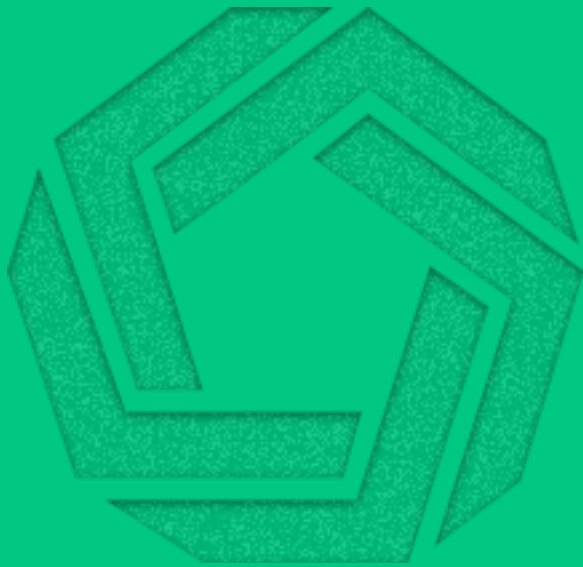


# MORPHER WHITEPAPER



Martin Fröhler & Denis Bykov

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# 1. Problem

With an average annual revenue of USD 500 billion and an estimated USD 558 trillion in stocks, forex, and derivatives contracts, the trading and investing industry is the biggest industry in the world. Despite its size and importance, trading remains burdensome, costly, and unfair.

The industry consists primarily of middlemen like banks, brokers, and index funds, who charge obscene fees for bad service. Despite paying high commissions, retail traders do not have access to important markets like real estate or commodities, can only trade during regular exchange hours, and have a hard time shorting the markets. Many traders from developing countries do not have access the world's financial markets at all. While institutional investors usually enjoy universal access, they often face limited liquidity resulting in high transaction costs from slippage and market impact.

# 2. Solution

Morpher replaces middlemen like brokers, exchanges, and the counterparty of a trade with an incorruptible protocol on the Ethereum blockchain.

Morpher introduces an ERC20 Token (MPH) on the Ethereum blockchain that can be staked on the price development of a market, e.g. the Apple stock. If the market develops as predicted, the protocol mints new token proportionally and adds them to the user's stake. If a prediction is incorrect, staked token are burned proportionally.

The protocol replicates the economics of trading any market on the blockchain, without actually trading the underlying stock, commodity, or currency.

**Morpher is the ultimate staking platform.**

## 3. Features



There are no trading fees.



There is no minimum capital requirement.



Every market can be shorted.



The Protocol can turn any data feed into a market. Morpher can create entirely new markets like real estate, the cannabis spot price, or corporate fundamentals.



All markets can be traded 24/7, whether exchanges are open or not.



Traders enjoy infinite liquidity on all markets, since any amount can be staked on a market without affecting the underlying price. Morpher does not depend on a liquid underlying market.



The Protocol can support any leverage.



Fractional trading, stake any amount of token for the perfect portfolio.



The key feature of the Protocol is the lack of a counterparty. The Morpher Protocol eliminates the need for intermediaries along with the need for a trade counterparty.

**Only the Morpher Protocol lets you short JP Morgan Chase on a Sunday night with as little as \$1.**

# 4. Impact

## 4.1 Access

Billions of people in developing countries have been excluded from western capital markets either by regulations, by companies rejecting them as customers, or simply by steep initial capital requirements. In times of low or negative interest rates and central banks printing money at will, people are in desperate need of market access as it is the only way to preserve wealth. Via Morpher, global capital markets will be available to anyone for the first time.

Morpher levels the playing field not only globally, but also between retail and institutional investors. Retail investors often had to sit on the sidelines when the markets turned, or when exchanges were closed. Now they get even better market access than institutions.

## 4.2 Liquidity

Two sided markets always lack liquidity, as there is only a finite number of buyers and sellers at any given time. Morpher lifts any liquidity constraints. Trading with infinite liquidity is unprecedented, and eliminates dependence on other market participants. Previously illiquid markets like the real estate will become liquid via Morpher.

**“Free markets are awesome and liquidity creates wealth. Morpher is creating infinite wealth!”**



**Tim Draper**  
Legendary Crypto Investor

## 5. How It Works

Users interact with the protocol by staking MPH Token on the price development of a market. Every stake is recorded on the blockchain and called a Virtual Future.

