SWARM FUND

Cooperative Ownership Platform for Real Assets

White Paper

July 29, 2017

Contents of the white paper are subject to changes and improvements.

Abstract

Swarm Fund was built as a response to the tendency of finance to go into internal hype cycles that make the rich richer without delivering real value. Our governance-first model has been designed to bring $1 trillion in real assets into the blockchain world by creating a platform for regulatory engagement and a fully compliant legal container for highly profitable and scalable real assets.

As with other highly successful network models like Visa, our infrastructure is fully accessible and entirely governed by its community members. We use a token based, stake-weighted, liquid democracy system to provide both an early adopter incentive and input into long-term decision making. This is augmented by a reputational system which helps streamline capital deployment and allow a fusion of human and artificial intelligence.

We launch with multiple partner funds (distressed real estate, art, renewables, hedge funds) who have already deployed $100mm+ with 30+% IRR and team members who have built platforms that handle over $20B in transactions per month. Our market infrastructure allows funds to automate creation, fundraising, deployment, distribution, and reporting via a process language that is an enhancement of currently available smart contract technology.

1. Introduction

1.1 OVERVIEW

The Swarm Fund team plans to help the crypto world grow to $1 trillion by bringing tokenized real-world assets through partner funds.

The Swarm Fund team has managed $10B in portfolios and built platforms which handle $25B of monthly deal flow and already has several pre-selected funds which generate 30+% IRR through scalable models powered by artificial intelligence.

Swarm token holders will govern the platform in which all of this will happen and receive additional tokens on the private blockchain. This will allow them to participate in all of the subfunds.

This system is designed to be adaptable for full regulatory compliance in multiple jurisdictions. The corridor between the public and private blockchain tokens is additionally designed to be fully AML/KYC compliant and to follow the model of existing exchanges.

Swarm is building technology bottom up which ensures successful execution of program instructions, including a logic programming-based “state box” which use distributed state machines to ensure full-program execution, and an operational liquid democracy platform.

Our technology and blockchain co-op model will likely also be useful for other industry verticals besides finance.

People should participate if they believe in the value proposition of democratizing finance, collaborative ownership, high returns, and the soundness of both the team and technology.

Swarm goes beyond the typical ICO approach:

Standard ICO Approach	Swarm Approach
Utility token on public blockchain	Utility token on public blockchain, and unlimited sub-tokens
Unclear underlying value	Sub-tokens backed by existing highly profitable subfunds holding real assets
Single Swiss nonprofit foundation	Seven inter-networked legal entities in different jurisdictions united by one platform co-op
Unclear relation with regulators	Openly approached lawmakers with model in 7 Direct relationships with regulators in multiple jurisdictions and organized legal conferences with extremely positive responses
Prototype product or no product	Working tested product of utility layer and private blockchain asset structure
No governance	Liquid democracy model that allows token holders to elect board members
No experience delivering product	Team includes two previous CEOs with proven track records building and selling companies
Token value is derived from velocity of token transfer	Token value is derived from working highly profitable existing business model
Unknown or non-existent AML/KYC	Fully compliant AML/KYC through private blockchain implementation fully implementing local jurisdictions

1.2 THE ULTIMATE VALUE PROPOSITION: APPLYING SWARM INTELLIGENCE TO WALL ST. AND AUTOMATING EVERYTHING

Viewed from the standpoint of organizational design, Wall St. is little more than a collection of archaic incentive models waiting for a fully peer-to-peer organization to disintermediate and redistribute the wealth that is monopolized by a small group of insiders. Like the taxi medallions, insiders are able to manipulate market prices by creating artificial scarcity and promoting uneducated fear of other models.

Peer-to-peer models consistently beat protectionist monopoly-based models because they directly incentivize top performers rather than creating multiple levels of opaque hierarchy, and because they layer dynamically generated reputation on top of these models.

Additionally, peer-to-peer models are a perfect substrate for the utilization of artificial intelligence and a much higher degree of automation in general. Peer-to-peer models combined with models of cooperative ownership also allow a high degree of control over abuse of big data and integration with other governance systems so as to offset against any potential abuses of the system. Systems are a product of their incentives. If the existing Wall St. model has incentives for protectionism and hierarchy, Swarm Fund has incentives for early identification of talent and rewards that proportionally follow high performance.

1.3 CURRENT INVESTMENT DRAWBACKS

Crypto Token Holders

The investment landscape for crypto coin holders is largely limited in choice to either a selection of established crypto currencies, e.g Bitcoin, Ether, Ripple and more, or a selection of more recently issued tokens, e.g altcoins. As much as the overall crypto asset developments are extremely positive, both asset categories have significant challenges associated with them from an investment perspective.

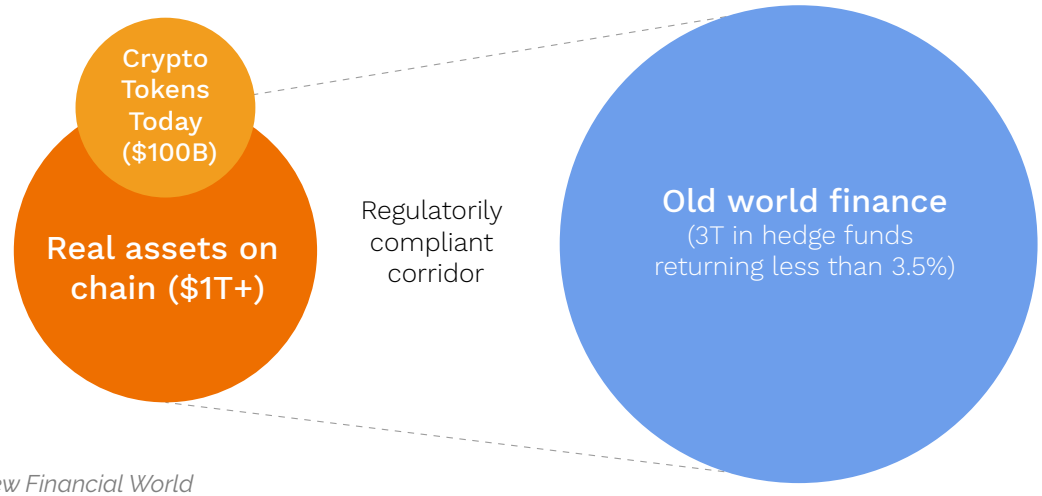
- For Bitcoin and Ether, volatility is a major factor. Holding a significant portfolio of Bitcoin and Ether implies that the net asset value fluctuates by a significant percentage on a monthly basis. As an investment, this could be desired, but for the purpose of predictable preservation of value, it is highly undesirable.
- For investment in altcoins, the challenges are primarily related to the evaluation of assets prior to investment, and lack of liquidity, post investment. It is also difficult for many investors to clearly understand the market dynamics of the coins.
- Although the two million transactions every week and growing between people, businesses, and charities suggest a significant value exchange, the grand question of the intrinsic value of Bitcoin and its crypto peers remains.[1]

Meanwhile, tokens that store digital value are breaking into the mainstream investment landscape as a new asset class in which to allocate investment capital. This is largely driven by an increasing awareness of the excess returns generated by the early investors in this category. But for the mainstream investor this new asset class presents challenges, namely the workflow basics of navigating the trading and asset security.

Market Problems in Traditional Investing

Over the last 15 years, a simple S&P 500 index fund outperformed 92% of large-cap funds . Even higher, the percentages of mid-cap and small-cap funds lagging their benchmarks were 95% and 93%, respectively. The odds of doing better than an index fund are near to 1 out of 20 when selecting an actively-managed domestic equity mutual fund.[2]

Finding products with high investment return is a challenge, which increases as the target return increases. The marquee products offering more than 10% returns are invariably hard to access (Bridgewater generally requires that its clients have a minimum of $5 billion of investable assets[3]).



Bridge to the New Financial World

[1] "Look, this is a perfect asset for a speculative bubble...There is a finite supply. There is no intrinsic value. If anybody is persuading you that it should somehow be related to some GDP or gold...put down the Kool-Aid and back away." Henry Blodget, founder and CEO of Business Insider, on CNBC's Squawk Alley

[2] http://www.marketwatch.com/story/why-way-fewer-actively-managed-funds-beat-the-sp-than-we-thought-2017-04-24

[3] https://www.elitetrader.com/et/threads/so-you-want-bridgewater-to-manage-your-money-there-is-one-small-condition.290936/

Take real estate as an example. Investors mostly face three major challenges:

- The most exciting deals are for insiders only; accessing them requires working through middlemen that are costly, sometimes untrustworthy and who often only operate locally.
- Large amounts of money is required to participate in the best opportunities.
- Worst of all, investment is often tied down for an indefinite amount of time.

Combinations of these challenges are part of any traditional investment product category, e.g private equity and hedge funds.

1.4 MISSION STATEMENT: WHY WE CREATED SWARM FUND

Swarm is a fully decentralized capital marketplace platform built on blockchain technology that is entirely owned by the community.

Our vision is to allow anyone, anywhere in the world, to participate in the value creation within the crypto asset category and to capture opportunity in new types of asset-backed tokens, anything from distressed real estate to solar installations to rainforest preservation projects and many more.

Swarm turns financial opportunities from exclusive into inclusive. We provide the empowerment, access, and tradability so anyone can take part and have their crypto funds work for them.

With Swarm we will:

- Make it extremely simple for hands-off, or novice crypto investors to participate in a composite of wealth creation resulting from utilizing the crypto space.
- Create a viable framework and hub for crypto investors to invest into alternative, asset-backed token opportunities, in order to escape market volatility.
- Introduce a new alternative liquidity hub for project owners with attractive underlying economics to find capital and engage with the investor community.

Core Objective: Follow The Experts

Swarm allows experts to run their own syndicates and have other crypto investors join them in projects and deal opportunities, with no middlemen involved.

We are building an ecosystem of experts with any kind of edge (track record, trading ability, unique data, unique deal access, etc.) to allow crypto investors to follow and co-invest with them.

This changes the mechanics of the traditional fund/GP model, as investments can be as large or small as the investor wants them to be, and they can operate the fund structures very flexibly. Also, it breaks up the syndicates of gatekeepers and rigid structures of institutional capital as it is deployed today.

Core Objective: Combine Token Flexibility With Real Opportunities

Crypto investors have appreciated the flexibility and immediate market-making function that tokenization has introduced. Tokens and their underlying smart contracts represent the ultimate opportunity of two parties to come together and interact without middlemen. Part of that is the freedom to trade or co-own tokens. That is the freedom we want to bring to any kind of asset class.

When a participant likes an opportunity running on Swarm they will be able to pool funds together with others and invest as little or as much as they want to realize the project and see the opportunity grow.

At the same time, all the projects become tradable asset-backed tokens. Participants can buy or sell these tokens whenever they want, and they decide how long to engage. All trades are made using blockchain technology, making them fast, transparent and secure.

Core Objective: Collective Intelligence

We believe in the swarm intelligence hypothesis that decentralized networks can out-compete traditional centralized entities, and that the trust and transparency embedded in blockchains highly facilitates this.

The foundational element of the blockchain is data transparency, which provides a basis for an unprecedented degree of machine-driven methods to generate insights and take actions.

Ultimately, with Swarm we envision a degree of investment automation, that helps participants make informed and data-driven investment decisions, while using reputational scores to maintain the health of the market. But automation goes further, where every step of the investment process, from workflows to set-up of legal structures can and will be automated over time, creating an efficient system without single points of failure or control.

With Swarm we envision a degree of investment automation.

