can appear and disappear out of the blue? Actors of the Daat ecosystem can propose new services to surf upon any disruption wave without any constraint.

Location

Microchip sealing is not limited to transportable objects, it can also be used for locations, real estate, etc. For tourism, security, logistics, administration, etc. Or simply to prove that someone has physically been to some place (e.g. to validate TripAdvisor comments, etc.).

Food safety

Food safety is a serious concern for consumers regarding health scandals, accidental contamination, storage & transportation requirements, dangerous additives, diet issues, counterfeits, substitutes, cattle food & vaccines, etc. Services can be proposed to inform and alert consumers on these issues, as well as adding extra tracking sensors for temperature, storage & transportation history on the supply chain.

Recycling

Objects that can be recycled can have their logistics (drop off, transportation, material selection, customer's reward Daat's cash-flow, etc.) integrated as services. As well as returnable packagings (e.g. secured cold wallets with only electronic sealing and electronic secret information can be reset).

Ethics

Object types can be curated and evaluated according to certain criterias and audits to match some ethical requirements (ecology, privacy, halal, kosher, fair trade, etc.), then this information proposed as a standardized service for ethical consumerism to users.

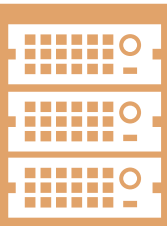
Advise

Standardized services of additional information related to scanned objects can be proposed. Such as health warnings, advises, user manuals, events, local legislation (e.g. taxes or customs for precious metals), etc.

After-sales

Standardized after-sale services including transportation, drop-off, refunding, etc. can be linked to the object by the manufacturer, or any third party entity selling additional after-sale services.

Services for the ecosystem



Servers

Daat's core components will be hosted on an existing blockchain (Ethereum, Rootstock, and later on a dedicated blockchain). However large data that can't be hosted on a blockchain (images, videos, etc.) or not worth paying fees for (geolocation scan records, messages, bids, etc.) will be distributed/replicated on low latency hosting services, that can require payment for their use, standardized in terms of API and cash-flow like any other Daat service.

Internationalisation

Object description, manual, etc. are standardized according to Daat's specifications, therefore internationalization third party services can be proposed to the manufacturers or users in order to get their information aligned with their local languages and habits.

Analytics

Some sophisticated algorithms might developed for fine tuned information (e.g advanced geolocation consistency analysis for QR Code validation, big data price estimation, machine learning, AI, etc.) and provided as a service via Daat's standardized REST APIs.

Interoperability

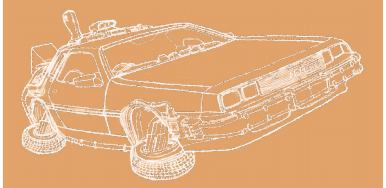
The essential information required for an object to benefit from Daat's services is it's microchip's public key and manufacturer's identification. Several IoT blockchain may provide such information, therefore third-party services can port this information in order to register the object on Daat, with a simple tap from the owner's smartphone. Then the object can transparently join the Daat ecosystem as any other object, and benefit from its advantages and services.

Security

Security companies can provide solutions in case of bugs, attacks, hacks, etc. to other members of the ecosystem, in order to automate breakpoints, updates or other safeguards for containing the impact of such hazards.

Your idea here...

Token



Future

Daat is an ambitious industrial project that has the vocation of running its own tailor made blockchain and coin. However, for immediate technical constraints and required observation period, it will first run upon a enhanced ERC20 token, with the ability to move the ecosystem and wallets to the upcoming dedicated blockchain (that will integrate all improvements developed during the ERC20 observation period). Even if some aspects of the token will "emulates" the future coin, their life-size use must be enabled from the very beginning.

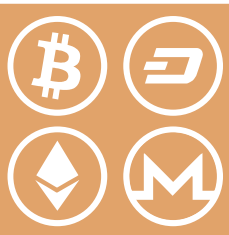
Sovereignty

Previously mentioned migration and tailor made improvements based on life-size observations can only be achieved with a token that is in the hands of the ecosystem. A dedicated token ensures the technological and economical sovereignty of the ecosystem.

Reference

For technical reasons, Daat's smart-contracts cannot handle every crypto (and non-crypto) currencies. Therefore, one token has to be chosen. None is more legitimate than the token that asserts itself as the self-referring landmark of the ecosystem.

Daat (⏃) is the reference.