Staked MPH Token get burned when a Virtual Future is created. Upon closing a Virtual Future, MPH Token are minted proportionally to the current value of the Virtual Future, and the Virtual Future is deleted from the blockchain.

1. 100 MPH staked to buy Apple stock.
2. Apple's stock price moves up 10%.
3. Close the stake and get 110 MPH.

Virtual Futures replicate the economics of trading the Apple stock without trading the underlying. Unlike regular Futures, Virtual Futures do not expire and track the price development of the underlying until the Virtual Future is either closed by the user or gets liquidated.

Virtual Futures are always denominated and settled in MPH Token. Just like with regular trading, a user benefits from rising market prices by buying (going long) with their Virtual Future. The reverse is true for falling prices, users that created sell (short) positions benefit.

## 6. Trading Mechanics

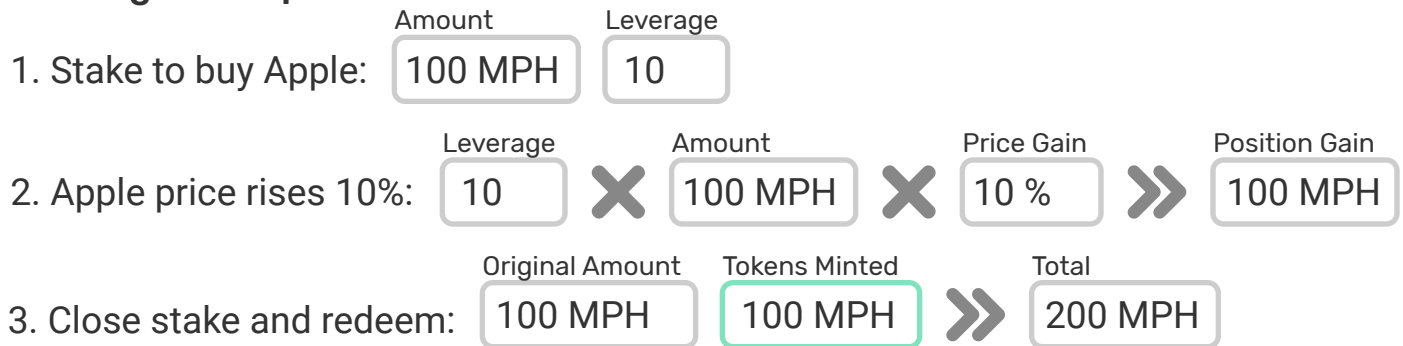
### 6.1 Fractional Shares

Virtual Futures can be created with a fraction of one MPH Token. On traditional exchanges only whole numbers of shares, options, or contracts can be bought or sold. The Morpher Protocol does not impose minimum capital requirements and supports fractional Virtual Futures. Users simply specify the amount of MPH Token they want to allocate to a market instead of having to worry about buying whole shares.

### 6.2 Leverage

The Morpher Protocol allows the creation of Virtual Futures with any leverage (currently set to a max of 10x). A leverage of  $x$  simply multiplies the price change of the observed underlying market with a factor of  $x$ .

## Leverage Example

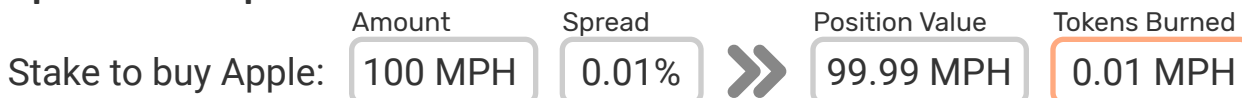


There are no fees for leveraged trading.

## 6.3 Spreads

All markets on Morpher have a spread, i.e. a small difference between the bid and the ask price. Spreads on Morpher are comparable in size to spreads on traditional two-sided exchanges. They help replicating the trading mechanics of traditional exchanges and mitigate predatory scalping and arbitrage. Spreads on Morpher are not fees. They are not collected, and we do not profit from them. Moreover, spreads serve an economic purpose. Every opening/closing of a Virtual Future implicitly burns a tiny amount of MPH Tokens.