2. Swarm Innovations

2.1 LIQUID DEMOCRACY

Network Democracy as Liquid Democracy

Network democracy is a stake-weighted delegated voting system (liquid democracy) which also provides options for enhanced stake and programmable liquidity.

Stake-weighted means that voting power is directly proportional to the amount of stake you have in a project. In the blockchain world, this is typically called your ”tokens” or ”coins.” In the world of stock, this would be called your ”stock” or ”shares.”

Liquid democracy involves ”delegated voting” and implies that someone can delegate their vote to another party at any point, for as long of a period as they desire. This allows them to maintain a degree of control without having to participate in minute decision making.

This is in some ways similar to the decision an investor makes when they give someone capital for a project, the key distinction being that in a liquid democracy the investor retains control of the capital.

Stake-weighted liquid democracy is a highly flexible governance model which accommodates anything from one-member-one vote to traditional corporate arrangements to novel forms of collectives. It also appropriately incentivizes the many different types of possible contributions to a network (code, community contributions, funding) and allows for both decision making capability and rewards. It also integrates with other automated decision making structures such as futarchy.

Swarm employs an **enhanced voting stake** process. The enhanced voting stake makes use of a locking period and is a proposed addition to the stake-weighted liquid democracy that does not allow tokens to be traded for a certain period. This can also allow a person to have a proportionally higher voting weight if they have a provable long-term stake in the network.

Traditional model:

Voting weight (vw) and network stake (s) are equivalent.

$$v_w = s$$

Enhanced model:

$$v_w = s + s(tl * n)$$

In this case, voting weight is no longer simply network stake s but stake plus an additional amount of weight depending on both the length of the time lock and the additional parameter n. For example, with tl denominated in months and an n of .2, a five-month time lock would effectively double the voting weight.

Programmable liquidity indicates that the stake can be gradually introduced to the network for tradability. It is complementary to a locking period, in the sense that you can accommodate both long-term stake and liquidity with incentives on both ends.

$$s_l = s((t-tl)/tl)$$

In this case, liquid stake sl is the total stake owned by the participant multiplied by the remaining time of the time lock as a percentage. This drip liquidity allows people

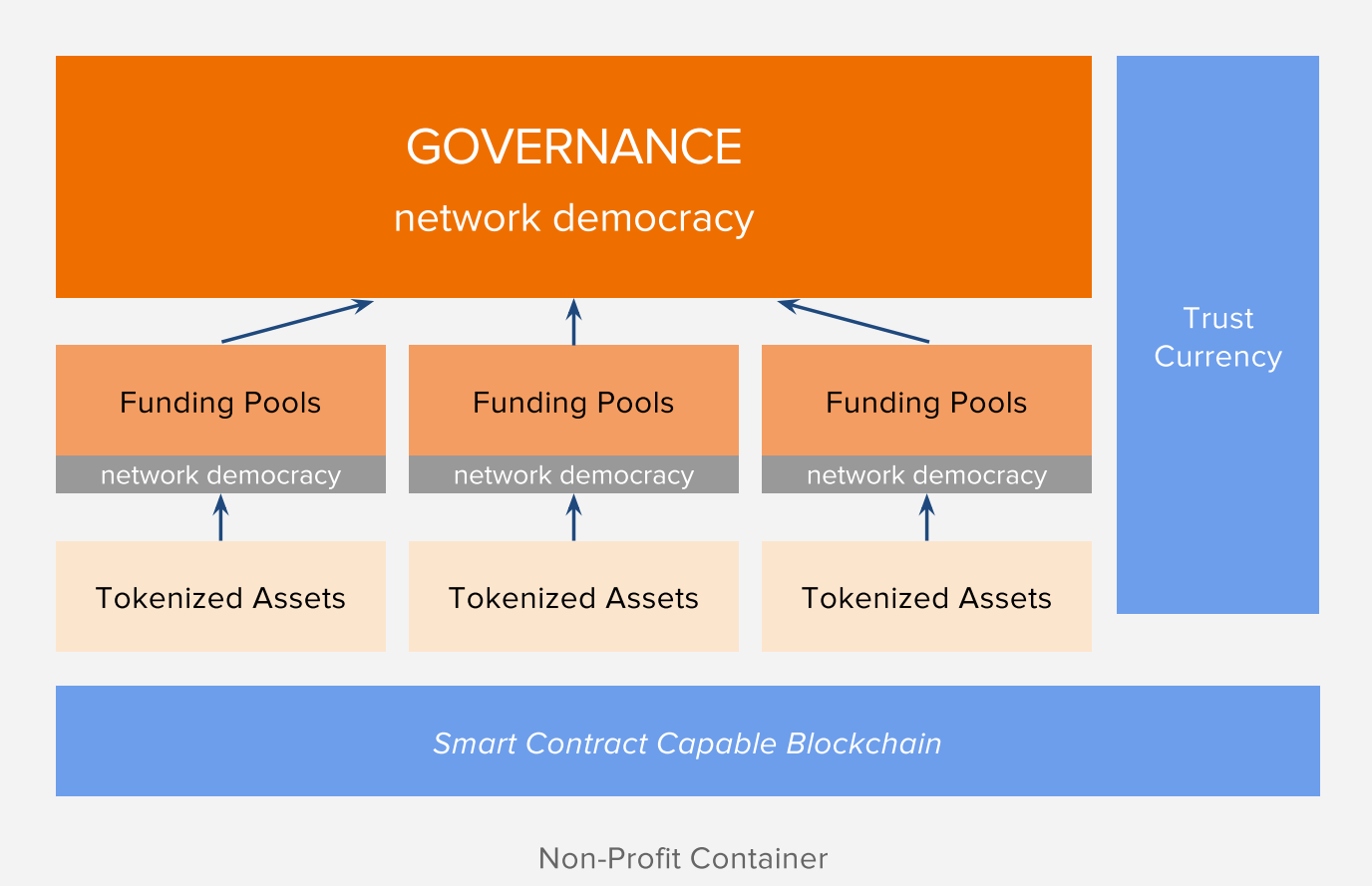
to gradually realize their returns without any major disruption to the network state.

The Swarm Platform provides several clear **enhancements over traditional models**, including incentives for early adoption, compatible short and long-term incentives, flexible liquidity models accommodating multiple organizational types, and accountability and automation via reputational systems.

Swarm makes use of **futarchy for automation** purposes. Futarchy allows automation of decision making via prediction markets. Network democracy accommodates vote delegation to an automated prediction market.

The Swarm Platform, by virtue of nested smart contracts which pass proceeds up to the maintainer of the platform is able to **fully self-fund**. This is an evolution in the funding of public goods as neither donations nor taxes are needed in this model.

A **funding pool** is an organization governed by network democracy that distributes funds. It can be structured similar to an investment fund, in which case it seeks opportunities or some other purpose (e.g. advocacy, education). Funds that go into any funding pool can be allocated by a higher level network democracy or received independently.



Swarm Funding Pools

Trust Network

The trust network is made up of many independent trust endorsements (i.e. vectors) which create accountability and allow automation.

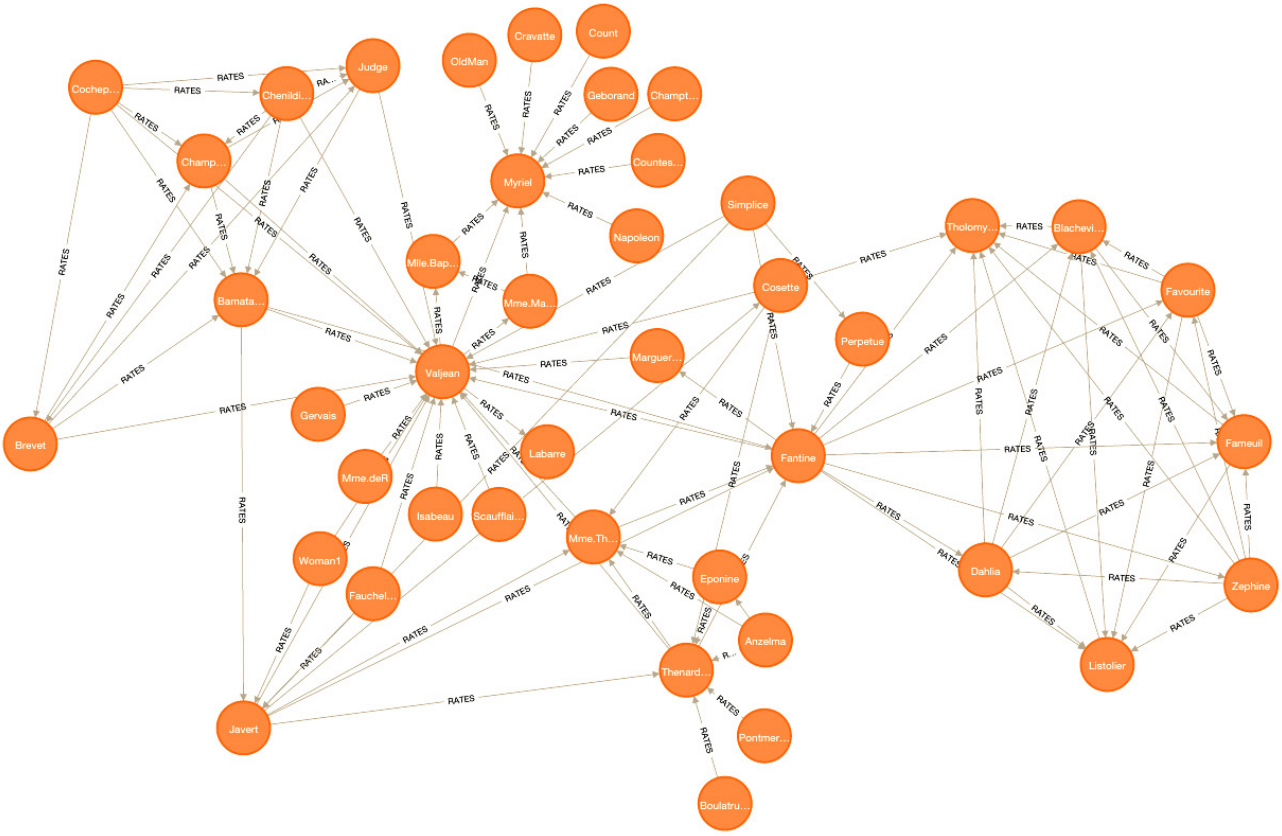
Trust Equation

$$\sum^{\infty} \vec{i^t} = T$$

The trust is the sum of all trusted parties and their recommendations from the standpoint of an individual (here represented as vectors, which can be positive or negative). In this case, we record all of these endorsements and allow multiple levels of ascription and derivation.

Trust currency is made up by individual immutable trust vectors. Each trust vector i t is an endorsement. A endorses B for X. This has a timestamp and an optional weight represented as a number from [-1 .. 0 .. 1]. The ability to provide a negative filter as well as a positive one is important for separating signal from noise (an example of a similar problem being Facebook fake news). As with other open networks, it has an open-access policy and the nature of the endorsements is pseudonymous.