Bridge

In order to transparently allow transactions in any other currencies or commodities, and allow users to choose any another referral values, Daat comes a with dynamic ratio system, allowing third party services to bridge exchanges and rates with any other currencies or commodities.

Earth (⏚) is the bridge.

Symbol

Not only Daat (⏃) is a internal reference and a technical solution, it is also the symbol of the ecosystem. Symbols are even more important than practical considerations.

Wealth

Daat (ȣ) reflects the value of the ecosystem, when actors of the ecosystem get involved in making it wealthy, the value of the Daat (ȣ) increases, which is a direct reward to the legitimate beneficiaries.

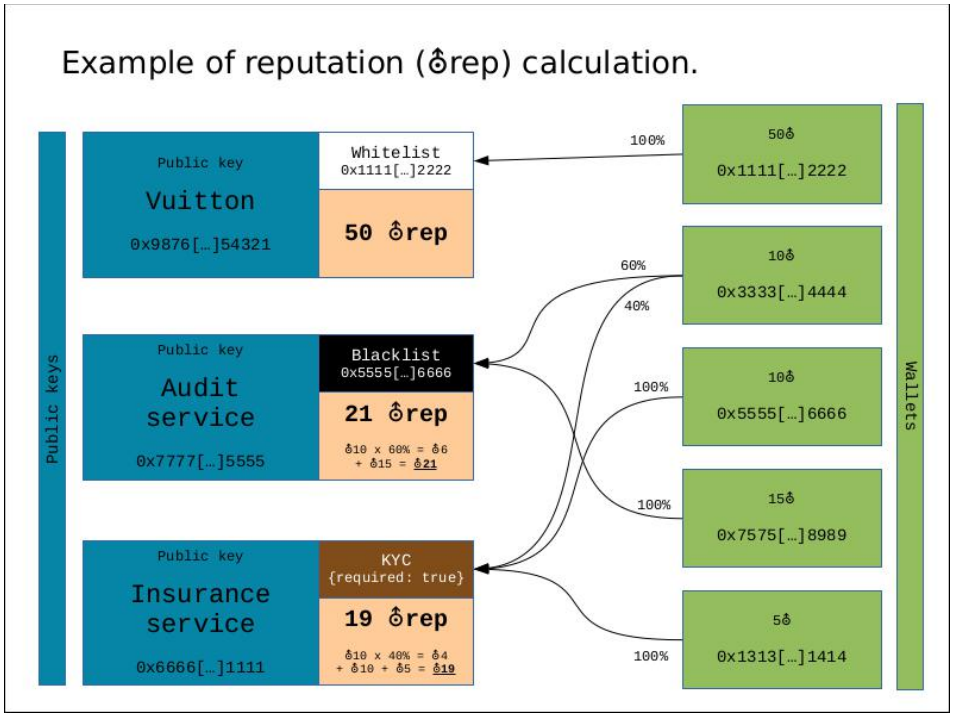
Unique features

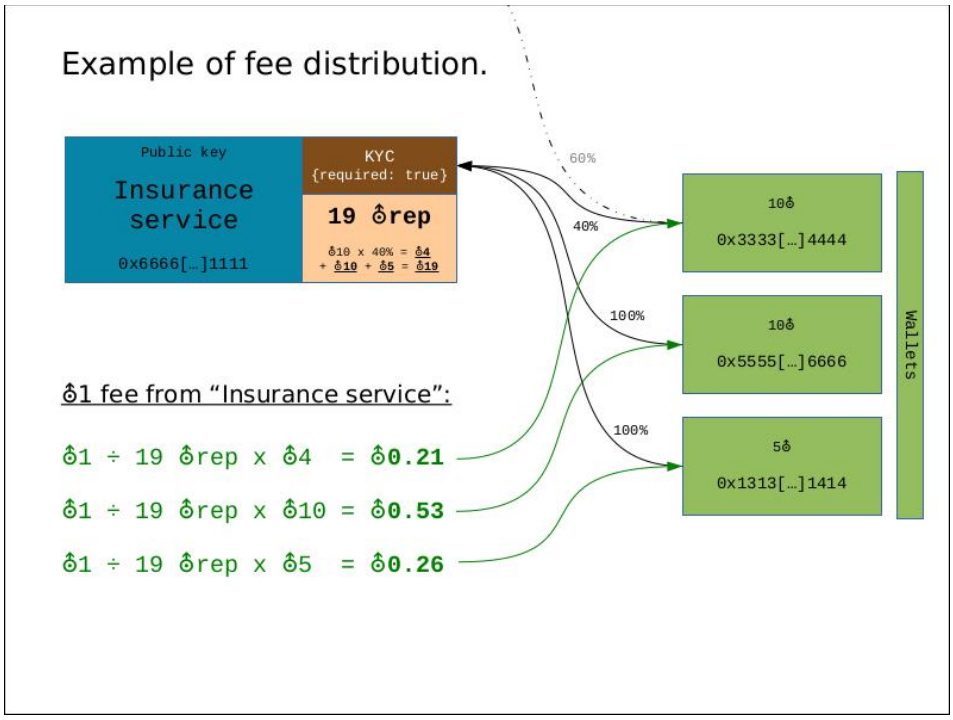
Escrowing

If the physical exchange is not immediate when selling an object between Alice and Bob, the sale smart-contract must have the possibility to hold the escrowed amount, which is made possible by Daat's specific token features.

Remunerated legitimation

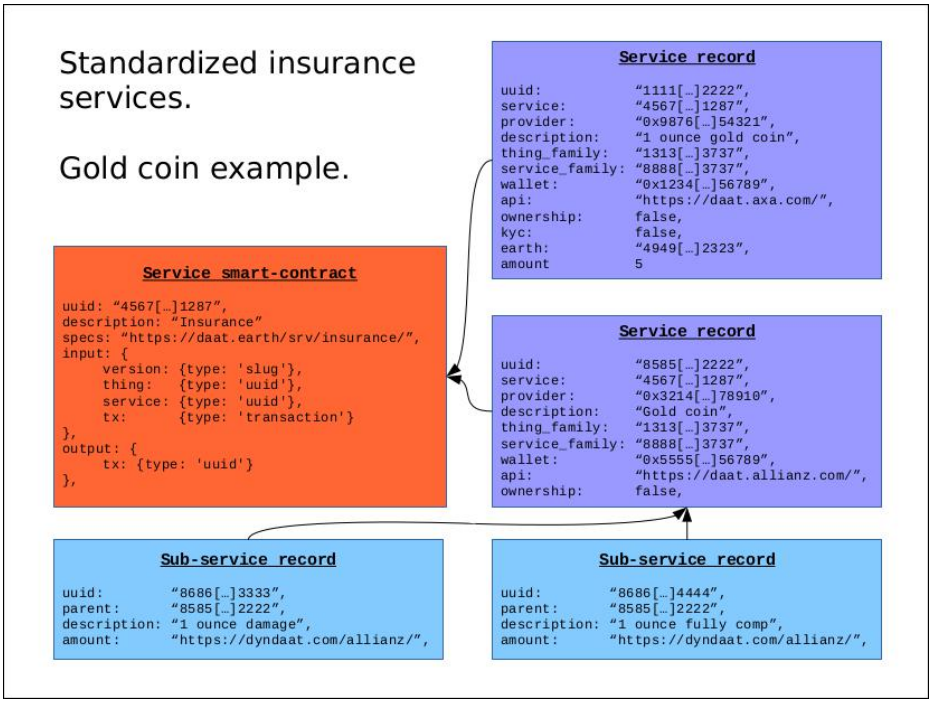
Made possible by Daat's token design.