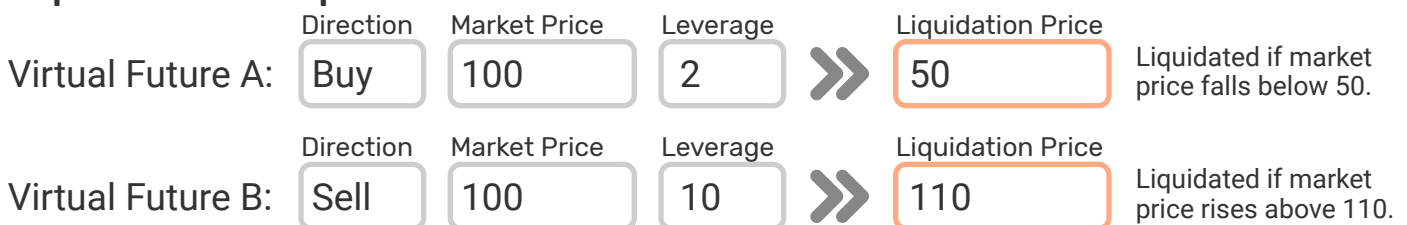
### Spread Example



## 6.4 Liquidations

Every Virtual Future has an associated liquidation price computed at its creation. The liquidation price denotes the price/value of the underlying market at which the Virtual Future becomes worthless. The liquidation price depends on the direction of the Virtual Future (buy/sell) and the leverage.

### Liquidation Example



If the market price reaches the liquidation price of a particular Virtual Future, the staked MPH Tokens are permanently destroyed. The Virtual Future is liquidated and deleted from the blockchain.

## **6.5 Fees**

There are no fees for trading on Morpher, and there never will be.

## **7. Dapp**

To create the perfect trading experience, we built a uniquely beautiful and easy to use decentralized application (Dapp). We found the best balance of simplicity for beginners without skimping on features that professionals require. Crucially, the Dapp abstracts away the complexities of our blockchain architecture, enabling trading for everyone (not just crypto geeks). Most users will experience Morpher only through the Dapp, never needing to worry about the intricacies of the protocol.

### **7.1 Plasma Enabled UX**

The Dapp routes all protocol interactions exclusively through the Morpher sidechain for a significantly better user experience. Firstly, trades are executed lightning fast in just two seconds. Moreover, running on sidechain means users no longer need ETH for every trade. Without gas fees users save even more, without needing to pay anything to transact. This also removes a big barrier to entry: users no longer need to find somewhere to purchase ETH before they can make a trade. Lastly, our sidechain enables greater access controls, an important part of providing a safe and compliant platform. We see it as the best of both worlds: eligible users get a far better user experience, while decentralization maximalists can always use the mainchain protocol.

### **7.2 Protocol Augmentation**

Users can do everything in the Dapp that can be done via the Morpher Protocol, and much more. More importantly, the Dapp augments the protocol, allowing us to build amazing new features without modifying the protocol layer.

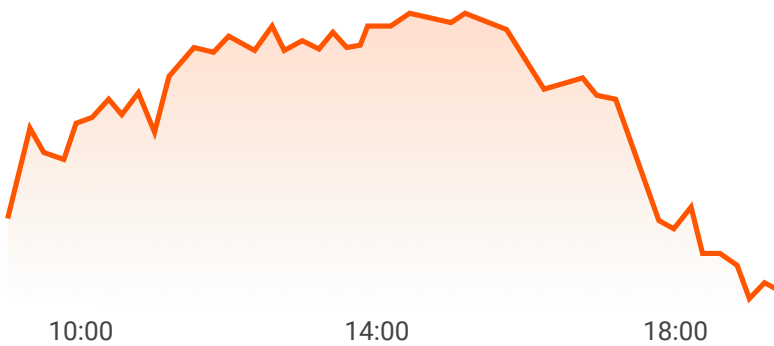
#### **7.2.1 Live Prices & Charting**

The Morpher Dapp provides users with live market prices for hundreds of markets. All streamed with minimal lag directly to any device.



Amazon.com Inc.

3045.28 -14.94 (-0.49%)



**Buy** **Sell**

---

Amount

Market Price 3128.24

Leverage 6.6

**Buy AMZN**

## 7.2.2 Intuitive Trading

Placing trades through the Dapp is incredibly easy, yet secure. The only choice a user has to make is whether they want to buy or sell, and how many MPH they want to invest on this trade. There is no more complicated math with shares and market prices.

Advanced traders can hover over the market price to see spreads. All these numbers automatically update when users add leverage.

## 7.2.3 Portfolio Tracking

Users can build their perfect investment portfolio through the Dapp. It provides a clear overview over all existing positions by asset type, portfolio weight, return, and more. Just as markets in the Dapp update live, so do positions and their values.