The Trust Graph



Swarm Trust Vectors[4]

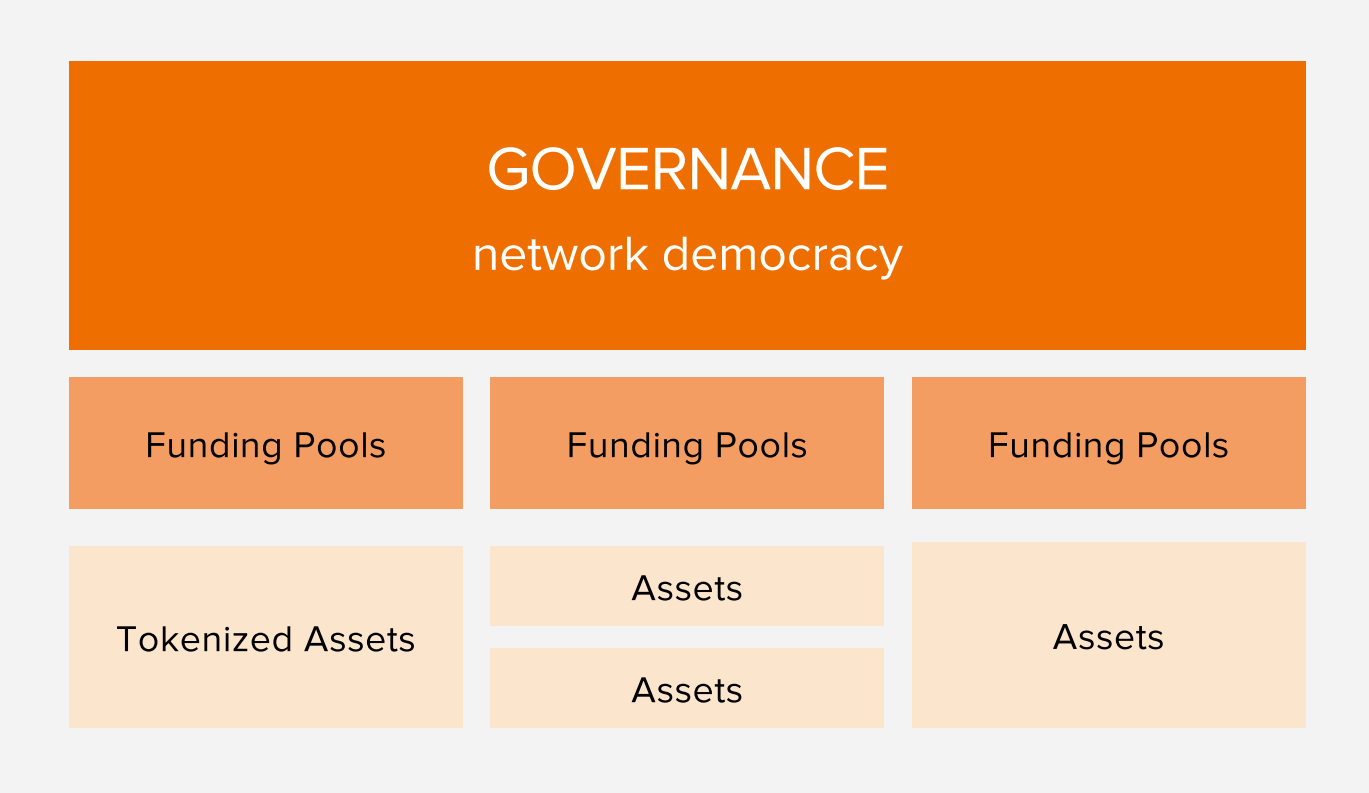
These vectors are optimally represented as a graph. This graph illustrates that trust (including what we believe to be true) can be derived from the various trust vectors on the network.

[4] TrustGraph.io - Harlan T. Wood, Adam Apollo

The **implications of a trust model** are numerous. An open reputation ledger built of individual trust vectors is a critical element in the Swarm Platform. It helps incentivize positive overall social contributions and augment the network more generally. It also allows full automation. For example, portfolio allocation decisions can be made by artificial intelligence. It also makes certain other accountability mechanisms less necessary due to the strong social component.
Brock Pierce (and the Big Imagination camp at Burning Man '16), Matan Field (Backfeed), Adam Apollo and Harlan Wood (TrustGraph.io) were all instrumental in catalyzing conceptions of trust networks.

Swarm Platform As A Representation Of Holonic Principles

Both with respect to legal integration and governance principles, the stack may have a virtually unlimited number of nested sub-entities, each with its own governance principle. With respect to legal systems, this is made possible by the increasing ease of creating legal entities via innovative nation states, APIs and other technologically innovative means. Blockchain and smart contracts also complement this structure by being extensible by design.



Swarm Platform as a Representation of Holonic Principles

2.2 PROCESS LANGUAGE

Introduction

Problem statement. Each asset class demands specialised management and reporting procedures that need to be implemented by a smart contract.

Commonly, this is done by providing a functional specification using natural language and in some cases a picture of a flow chart for clarification purposes. Then, one proceeds to implement this into a smart contract. This code is subsequently reviewed and promoted into the Swarm smart contract by a liquid democratic vote.

This approach has the following downsides:

A. Using natural language can lead to unclear specifications which only become clear once the details are implemented. Due to this lag and typically requiring multiple iterations between the smart contract programmer and the process architect, this is an expensive process.
B. There is an impedance mismatch between linear structure of code and the non-linear nature of processes. The state of a smart contract is hard to inspect, requiring custom visualisations to convert the “memory bytes” into something humans can understand.
C. The high level functional specification is converted to low level smart contract code and its structure is lost. It is complicated or completely impossible to reason on the functional level about such smart contract code.
D. There is plenty of room for bugs, misinterpretations, and little space for smart tooling.
E. At the smart contract level, the common language is low level and thus there is no way to compare the smart contract on the “functional specification” level.

Solution. To attack this problem head on, Swarm uses a process language called **Statebox** (http://statebox.org) to describe, monitor and execute workflows. Statebox was created by a team around Swarm’s Jelle Herold. Processes are an integral part of investment workflows and assessing assets, therefore they constitute a key part of the Swarm foundation’s research mission.

By using a process language as the primary tool to implement our smart contract, we gain on various fronts:
The specification and execution use exactly the same code, avoiding a high-latency feedback loop between programmer and architect.

A. Because the language has a visual representation, it does not need any specialized visualisations to “see” the state of a smart contract instance.
B. The high-level specification is based on mathematical structures with clean semantics. It is designed to have a maximum of structure suitable for (automated) reasoning and fine grained analytics. This high level specification is directly executed, preserving the functional intent.
C. The language is not a general purpose imperative programming language (such as Solidity). Instead, it is a declarative language, specialised to specify terminating processes. The declarative nature facilitates tooling and avoids many common smart contract bugs (by moving responsibility to the compiler, which itself is implemented in a dependently typed programming language and can further be supplemented with formal correctness proofs).
D. While each asset class has a different management process, they are expressed in the same high-level language and thus can be compared. We envision a lattice and/or metric space of processes, where best-practise processes can actually be quantified.

Basic System Structure

The statebox process language is built to be entirely compositional. You can think of it as being constructed from “boxes” and “wires”. The “atoms” in the systems are ‘typed datums’ and the types are the message boundaries upon which a process network is built.

To facilitate interoperability and disambiguate data, every message and datum has a “type declaration” associated with it. These descriptions can also be used to automatically generate web-forms or APIs.

A. Data and Types

All data shapes are described by a (programming language agnostic) composable finite-type declaration language inspired by polynomial functors/cartesian monoidal categories without exponentials (functions) (http://typedefs.com). This is similar to protocol buffers except that the typedefs language has a minimal number of features and exhibits various existing mathematical structures. This facilitates correctness proofs and embedding in typed programming languages (such as purescript or idris).

There is a well-defined binary serialisation and deserialisation format, for both types and terms. Similarly, there is a codec for JSON + JSON Schema. A type definition has a globally unique identifier (hash of the serialised type).

Example of such type declarations:

```
bool : type
bool = true:1 + false:1

char : type
char = bool^8

utf32 : type
utf32 = char^*

list : a -> type
list a = cons:(a × list a) + empty:1

person : type
person = name:utf32 × age:uint8 × gender:bool
```

B. Process Definitions

Statebox is based on categorical mathematics. Unlike typical smart contract code, its programs are based on diagrammatic languages called string diagrams. The visual nature makes it very clear what contract the user is about to engage with and what state the contract is in.

The language does not strive for Turing completeness. Instead, processes are guaranteed to terminate. They are also compositional while preserving their properties (such as the termination guarantees).

A compiler turns these process definitions into smart contract bytecode, using a subset of the Ethereum VM, ensuring correctness. The compiler itself can be proven mathematically correct.

Use Cases

KPI Reporting

Process analytics are usually an afterthought: specialised analytics code is written to process system logs into statistics. Statebox, however, makes analytics a native aspect of the system. All process executions generate analytics which will be reported back to the community. This way the Swarm token holders can make informed decisions and vote on data, rather than feelings.

Compliance

Every transaction is cryptographically signed and the entire process execution history is visible on the blockchain. Therefore, the execution of a workflow process is auditable and can be checked for compliance.

Process Optimization

Normally, processes are written in a syntactic fashion. However, the visual nature of Statebox workflows combined with analytics make it extremely easy to identify bottlenecks and subsequently change the process.
Because there is no work needed to go from process specification to the smart contract, there is a very low-latency feedback loop, allowing for quick iterations of the process.

3. Swarm Token

The token distributed during the token launch is known as the Swarm Token, or SWARM. The SWARM token is a standard ERC20 token (on the Ethereum platform) that allows one to use the Swarm software platform.

The utility unlocked by the SWARM token is the ability to create subfunds, participate in token offerings of Swarm projects, get access to information that is exclusive to our network, and execute network governance functions. Participation of its members is key to the Swarm platform. Over time, more functionality will be released that helps generate swarm intelligence for the benefit of the network. This follows the model pioneered by Visa, SWIFT, and other consortia where common infrastructure is maintained by member organizations.

3.1 TWO-TIERED TOKEN MODEL

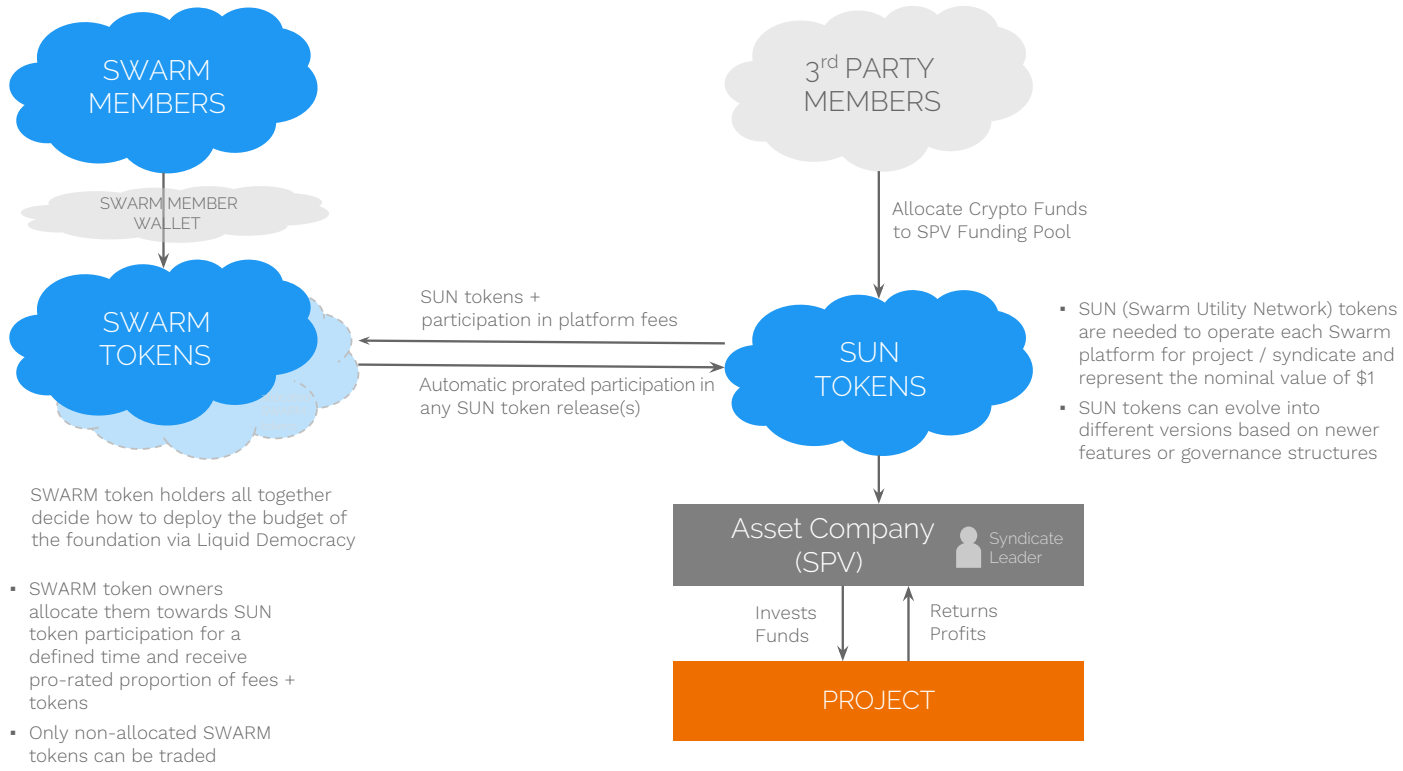
The Swarm model has two layers. The first layer is a utility token which allows access to the underlying subtokens and grants access to the Swarm's governance technology.