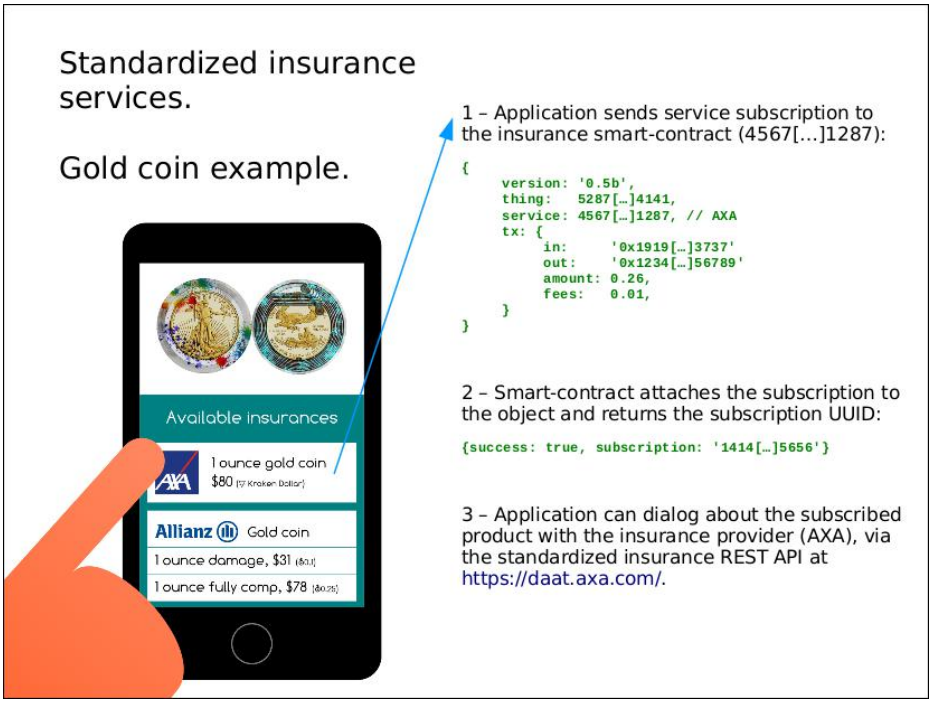




Integrated cash-flow

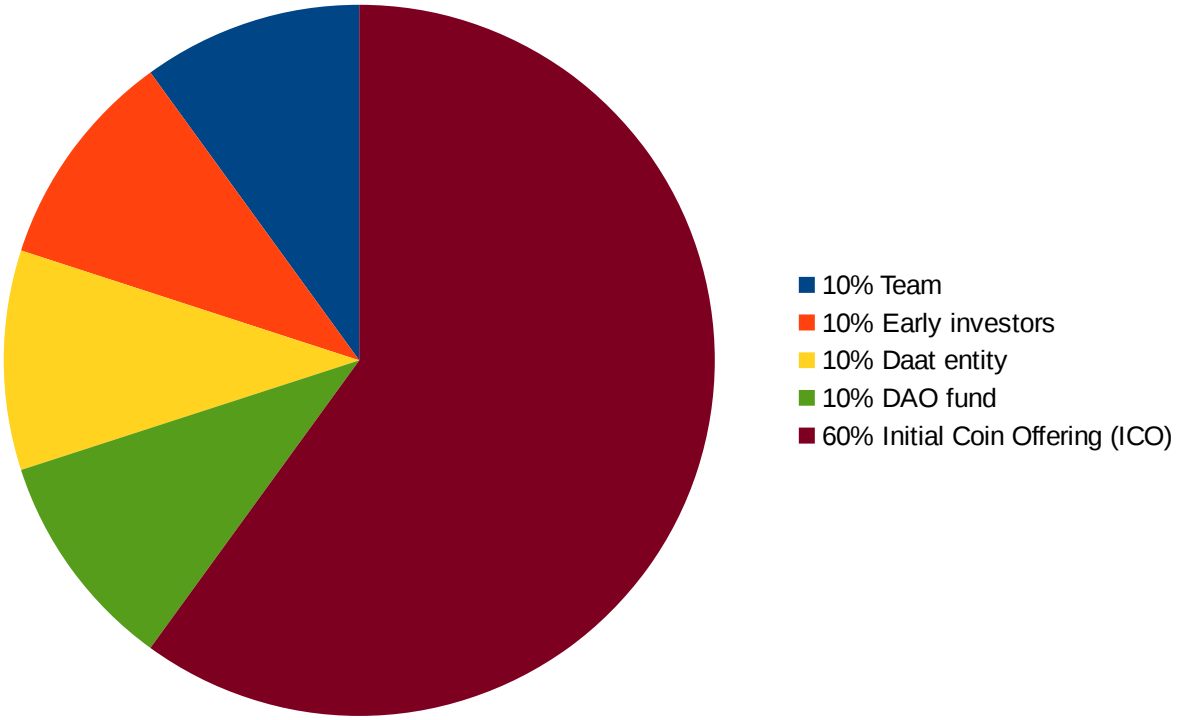
All Daat services can take advantage of a smooth integrated cash-flow that is transparently plugged into every component of the ecosystem, as well as using any currency they want thanks to the Earth (⍢).





Disribution

The total amount will be of ⓓ77,700,000.



At first Daat will run upon an smart-contract able blockchain (likely to be Ethereum or Rootstock), but leaves the door open to move its services, objects and monetary mass to another one, and possibly dedicated one (e.g. KissChain), in case. To do so a null address will allow wallet holders to make their token and objects move to the new chain. If such a migration happens, an extra supply of ⓓ33,300,000 will be gradually minted for the minters (minters are like miners for Bitcoin, but for PoS blockchains such as KissChain).