## 7.2.4 Wallet Management

Deposits and withdrawals are made easy through the Dapp. Additionally, critical wallet functions are built directly into the Dapp, so users do not have to dig through menus in their crypto wallet.

## 7.2.5 Leaderboard

Traders are competitive, and the user leaderboard allows everyone to really benchmark their performance. It is the foundation of great features to come like social portfolios and competitions.

	kaziqpl	27%
	leo762	62%
	davud_m4b	10%

## 7.2.6 Mobile Trading

Every Dapp feature is compatible with mobile browsers, allowing users to monitor and execute trades on the go. A native iOS/Android app will improve the trading experience even further, coming later this year.



# 8. Protocol Architecture

On a high level, the Morpher Protocol consists of a set of smart contracts and an oracle service. The smart contracts are responsible for processing trades, managing Virtual Futures, and setting MPH Token balances. Meanwhile the oracle connects the Protocol to live market data. With plasma scaling, traders can get an incredible user experience through our Dapp and sidechain, or interact directly with the Protocol on the Ethereum mainchain.

## 8.1 The Oracle

The Ethereum blockchain is a self-contained system with no connection to the outside world. The Morpher Protocol depends on market data for computing Virtual Futures, trading profits, and losses. Morpher hosts a service called 'Oracle' connecting its protocol to data from the outside world. The Oracle connects to various API endpoints of third-party data vendors providing real time market data.

To ensure the Oracle always has correct real-time market data, multiple redundant data-feeds are collected, cleaned, and consolidated in real time. If there are deviations between data feeds observing the same underlying, the spread of the market is increased temporarily by the maximum price difference between the feeds until the feeds are back in sync again.

Whenever a user requests a trade, the current price of the market is written to the blockchain by the Oracle.

## 8.2 Scaling via Plasma

As of June 2020, the Ethereum blockchain can manage no more than 20 transactions per second. That is nowhere nearly sufficient for a protocol like Morpher, aiming to become the world's biggest and most active trading platform.

To enable a throughput of several thousand transactions per second while keeping transactions free of charge, the Morpher Protocol is deployed both on Ethereum and on a proof-of-authority sidechain (<https://sidechain.morpher.com>) hosted by Morpher.

As suggested by Vitalik Buterin and Joseph Poon in their paper “**Plasma: Scalable Autonomous Smart Contracts**”, the sidechain is linked with Ethereum via the root hash of its Merkle Tree. The state of the sidechain, i.e. all its balances and positions are hashed and merkelized. The root hash of the sidechain Merkle Tree is updated on the Ethereum blockchain in periodic intervals (initially: 1 hour). This way there is cryptographic proof of all balances, token, and transactions of the sidechain on Ethereum. Should the sidechain ever break down or cease to operate for whatever reason, all MPH Token and Virtual Futures held there can be recovered on Ethereum.

Users can choose whether to interact with the protocol directly on Ethereum or via Morpher's sidechain. Both methods come with their own advantages and disadvantages.

## 8.3 Mainchain Trading

**Advantages:** trading on the Ethereum blockchain provides the user with the robustness of a decentralized protocol. MPH Token balances and Virtual Futures are recorded directly on Ethereum. MPH Token can be moved between accounts or to an exchange.

**Disadvantages:** trading is significantly slower, as Ethereum has an average block-time of 15 seconds, and a trade needs at least two blocks to complete. Morpher does not provide a graphical user interface for trading on Ethereum. Users need to have a good understanding of how to interact with smart contracts on Ethereum, and pay gas costs (the fees for using the Ethereum network) for every transaction in Ether, Ethereum's native currency. The transaction throughput is limited on Ethereum, which may lead to high costs or long delays in times of increased network activity.

## 8.4 Sidechain Trading

**Advantages:** there are no costs for trading on the sidechain and users do not have to own Ethereum to trade. Morpher provides a convenient graphical user interface for interacting with the protocol. Trades settle within few seconds, and the sidechain can handle a throughput of more than 1000 transactions per second.

**Disadvantages:** MPH Token need to be redeemed from the sidechain to Ethereum mainchain before they can be moved between accounts. If the sidechain ever stops operating it takes 72 hours before users can redeem their token and Virtual Futures on Ethereum.

## 8.5 The Smart Contracts

The Morpher Protocol consists of six main smart contracts and several auxiliary contracts that are deployed both on Ethereum and the sidechain.