The second layer includes the many financial opportunities run by the Swarm syndication partners and made possible through their own applications and tokens on the **SUN (Swarm Utility Network).**

The use of Swarm Services and Application layers happens on the Swarm Utility Network (SUN). Participants of SUN will be charged fees, similar to those of a trading market (SUN Fees). These fees will initially be denominated in cryptocurrency, namely ETH or BTC, but later also in SWARM tokens.

SUN tokens can be custom to each project. Once the Swarm network clears way for a new application to be established, participants of SUN can release their own tokens (SUN Tokens) for their application, against which they can raise their own application liquidity, ultimately in both crypto and fiat funds.

SUN tokens can evolve into different versions based on newer features or governance structures. SUN tokens can abide by their own governance and regulations, subject to oversight by the Swarm community.



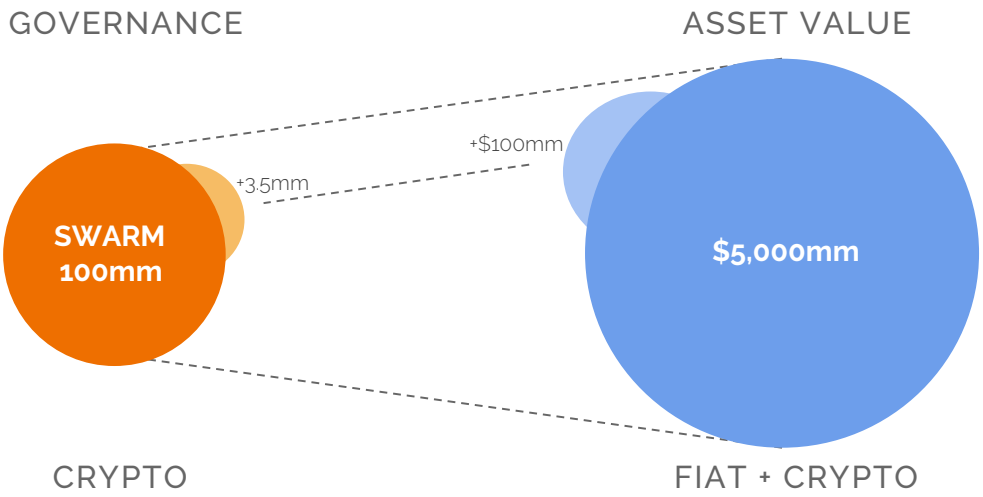
Basic structure of the Swarm Token

3.2 TOKEN MECHANISM

The SWARM tokens are created for the network to govern a market infrastructure for a much larger pool of assets running on the Swarm Utility Network. The initial supply of SWARM tokens is dimensioned for an asset pool of $5B in value.

As the capital deployed into the Swarm Utility Network surpasses the threshold value of $5B, the Swarm foundation can issue tokens at a fixed rate (3.5%) relative to the amount of capital raised. For example, $100mm of fiat will authorize the creation of 3.5mm new tokens. The rate (but not the threshold value) may be adjusted periodically by Swarm's governing bodies. The Swarm foundation may use this for sustainable future financing and development budget.

At launch, Swarm will already have the full governance model for the network operating. Additional bylaws of the Swarm organization are expected to follow the DCO model established at the Stanford legal summit with some modifications to be decided upon by our legal advisors. A foundation representing this model will be established after the contribution period is complete. This will happen via an incentivized bounty provided to the first legal team who is able to implement the foundation model with the appropriate integrations.



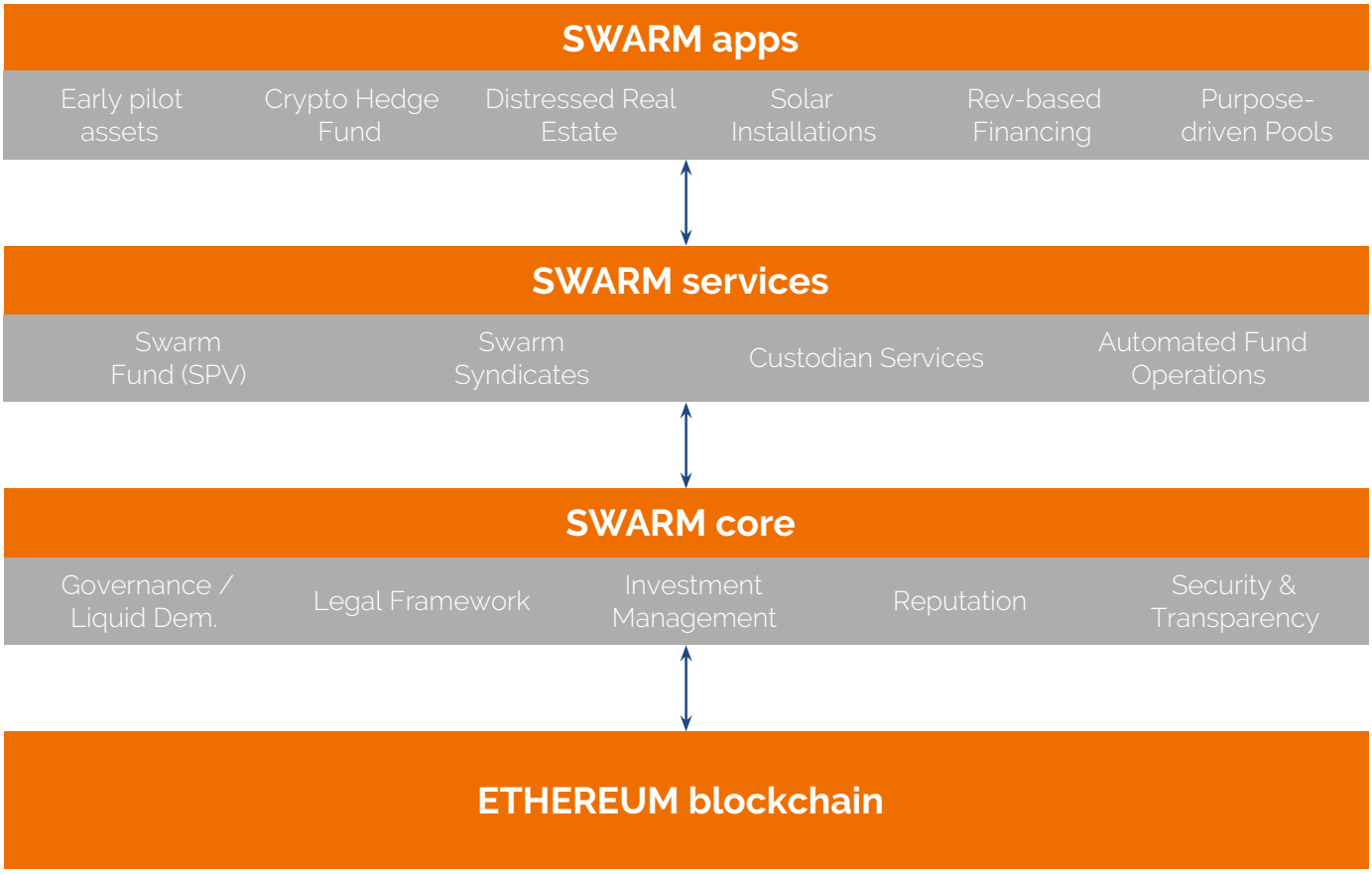
Token Mechanism

Swarm seeks to not only create interesting software, but also a community of those interested in sharing their project opportunities with other Swarm participants.

4. Swarm Platform Model

4.1 SWARM LAYERS

The Swarm platform will be composed of three primary layers: Core, Services, and Application.



Primary Layers of the Swarm Platform

Layer 1: Swarm Core

The Core layer provides the foundational system components and smart contracts for Swarm use: network governance token management with consensus via liquid democracy, and a management interface. This also includes system replications of the preferred legal frameworks, reputational engine, decentralized collaboration, as well as foundational processes around security & data transparency.

The Core layer's framework allows for the creation and management of new projects. It is and always will be free and open to use.

Layer 2: Swarm Services

The Swarm Services layer will offer additional services on top of Swarm Core. These services are meant to make it extremely easy for any participants to build investment applications on top of Swarm and serve the marketplace in the most creative way.

These services will include full-stack setup of vertical Swarm funds (via Special Purpose Vehicles, or SPVs), operating swarm syndicates, asset custodian services, and any automation of ongoing investment operations. More features will be introduced to best meet the requirements of the evolving marketplace. Application templates, customization tools, and advanced data processing capabilities will allow our users to execute their visions faster while lowering the barrier to entry for new investment applications to come to market. While applications and participants are welcome to interact with Swarm on the Core level, we will be offering Swarm Services to accelerate their go-to-market process and reduce operational costs. Swarm Services will be offered using a license-fee model.

Layer 3: Swarm Applications

On the highest layer, on top of the Swarm Services layer or directly operating on the Swarm Core, is the Swarm Applications layer. These applications are both front-end as well as in some cases application back-ends that are specific to target investment use cases and/or target segments.

Our vision for Swarm is to have a wide variety of investment applications built on the same platform technology and liquidity pool.