### 8.5.1 MorpherToken

 [github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherToken.sol](https://github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherToken.sol)

The MorpherToken contract provides the ERC20 token functionality for Morpher's MPH Token. It is based on the ERC20 Token from OpenZeppelin. Kudos to OpenZeppelin for their contributions to the development of the Ethereum ecosystem!

MPH Token cannot be transferred between accounts on the Sidechain. MPH Token can be burned by their owner on both chains.

### 8.5.2 MorpherState

 [github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherState.sol](https://github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherState.sol)

MorpherState is the eternal storage of the Morpher Protocol. Anyone can read from MorpherState, but only explicitly whitelisted addresses are eligible to write. MorpherState saves token balances, Virtual Futures, and relevant protocol addresses and roles. The protocol is designed to be upgradable via separation of storage and logic. MorpherState contains the protocol storage, and the other contracts containing the logic link to MorpherState and can be upgraded to newer versions without losing the protocol state.

### 8.5.3 MorpherOracle

 [github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherOracle.sol](https://github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherOracle.sol)

Via the MorpherOracle contract, users can create and close Virtual Futures. The Oracle records the user's orders for creating or closing Virtual Futures and fires an associated event that is read by the Oracle Operator. The Operator requests the latest market data for an order from a trusted source and signs a callback function to write the market data on the blockchain, where the order is subsequently processed by MorpherTradeEngine.

### 8.5.4 MorpherTradeEngine

 [github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherTradeEngine.sol](https://github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherTradeEngine.sol)

MorpherTradeEngine computes transitions between MPH Token and Virtual Futures. Upon creation of a Virtual Future, MorpherTradeEngine calculates how many units the

Virtual Future consists of, its liquidation price, and creates it in MorpherState. Upon closing a Virtual Future, MorpherTradeEngine calculates its current value in MPH Token, mints the MPH Token, and deletes the Virtual Future from MorpherState.

### 8.5.5 MorpherGovernance

 [github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherGovernance.sol](https://github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherGovernance.sol)

MorpherGovernance lets protocol validators vote on the MorpherOracle and the protocol Administrator. To become a validator, it is required to lock MPH Token in the MorpherGovernance contract. The first validator locks 10m MPH Token, the second validator 20m MPH Token, and so forth. It becomes progressively harder to operate a validator. When stepping down, validators receive 99% of their staked token back, while 1% is burned. Voting for MorpherOracle allows a simple majority of validators to replace the protocol oracle with another smart contract. By voting for the administrator, a simple majority of validators can also replace the Protocol Administrator address.

### 8.5.6 MorpherBridge

 [github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherBridge.sol](https://github.com/Morpher-io/MorpherProtocol/blob/master/contracts/MorpherBridge.sol)

MorpherBridge moves token between the Sidechain and Ethereum mainchain. Token can be transferred by burning them on one chain and claiming them on the other. Both chains track the number of destroyed/claimed token on both chains. All positions and balances of the sidechain are merkelized, and the root hash of the Merkle Tree is written to Ethereum in periodic intervals (initially: 1 hour). Users can use the root hash to prove the existence of their positions on sidechain. This allows full recovery of positions on Ethereum if the sidechain ceases to operate for over 72 hours.

### 8.5.7 Administrator Role

The Administrator of the Morpher Protocol is an account that can be voted for by MorpherGovernance. The Administrator has the power to enable/disable markets for trading, to set the maximum allowed leverage, and to pause token transfers.

## 8.6 Smart Contract Security

Several security audits have been performed on the Morpher Protocol before the smart contracts were deployed to production on June 4, 2020. The smart contracts were thoroughly examined for their robustness against known exploits like contract reentrancy (dForce and TheDAO hack) and the delegatecall exploit (Parity Multisig) by third-party auditors. The most recent audit was done by Capacity ([capacity.at](https://capacity.at)).



Security Audit

[github.com/Morpher-io/MorpherProtocol/blob/master/docs/Capacity-MorpherAudit2Result.pdf](https://github.com/Morpher-io/MorpherProtocol/blob/master/docs/Capacity-MorpherAudit2Result.pdf)



Search

Portfolio Value  
511.34

Daily Return  
+ 1.10%



0x6BD...FEC



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### Watchlist

Show All

**AAPL**

Apple Inc.

170.89 + 0.86%

**BTC**

Bitcoin to US Dollar

3,609.86 - 0.15%

**XAU**

Gold

359.57 + 4.12%

**EUR**

Euro vs US Dollar

287.21 - 2.59%

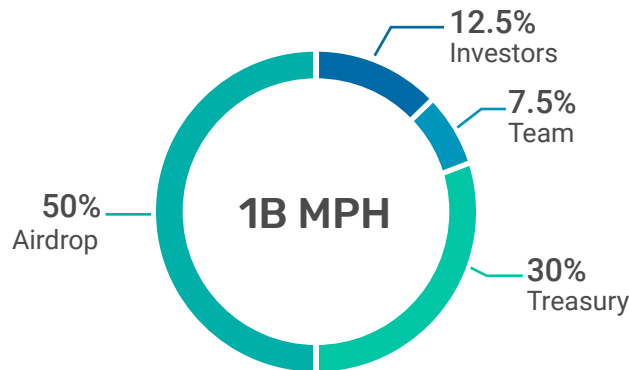
### Leaderboard

### Market Movers

No.	Trader Portfolio	Monthly Return	Symbol	Name	Price	% Change	Chart
1	0x6BD...ABC traderyx	+ 12.34%	AMZN	Amazon.com Inc.	2401.52	+ 7.76%	
2	0x98I...DEC survei	+ 11.98%	DJI.WH	Dow Jones Wheat Index	240.16	+ 5.46%	
3	0x8BC...DAA tradetiger	+ 11.45%	ETH	Ethereum to US Dollar	25.32	+ 2.17%	
4	0x6B5...ZSD noname12	+ 5.12%	IRBT	iRobot Corporation	41.15	+ 1.89%	
5	0x6AB...DCE arachnid	+ 4.56%	SFHV	San Francisco Housing	48.56	- 0.63%	
6	0x6AB...DCE localmaxima	+ 4.39%	TAP	Molson Coors Brewing Co.	25.14	- 1.87%	

# 9. Initial Supply and Distribution

At the token creation event 1 Billion MPH Tokens were generated. They are allocated as follows:



- 50%** reserved for users, distributed via airdrop for several months after launch.
- 30%** allocated to company treasury controlled by Morpher.
  - 14%** locked in the Escrow Contract. Paid out to Morpher in 14 equal monthly installments of 1% at the end of each of the first 14 months after launch.
  - 10%** locked in Governance Contract to operate 4 validators.
  - 6%** available to Morpher as liquidity reserve.
- 20%** allocated to Morpher’s team and investors.
  - 12.5%** controlled by Draper Associates (cold storage).
  - 7.5%** controlled by Morpher founders and team.

## 9.1 Airdrop

A fair and even token distribution among the users of a protocol maximizes its utility and value for everyone. Hence, Morpher aims to distribute token among natural persons with a high probability of becoming long term users of its protocol rather than among investors with no intention of ever using the protocol. A more even token distribution leads to higher stability and greater resilience against price manipulation.

### 9.1.1 Airdrop & Referral Program

Following that reasoning, Morpher will distribute 50% of the total initial token supply as signup, referral, and loyalty bonus (collectively the ‘airdrop’) among its users in the months after the protocol launch.

Upon completing registration on Morpher, new users receive a free token allocation to their wallet. This enables them to use the trading platform right away without any financial risk.



Additional free token can be received for referring new users to Morpher.

The airdrop amount and referral bonus are tiered. The earlier a user completes registration, the bigger their allocations for airdrop/referral. This creates an incentive structure based on urgency and is proven to work well for airdrops, giveaways, or viral marketing campaigns.

Tier	Cohort Size	Total Users	Registration Reward	Bonus / User
1	10,000	10,000	2,000	1,000
2	20,000	30,000	1,000	500
3	40,000	70,000	500	250
4	80,000	150,000	250	125
5	160,000	310,000	125	62.5
6	500,000	810,000	50	50

Since every user can only be referred once (i.e. by exactly one other user), we can calculate the upper limit of token distributed through each tier. Adding together airdrop and referral bonus for every tier and multiplying by the cohort size leads to: 30m token per tier for tier 1-5, and 50m token for tier 6, totaling 200m token or 20% of the total initial token supply.

### 9.1.2 Loyalty Reward

300m MPH Token or 30% of the total initial supply will be paid out to active users over time as loyalty reward.