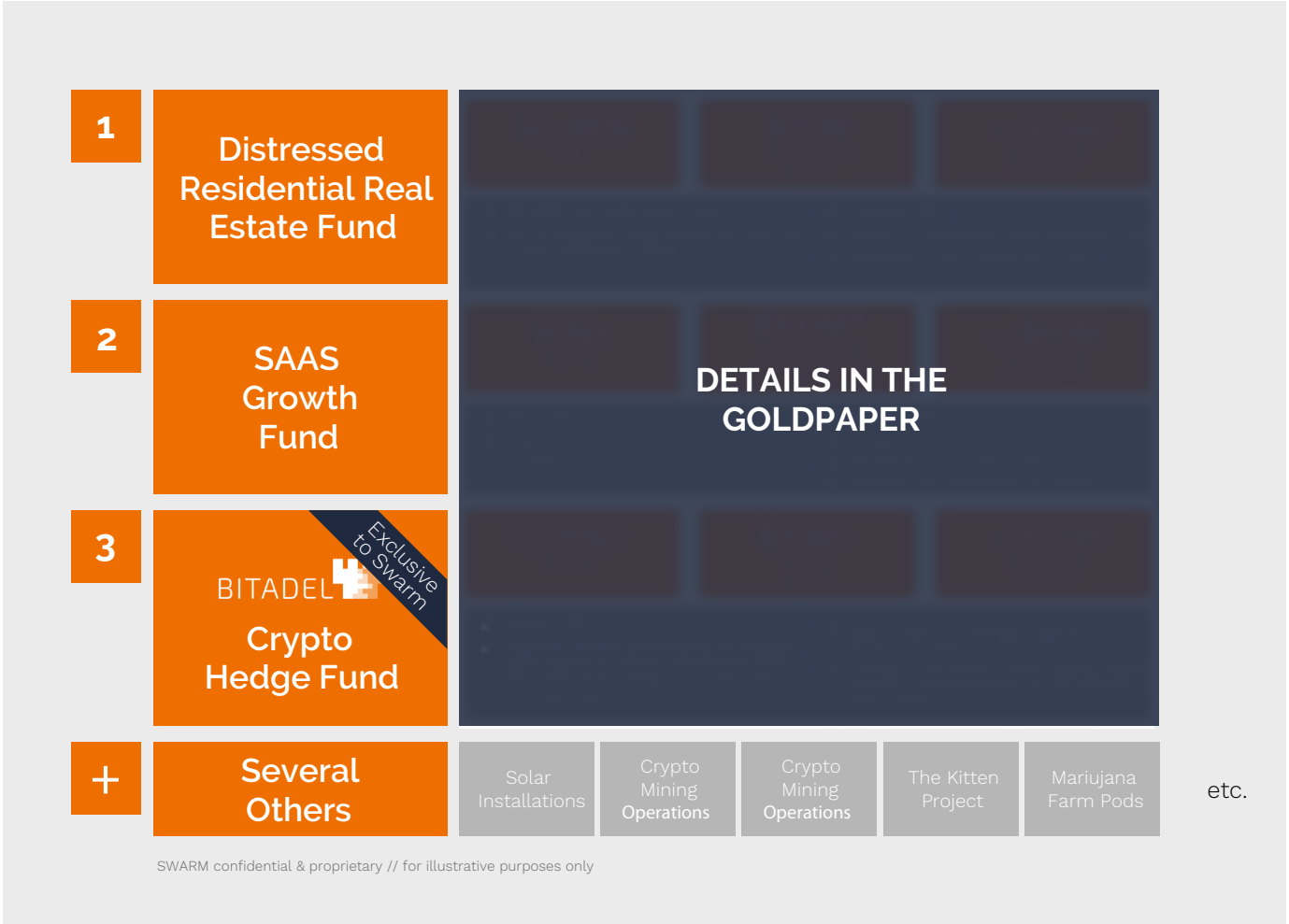
Some of these applications may be built by Swarm, while others will be built by third parties. Our vision for Swarm is to have a wide variety of investment applications built on the same platform technology and liquidity pool. These applications will likely charge additional fees or use alternative business models such as market making, information selling, or revenue/profit sharing. As further described in the following section, many of such Swarm applications may include the release of their own utility tokens as a core component of their business model.

5. Swarm Applications

(Swarm-Supported Asset Types)

With the Swarm investment platform serving as a technology reference framework as well as a global liquidity hub, decentralized application developers will be able to create new classes of investment assets that can be used in any number of simple or complex applications.
The following section lays out defining characteristics of asset classes in which to pilot the Swarm Platform, followed by subsequent sections that highlight a number of use cases that Swarm has identified as interesting target markets and which are readily deployable using the Swarm Platform.

Project Pipeline



Further details of specific opportunities are available to qualified participants in the Swarm GoldPaper.

5.1 CHARACTERISTICS OF PILOT ASSET CLASSES

When launching a marketplace technology it is critically important to (a) build trust with the participants and (b) provide curated pilot use cases that allow the marketplace to take off in the right direction with the right momentum. In identifying the first target asset use cases, we have tried to balance both.

Particularly in light of issues that led to the rise and fall of the DAO, we approached this project with significant diligence and preparation, before being able to bring a market-ready proposal to the community.

We strongly felt it was particularly important in the early stages to (1) demonstrate tangible platform viability, (2) be able to show viability and material attractivity, and (3) be able to quickly scale within the use cases if they prove their efficacy by meeting or exceeding expectations.

Therefore, we invested significant efforts into identifying asset classes that have the following key characteristics, among others:

- Have the ability to start with small amount of investment.
- Show continuous tangible returns.
- Represent a range of risk-reward profiles that are relevant to the crypto investor community and provide relevant alternative asset profiles (e.g. 20%+ ROI annually, focused on global impact, etc.).
- Are well-established and understood from an assessment/ratings perspective.
- Scale to size quickly when the participants are ready.

5.2 CRYPTO HEDGE FUND

Investing in crypto assets presents unique challenges, revolving around trading workflows and asset security. It requires expert knowledge to properly navigate the market and be aware of the latest market dynamics in specialized market verticals, starting with liquidity movements, arbitrage opportunities, or proper assessment of the latest market-influencing industry news.

The syndicate with which we are collaborating forms a crypto hedge fund that strives to be “ahead of the curve” with the goal to simplify value creation for crypto investors by offering the best experience to engage with a network of investors, collaborators and opinion makers. The objective is to present an incentivized platform for vertical experts to trade on their unique market knowledge or data and to provide uncorrelated risk adjusted alpha relative to industry benchmarks. The composite investment strategy includes right-frequency trading of a highly curated portfolio of crypto currencies, derivatives market making, trading between crypto currencies and mining proof of stake tokens. The goal is to create a blend of selected best trades based on proprietary algorithms, market-neutral quantitative models and fully automated execution.

We’ll create a blend of selected best trades based on proprietary algorithms, market-neutral quantitative models and fully automated execution.

5.3 DISTRESSED REAL ESTATE

Real estate investments present a unique opportunity for private equity real asset engagements. Especially interesting are sub-market segments such as distressed real estate primarily focused on judicial foreclosure states. The syndicate leader we have been evaluating has created a machine-driven platform to identify and acquire negative equity real estate in foreclosure auctions and acquiring these “Subject To” existing liens from an impartial federal bankruptcy trustee. During the very long judicial foreclosure timelines this provides 2-3+ years of rental income, and in some cases the fund is even able to clear liens at a steep discount and immediately sell the property at profit. This produces exceptionally high cash returns and is an excellent opportunity, even in an economic downturn.

5.4 SOLAR INSTALLATIONS

There is no doubt that renewable energy, and particularly solar are on the rise and an interesting asset category. The unit economics of producing, installing and maintaining solar panels have improved significantly and made the investment case an interesting opportunity with 20%+ annual returns. Additionally, there are significant tax breaks in different regions globally and more specifically in California, which presents additional major economic benefits. The syndicate operators we have been evaluating have been successfully building an investment platform specifically for this application.

5.5 REVENUE-BASED FINANCING

Recently, we have seen a larger trend of companies being created that have very interesting recurring revenue models. The most prominent model in technology is SaaS ("Software as a Service") where software usage is sold on the basis of subscriptions. But these models are not limited to technology, but exist in many other markets, including subscription-based commerce in food and fashion. For some of these business models, equity-based financing is not an option, either because the expected returns don't meet outsized return expectations of venture capitalists (by design), or the dilution is unattractive to the entrepreneur. The syndicates with which we are working are providing non-dilutive financing in form of revenue-based loans, where they'll give the company a portion of the annualized revenue as a loan, and the company pays it back as a percentage of ongoing revenue until a target return of approx. 1.5-2.5x is achieved. This may be a very attractive option for a target category of companies with recurring revenue of approximately $2-3M annually.

5.6 PURPOSE-DRIVEN FUNDING POOLS

Swarm is also aiming to help generate impact investments for nonprofits and social enterprises that help meet significant community needs and address humanity's grand challenges. We are working to ensure basic needs are met for all people, while sustaining and improving quality of life and mitigating future risks. We hope to involve individuals and institutions who are using their resources for social good, and are looking beyond simply making traditional philanthropic gifts. We seek to help them leverage their capital directly, with a purpose they deeply care about, and perhaps even earn a small gain over time.

We believe the crypto community has successfully proven that it can build incentives for the community itself to create desired outcomes.

We believe the crypto community has successfully proven that it can build incentives for the community itself to create desired outcomes. We envision purpose-driven funding pools, that incentivize the entrepreneurial community to create solutions to meet the challenges and compete for the "bounty" by delivering a "social Proof-of-Stake", similar to the way the X-Prizes have fueled innovation.

6. Token Offering

6.1 TOKEN OFFERING IN BRIEF

Similar to a reverse Dutch auction used in other token sales (Gnosis, OmegaOne), we wish to find the optimal pricing mechanism in order to accommodate as many participants as possible. The market determines the ultimate price of the token.

Our method of doing this is to have an exponential price curve with drip liquidity such that people participating early cannot immediately “dump” all of their tokens.

Additionally, unlike other projects, we are able to effectively deploy funds over the threshold needed for platform development into any of our partner funds. Therefore, the funds used for operational budgets for the foundation are limited to the lesser of 25% of the raise or $20M in crypto funds. The remaining capital is designated to fund Swarm pilot applications on the SUN network.

With the above, the cap share distribution changes in favor of the community. As such, a higher market demand within the sale simply allows for more exchange listings on the SUN network and augments the value of the platform.

This effectively makes Swarm Fund comparable to a government or the endowment model of private universities that maintains its own sovereign wealth fund and funds itself out of the profit of its own investments.

6.2 PRICING DURING SALE

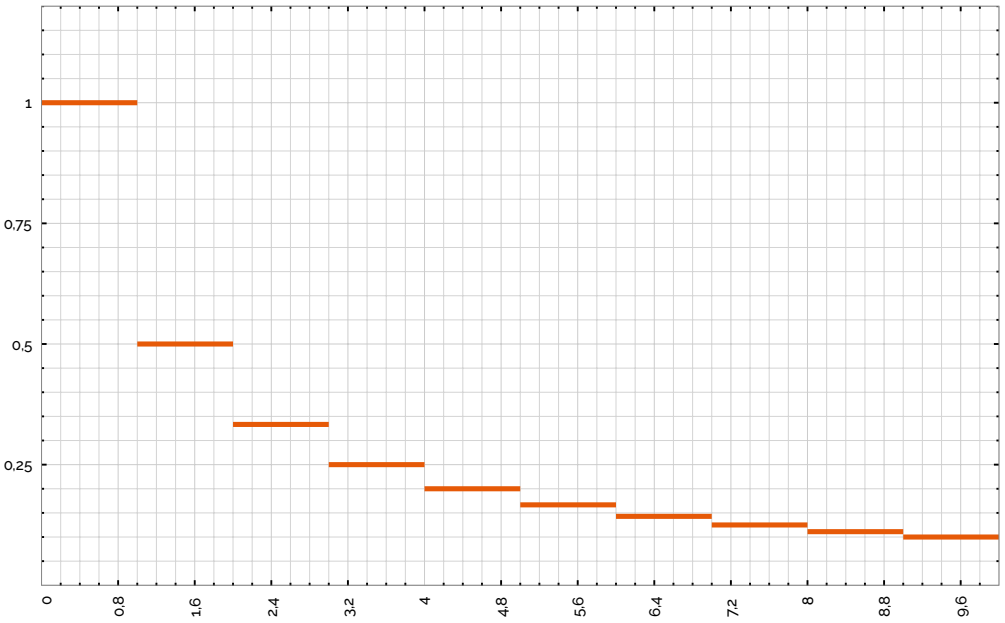
SWARM tokens can only be bought using Ether (ETH). When the sale starts the tokens base price p_o is set at the Ether equivalent of one dollar.

$$p_0 = 1/(ETH\ price\ in\ USD)$$

During the sale, the token price is increased according to a diminishing premium. This premium formula D_n is defined as

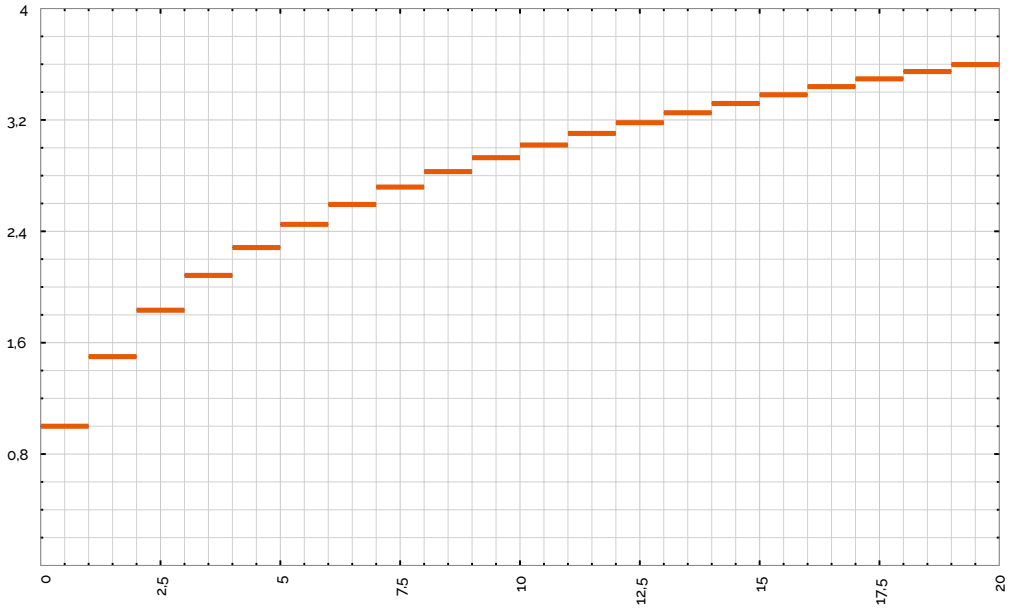
$$D_n = 1/(1 + [n])$$

where n is the number of tokens sold divided by 10^6.



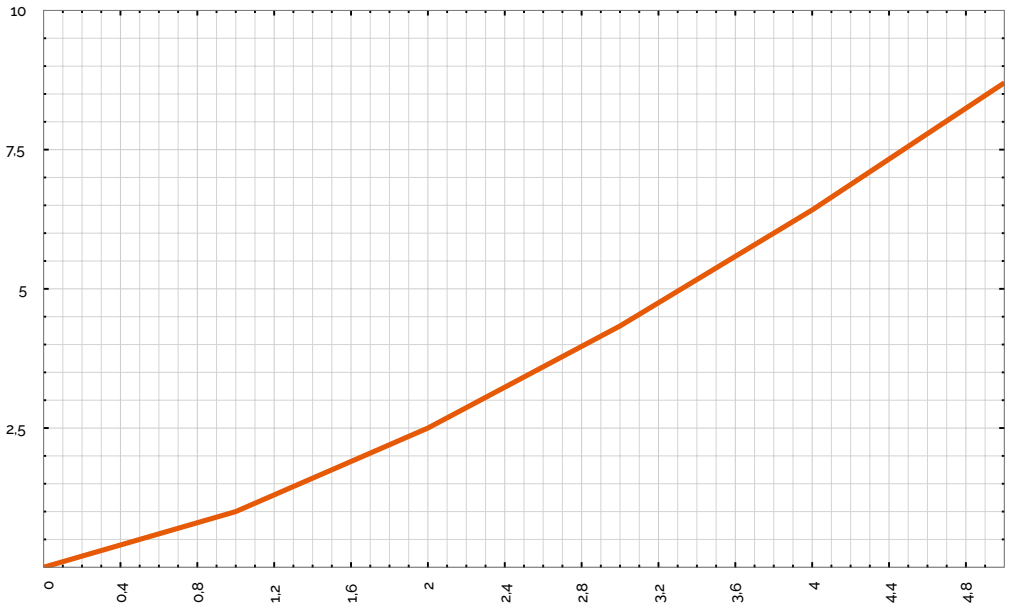
The token price then is

$$p_n = p_0 \times \sum_{k=0}^{n} D_k$$



The total raised by the token sale is simply the integral over this price

$$R_n = \int_0^n p_i di$$



6.3 POST-SALE LIQUIDITY RELEASE

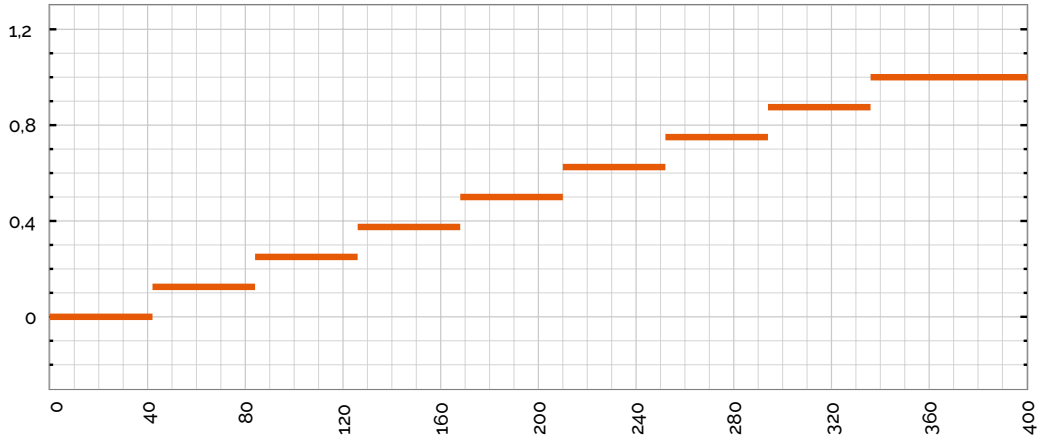
After the ICO, the tokens will gradually become liquid.

That is, if *W* denotes all SWARM wallets, **balance**(*w*) the balance of a wallet *w* and initial(*w*) the number of tokens *w* bought in the ICO then we maintain the following invariant at all times.

$$\forall w \in W. \qquad \textbf{balance}(w) \geq (1 - L_t) \cdot \textbf{initial}\ (w)$$

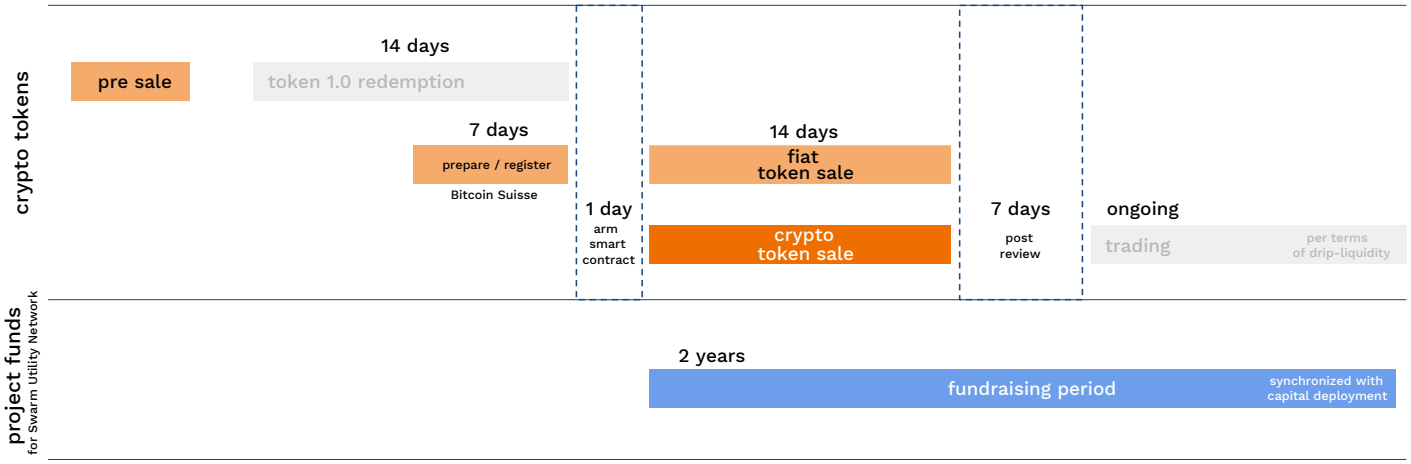
Let $0 \leq Lt \leq 1$ denote the percentage of tokens liquid at time t, denoted in days since the token sale ended. Let $K = 8$ be the number of release moments and $k = 42$ the duration between releases. We use the following function to define the (stepped) token release.

$$L_t = \frac{\min\{K, \lfloor t/k \rfloor\}}{K}$$



6.4 SALE PHASES

Tokens will be able to be purchased through the Swarm website. Exact dates and terms of the token offering and sales process will be communicated at www.swarm.fund. The sales process will be split into six phases, not all of which are sequential.



Phase 1: Pre-sale

The open token sale phase is preceded by a pre-sale phase, where a smaller part of the SWARM tokens are offered to a closed network of value-adding members. During the pre-sale, only crypto currency is accepted.

Phase 2: Swarm 1.0 token redemption

For the members of the earlier bitcoin-protocol based iteration of Swarm who hold tokens 1.0, Swarm are offered through a redemption process, so that these tokens can be converted into the current ERC20 token. Swarm members are able to convert their tokens at the highly preferential rate two weeks prior to the sale.

Phase 3: Fiat Token Sale

To avoid procedural issues with the purchases made with fiat currency, we will setup registration for the token sale in exchange for fiat currency (EUR/USD) to precede the crypto sale. We are partnering with BitcoinSuisse on this process. Once the buyer has registered and funded the account, BitcoinSuisse will be ready to purchase the tokens within the crypto token sale at the applicable pricing at that time.

Phase 4: Crypto Token Sale

The public crypto token sale will run for 14 days and Swarm tokens will only be sold against ETH, based on the pricing mentioned above. Preceding the sale, the smart contracts will be armed with the tokens resulting from the participation in the pre-sale and the redemption process.

Phase 5: Token Liquidity

Following a post-review process, Swarm tokens will become liquid and transferrable based on the post-sale liquidity release, subject to a drip liquidity provision. Depending on exchange listings this might result in immediate tradability of the first tranche of released tokens.

Phase 6: Capital Raise for the Swarm Utility Network

Following the contribution period, Swarm will set up affiliate legal structures for the Swarm Utility Network to take in large ticket capital commitments from investors who understand the larger potential of the blockchain technology to shape the investment landscape. These funds are structured to take in and govern a target amount of $5B asset value, but its design allows managed assets to go beyond that level. As capital commitments come beyond the target amount, a smaller amount of Swarm tokens are issued, as described above. The capital raised for deployment into the Swarm Utility Network will be staged for the next 2+ years and the capital requirements will be determined by the findings gathered from setting up and managing the pilot funds specified earlier.

6.5 TOKEN ALLOCATION

Of the tokens, 33M tokens will go to contributors (past Swarm members, advisors, a pool for future contributors) while 33M tokens will be assigned to the core team. Tokens will be awarded to contributors by the “fair equity” formula of expected increase in token value as decided by core team members and community.

As described in more detail above, there is a target--yet not a fixed number of tokens--to be sold to the community. With higher demand in the token sale, the share of token distribution owned by the community can significantly increase.

7. Roadmap

7.1 KEY ACTIVITIES & PARTNERSHIPS TO DATE

For the past 9 months we have been executing on key activities and pursuing various key partnerships:

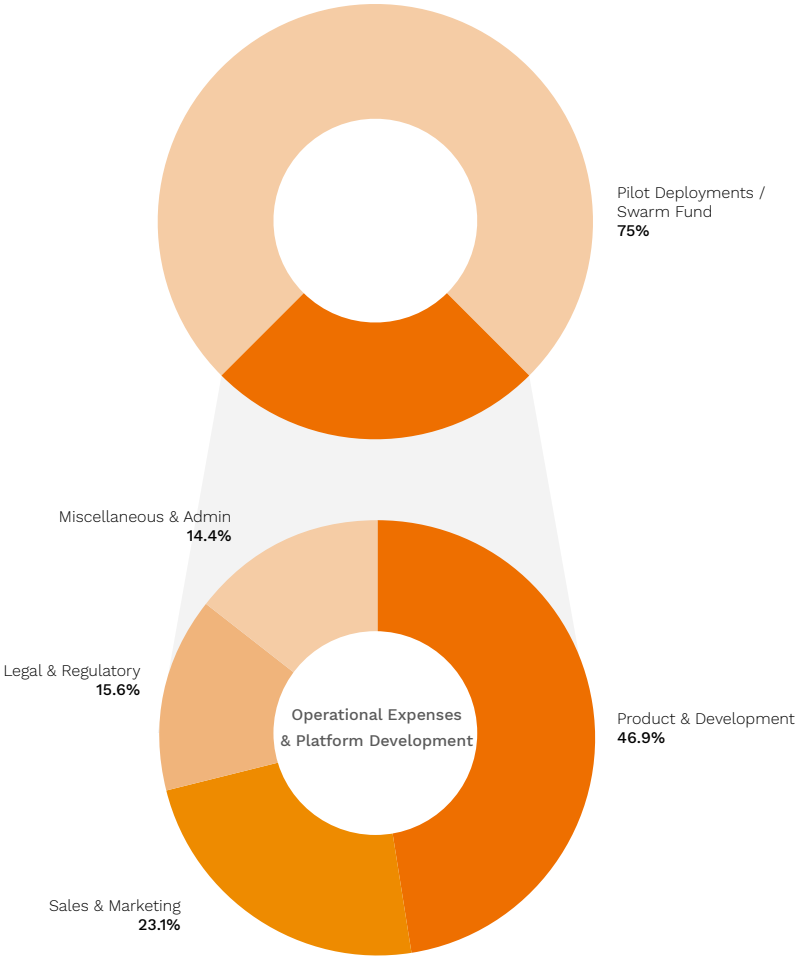
- Our team developed concrete trusted project opportunities, with a goal of showing successes and pushing the marketplace in the right direction.
- The initial deploy of the Swarm platform has been live on the Ethereum test net for over 6+ months. We are planning to release the next major software update in 3-6 months.
- Substantial work has been performed toward viable legal frameworks for Swarm initiatives.
- Swarm is actively pursuing high profile partnerships within the Ethereum ecosystem, the financial sector, and other fields.
- Initial work is in progress with regulators/ institutions in different jurisdictions, including service providers for E-infrastructure and AML/KYC.
- Ramping up community engagement efforts with growth in social media following, Swarm has been facilitating events such as the Decentralized Autonomous Society, which has had 23 meetups on various aspects of decentralized governance since 2014. Notable presentations include speakers such as Vitalik Buterin, Ralph Merkle, the DASH team, and associates of Doug Engelbart.

7.2 FINANCES

In our token launch, we are projecting to raise $50M USD denominated in ETH. For capital allocation, the main principle is that the lesser of 25% of funds raised or $20M will go towards operational expenses and platform development. The remaining funds will be deployed towards the initial pilot fund opportunities. That way, a higher fund raise does not increase budgets for the operations of the foundation, but benefits the implementation and impact of the overall Swarm model.

Our current team members have managed individual portfolios in excess of $3B and built platforms with an excess of $32B in deal flow. Fund usage will be split approximately evenly between platform and application development.

Use of Contributions



Funding Breakdown: Use of contributions

Pilot Deployments / Swarm Fund: As further described in Section 5, Swarm plans to develop pilot Swarm Application segments with highly curated and trusted partners. The goal is to pilot the platform and demonstrate its viability and best-in-class applicability. Swarm may run these engagements as evergreen opportunities, or decide to divest over time, while the proceeds after disengagement could be used for further development of Swarm.

Product / Development Cost: Platform development will include building upon and securing core smart contracts, additional frameworks such as a decentralized reputational engine, trading and management interfaces, service level app templates and customization tools, and integrations with future Ethereum or other blockchain infrastructure such as state channels and stablecoins. We will develop certain custodian components and work with experts for custodian services (e.g. Ledger).

Legal & Regulatory Costs: Legal requirements include corporate setups in different locations for crowdsale, operations, and other licenses. Post launch we will work with legal advisors and regulators in different jurisdictions to develop legal opinions of the interpretation with local laws, and become compatible with e-infrastructure and AML/KYC infrastructures in different markets. Ongoing resources will be required for investment and possible other use cases of legal work. A legal contingency fund will be reserved in case of future issues.

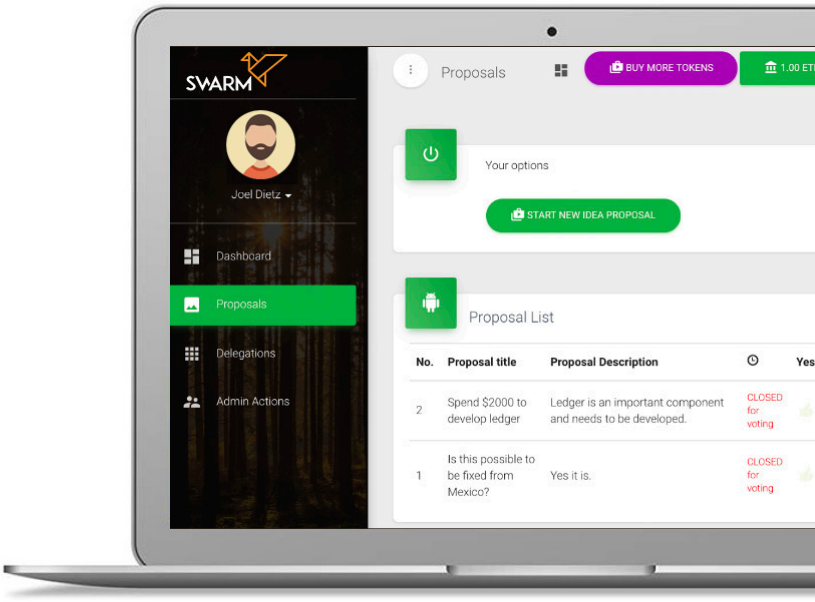
Marketing & Sales: Sales and business development efforts will be focused on identifying and forming relationships with new projects and existing partnerships which can be built on Swarm. Marketing will be focused on promoting Swarm applications to potential customer segments and markets. Additional efforts will be spent on increasing awareness and knowledge of the Swarm Platform and what can be built with it (applications, etc).

7.3 DEVELOPMENT ROADMAP

Current State

Swarm has been under development for over 12 months, starting in May 2016. Since then there have been multiple iterations of the core elements of Swarm. These include the smart contracts powering the framework as well as the general web interface.

The Swarm platform has a fully operational model that has been undergoing alpha testing since November 2016. With the release of this whitepaper we will be offering access to the private beta with a linear purchase schedule. The current operational demo illustrates the principles of network democracy, including purchasing of stake, stake-based voting, and voting delegation.



Current Active Interface - Live Demo at http://liquid.qhoss.com

Future Development

Phase 1 (Quarter 1&2):

- Build office in Silicon Valley: The team has already been part of the vibrant Ethereum community in the Bay Area and will manifest an office location.
- Swarm Platform MVP: Funds will be used to develop a canonical version of the trust network, the fully automated self-funding structure, additional features for extensibility and automation. This private beta period is expected to last six to nine months and any changes will be decided by network members. Additionally we will be pursuing solid integrations into the legal system for the possession of real assets. Funds will be governed by the private beta with a non-profit used as a failsafe in case of any non-optimally operating smart contracts.
- Release Swarm MIR (make it rain) DApp: A virtual crypto asset portfolio tracker, where users can build and simulate portfolio trades.
- Develop Swarm.js beta & smart contracts beta: Swarm.js is an easy-to-use tool to enable every website developer to build applications on top of Swarm. Swarm.js will integrate with redesigned, more modular smart contracts.
- Swarm Syndicate management interface alpha: An extended interface to create, maintain and govern investment projects, which will be tested out by Swarm Fund team as well as trusted pilot syndicate users.
- Decentralized reputational engine: Evaluation of viable solutions and start of integration will commence.
- Swarm SUN functionality: Together with the first end-user facing application we will enable the SUN functionality for paying SUN fees and releasing SUN tokens.

Phase 2 (Quarter 3&4):

- Swarm Syndicate management interface beta: Build out processes around governance, reputation and project reporting.
- Swarm trading interface alpha: The generic Swarm interface is not designed to meet the requirements for a trading application. Therefore Swarm will be working on additional interfaces dedicated to traders, which make SWARM and SUN tokens professionally tradeable. Swarm seeks to combine forces with other teams to build the basic layers required to offer a decentralized exchange, with Swarm adding layers required to offer trading of asset backed tokens. We might consider working with existing exchange partners such as Kraken, Poloniex, 0x or other trading platforms to provide a seamless and integrated user experience.
- Swarm MIR 2.0 DApp: Integration with exchanges to trade parts of phantasy portfolios and compete with other traders; integration of SUN token assets.
- Legal automation alpha: Underlying the Swarm platform our goal is to automate most of the administrative processes related to foundation of SPVs (special purpose vehicles) and fund deployment. We seek to work with e-governance providers to make this as seamless and scalable as possible.

Phase 3 (Quarter 5&6):

- Swarm Market Place: Once the underlying processes of project creation and management have been battle-proven with pilot users, Swarm will open this functionality to the broader public; in anticipation, we need to develop curation processes to facilitate market health and project validation, including Participant Ratings, Decentralized Collaboration and Community Voting to veto projects.

8. Leadership

8.1 CORE TEAM

Joel Dietz
Joel Dietz co-founded the first smart contract educational channel (EtherCasts), the Ethereum Silicon Valley meetup, wrote the original "AppCoin Manifesto," and built the first decentralized asset and governance platforms on the Bitcoin blockchain. His facilitation of the "LoveNest" blockchain-community living space setup in Palo Alto has included many presentations on Decentralized Autonomous Society, DAO Democracy, Futarchy, and Liquid Democracy. He holds degrees from Brown University and the University of Pennsylvania and has won prizes from Google and Salesforce.

Philipp Pieper
Philipp is a serial tech entrepreneur and became interested in decentralized technologies in 2015, when interacting with BitTorrent, Inc. and the Mozilla Foundation. Philipp has been a start-up entrepreneur for the past 15 years and is a veteran in the digital data space. After holding various private equity and management positions within Deutsche Bank and Allianz Group, Philipp was founder and CEO of Proximic, a global data provider for digital media buyers (acquired by comScore in 2015), and is mentor at various accelerators such Stanford's StartX, Singularity University, as well as TechCode. He holds degrees in engineering and business administration and attended Berlin University of Technology and UC Berkeley, Haas School of Business.

Timo Lehes

Timo has over 20 years of experience from starting, running, exiting and investing in software companies. Timo has served as an investor and executive in technology companies, with extensive experience from building, running and investing in software companies and leading various merger and acquisition deals. Throughout his career, Timo has invested in more than 40 companies. With a specific focus on Financial Technology or fintech, he has contributed to the creation of several alternative investment platforms. He currently serves as a board member at BankerBay, the world's largest deal origination platform for mid-market Private Equity deals. He holds degrees in engineering and business administration from Chalmers University of Technology and early stage investing from continuing studies at Stanford School of Business.

Jelle Herold

Jelle is a creative thinker/hacker with background in art, mathematics, physics and computer science. He wrote one of the earliest smart contract implementations pre-blockchain and is the author of a new logic-programming language for smart contracts that can be deployed across blockchains. He has a decade of experience in leading open-source development projects and a degree in Artificial Intelligence from University of Utrecht, The Netherlands. In the last three years Jelle participated in and won various hackathons, such as "hack4good".

Anton Livaja
Anton is an experienced full stack web developer from Toronto, Canada and the CTO of Thoughtfile. He is actively involved in the tech community and is a tutor at General Assembly's Bitmaker Labs, Canada's leading tech-skills accelerator. He shares his passion for technology by advising companies and developing software in emerging technologies.

"Jazzwall" Sharad Jaiswal
Jazzwall has been implementing and orchestrating enterprise IT projects and graduate tech-training programs at Swiss and Wall Street banks for the last decade. Hard to put in a box, he is a project manager, full stack developer, professional photographer, entrepreneur, and very interested in crypto markets.

Sebastian Romero
Sebastian is an AI and blockchain researcher at Sensorica (Montreal), board member at Airbnb's blockchain alternative Fairbnb (Amsterdam), and serves as the main editor of the Platform Co-op Handbook. He studied at the UoL London School of Economics.

Caterina Rindi
Caterina is an international blockchain educator and public speaker, and was the Community Manager of Swarm 0.1. She comes from a background in education and non-profits; through her efforts tapping existing peer-to-peer resources and developing more scalable opportunities, she became involved in the bitcoin and blockchain ecosystem in 2013. Today, Caterina lends her expertise to fintech startups as well as other clients in industries ranging from P2P collaborative economies, consumer products, governance, and healthcare. Caterina holds a degree in psychology and education from the University of California at Davis.

8.2 CAPITAL MARKET ADVISORS

Mark Oei

Until end of 2016, Mark was at Sequoia Capital where he served as Managing Director of the venture capital firm's Heritage Fund, a multi-strategy vehicle offering institutional investors and family offices investment exposure to multiple asset classes. As leader of the Real Asset group Mark has been seeking opportunistic real estate investments both domestically and abroad. Earlier, Mark was a managing director focused on real estate at Oaktree Capital Management, one of the largest institutional alternative investment managers in the United States, and was VP at Morgan Stanley focused on acquisitions for the Morgan Stanley Real Estate Funds.

John Edge

John is a capital markets expert and currently Connection Science Fellow at MIT, as well as chairman of Identity2020, a blockchain-based platform to make digital identity part of basic human rights. Among other positions he was co-founder of RedKite (real-time trading surveillance), head of Electronic Client Solutions EMEA at JPMorgan, director of Electronic Trading EMEA at Lehman Brothers and director Portfolio Trading & Advisory EMEA at UBS Investment Bank.

Gwen Cheni

Gwen is the assistant portfolio manager on both the equity and convertible products at Pier 88 Investment Partners, LLC, a San Francisco-based alternative asset management firm. Earlier, Gwen was a senior equity analyst at Brown Brothers Harriman, Lord Abbett, and a research analyst at Legg Mason Capital Management. She also worked as an associate equity analyst at J.P. Morgan, and started her career as an analyst at Goldman Sachs. She received her B.A. from Yale University with a major in economics and minor-equivalent in Computer Science and Electrical Engineering, where she graduated summa cum laude and Phi Beta Kappa. She received her M.B.A. in four concentrations from The University of Chicago Booth School of Business with honors. She is a C.F.A. charterholder.

8.3 LEGAL AND CO-OP ADVISORS

Houman Shadab

Houman is a professor at New York Law School and the cofounder of Clause.io. He is a prolific and influential expert at the intersection of law, business, and technology. His research focuses on financial technology, smart contracts, hedge funds, derivatives, commercial transactions, and blockchains. Professor Shadab is a director of the Center for Business and Financial Law and also serves as the editor-in-chief of the Journal of Taxation and Regulation of Financial Institutions. He often advises companies and financial institutions on issues relating to compliance, litigation, and operations, and serves on the advisory board of several tech startups. Mr. Shadab has testified before the federal government several times, including before the Commodity Futures Trading Commission on Bitcoin derivatives and before the Congress on hedge funds at a hearing that included George Soros and other leading figures from the hedge fund industry. He is often invited to speak at high-level swift academic and practitioner events, including for The Economist, Stanford's Future Law conference, Consensus 2015, the SWIFT Business Forum, and the New York State Bar Association annual meeting.

Robert Rosenblum

Robert Rosenblum is a corporate and securities partner in the Washington, D.C., office of Wilson Sonsini Goodrich & Rosati. Rob focuses on the representation of financial

services firms in sophisticated regulatory, transactional, and product development projects, advising them on federal securities laws and related financial services laws and regulations.

David Bollier is the author of "The Wealth of the Commons: A World Beyond Market and State," in which he explores the commons as a new paradigm of economics, politics and culture. He is also a contributor to the "Distributed Collaborative Organization" model.

8.4 TECHNOLOGY ADVISORS

Noah Thorp
Previously, VP of Engineering at Nasdaq Private Markets, expert in organizational design, and current CEO of Comakery, an ethereum-based token issuance platform.
https://github.com/aquabu

Gustav Simonsson
Previously of Ethereum Foundation, DFinity, and String Labs, as well as a DAO curator.
https://github.com/Gustav-Simonsson

Anish Mohammed
Bioinformatician, cryptographer, and hacker. Co-founder Obol & Openeth.
https://github.com/zeroknowledge

Bogdan Fiedur
Bogdan wrote the first liquid democracy DAO in Ethereum smart contracts which was adapted for Swarm Fund purposes.
https://github.com/win2win

8.5 GOVERNANCE AND ORGANIZATIONAL DESIGN

Michael Casey
Senior advisor for Blockchain Opportunities, Digital Currency Initiative, managing partner of the Agentic Group, and author of three books on Blockchain and the future of organizations.

Christian Jacken
Co-founder Liquid Democracy, former Global Bitcoin Alliance, EFF supporter.

Adam Apollo
Adam is the founder of the Guardian Alliance and trust.exchange

Brad Nye
Founder of Tribalize summit and Burning Man organizer.

8.6 PARTNERS

Bitcoin Suisse
https://www.bitcoinsuisse.ch
We are using Bitcoin Suisse to handle large fiat payments and AML/KYC.

Bitwala
https://www.bitwala.com
We are using Bitwala's payment processing and banking services for ourselves and our partners.

Otonomos
https://www.otonomos.com
We use Otonomos to automate the creation of special purpose vehicles and funds in multiple legal jurisdictions.

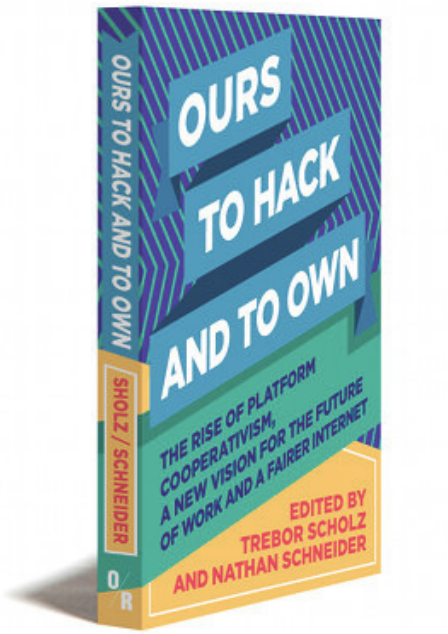
Aragon
https://aragon.network
We intend to integrate a liquid democracy module with Aragon's upcoming package manager and to use their application to manage voting.

Gnosis
https://gnosis.pm
Gnosis' forthcoming 'futarchy as a service will be integrated in our existing liquid democracy modules.

Wings
https://www.wings.ai
We intend to use the Wings prediction service to estimate the target size of our own raise and other sub-asset tokens.

Distributed Lab
https://distributedlab.com
We anticipate using some of the digital asset and banking infrastructure developed by Distributed Labs as part of our private blockchain solution.

9. Legal Innovations



Swarm co-organized legal summits at Harvard and Stanford in which the Distributed Collaborative Organisation model was established[5]. Legal experts suggested that the integration of a collaborative governance layer to a distributed organization would make it a membership organization similar to a co-op. We have remained active participants in the evolving platform co-op movement and Internet of Ownership (https://ioo.coop/) movements, including a section in the book "Ours to Hack and to Own." (https://platform.coop/book).

Swarm has consistently and openly stated its intent to democratize finance and proactively engaged with regulators including the SEC, FCA, and regulators in several other countries. As a result of advice from top legal experts and regulators, Swarm has operated for the last two years under the unincorporated non-profit association terms as described in the results of the Harvard summit with the intent of creating a global platform cooperative.

To actualize these aims, Swarm has established the following legal entities:

Quantum Holonic Swarm Systems (USA)
Swarm Operations (Germany GMBH)
Swarm IP (Singapore)
Swarm Research Foundation (Panama)
Ethereum Alpha Fund (Cayman)
Bitadel Master Fund (Cayman)
Swarm Asset SPVs (Estonia, etc.)

Most of these are newly operational with the exception of Quantum Holonic Swarm Systems which has independently been conducting research and events from its Palo Alto office, including partnerships with Institute for the Future, Microsoft, Intel, Ikea, H&M, Walmart, EO Works, The Rulebreaker Society, and others.

[5] "Distributed Networks and the Law," http://www.bollier.org/sites/default/files/misc-file-upload/files/DistributedNetworksandtheLaw%20report,%20Swarm-Coin%20Center-Berkman.pdf

The contribution period is a collaboration between the above entities with the intent of taking the “Distributed Collaborative Organization” model and a creating a legal entity which is owned and governed by the token holders. Rather than depend on a single legal firm to implement this, we will create a bounty system to award the first several teams that manage to create token-governance systems that integrate into the legal and tax systems of respective nation states.

The current board members are Philipp Pieper, and Timo Lehes, with three spots left to be filled by either community contributors or managing directors of partner funds dependent on a vote of the token holders. Joel Dietz will retain a veto on major decisions. Board seats will go up for vote every six months.

Additionally, all of the currency related aspects of our implementation, including actions of all sub-funds, are performed on a private blockchain implementation. This allows us to implement all standard AML/KYC procedures and reporting as established by industry best practice.

Additionally, Swarm has innovated on several legal models related to tokenization, including convertible notes, intellectual property, governance, Szaboian Nested Intent, and various forms of Ricardian Contracts. We expect to push forward over the next years as we establish case law in various jurisdictions.

Due to the retrospective nature of regulatory action, the Swarm team can make no guarantees regarding the legality of the platform or launch in any given jurisdiction. Regardless, we are confident in, and proud of, the work we have done to shape Swarm into what we hope is a model of regulatory compliance for decentralized applications and token launches. We will be responsive and collaborative with any regulators as necessary going forward.

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SWARM FUND WHITE PAPER

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