The definition of an active user may change over time at Morpher's sole discretion to best reward loyal users and HODLers of MPH while preventing an abuse of the loyalty bonus. Morpher does not plan to publish the criteria for qualification as active user to avoid gaming the loyalty reward system.

The loyalty reward serves primarily four purposes:

- (a) Morpher aims to distribute its token among actual users of the protocol versus users who just sign up to claim the airdrop and then sell their token.
- (b) Morpher will become associated with something positive (a gift) by its users regardless of their trading success.
- (c) Users and HODLers will receive interest for their MPH token.
- (d) Traders who may have lost capital get another chance.

The airdrop/referral program will be continued, constantly re-evaluated, and adjusted if necessary, until a total of 500m token (50% of the initial supply) are distributed. Morpher assumes its airdrop and reward program will continue well into 2023.



### 9.1.3 Preventing Abuse

Morpher performs basic know your customer checks (KYC) on all its users before granting them access to the airdrop. The KYC check helps prevent scammers, ineligible users, and malicious actors from joining the airdrop. Morpher is compliant with EU GDPR regulations, some of the strictest personal data protection regulations in the world. It is NOT required to go through KYC to use the Morpher Protocol on the Ethereum blockchain, only to participate in the airdrop and referral program.

### 9.1.4 Traction

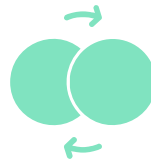
As of June 22nd, 2020, 42,000 users have successfully completed KYC, are eligible to receive an airdrop, and can start trading right away. Over 220,000 users have signed up with their email waiting for the trading platform to open to the public. This growth was completely organic via word of mouth and the referral program.

## 10. Tokenomics (Token Economics)

The supply of MPH Token is not fixed, it changes over time proportionally to the collective investment success/failure of Morpher's users. There are two more influences on the token supply: tokens burned through bid/ask spreads and tokens minted for operator rewards.



The price of MPH is subject to supply and demand.



The token will be tradable via crypto exchanges.

Economic equilibrium, and thus a fair token price, is reached at the intersection of supply and demand.

### 10.1 Demand

The total demand for token can easily be modeled as the product of the number of users and their average account size in USD equivalent. Over time average account size will approach a constant value, suggesting demand for the token will grow directly with the number of users on the platform.

### 10.2 Supply

The change in token supply ('inflation') is more complex to model and driven by three factors: collective investment success, spreads, and operating rewards.



Investor Failure  
Supply Decreases



Investor Success  
Supply Increases



More Transactions  
Supply Decreases



Higher Spreads  
Supply Decreases

## 10.2.1 Investment Success

Every Virtual Future is created and settled in MPH Token. If a user's prediction is correct, the smart contract creates new token. If it is incorrect, the smart contract destroys token permanently. If the collective investment success of all traders on Morpher is positive, newly minted token are added to the supply. If it is negative, token get destroyed reducing the overall supply.

The collective investment success on Morpher can only be estimated at this point, as there is no empirical data yet. It can reasonably be assumed that:

**(a)** Expectations about the markets among traders are diverse. Some traders expect rising prices of a market and open long positions, while others expect falling prices on the same market and create short positions. Simultaneous long and short positions on the same market cancel each other out, so the only contribution to a change of the overall token supply is the net exposure, or the difference between the sum of all long and the sum of all short positions. Simply put: long and short positions will partially cancel each other out.

**(b)** Morpher's traders are on average equally successful as traders on other platforms. Trading is a zero-sum game for options, derivatives, and forex. One side loses what the other side gains. It can be argued that stocks and cryptocurrencies do create value and trading them is not a zero-sum game. Regardless of the asset class however, traders do not outperform the market on average. Consequently, the systematic impact of successful trading on inflation can best be estimated with the average market return.

Under (a) and (b) an inflation rate of more than 10% annually resulting from successful trading seems unlikely.

Should the inflation rate exceed 10% per year, e.g. because assumption (b) does not hold and the Morpher community consistently outperforms the market, a new opportunity arises: Morpher could act on the collective predictions of its community and launch a traditional hedge fund product that consistently beats the markets, effectively changing its business model into becoming the largest asset manager in the world. The profits generated by the fund could be used to buy back and burn token, keeping the community incentivized while sharing profits and mitigating the impact of inflation at the same time.

## 10.2.2 Spreads

The spread is the difference between the bid and the ask price. Spreads introduce a small cost to buying and selling and thus mitigate token inflation from predatory trading strategies like scalping. Spreads implicitly burn token with every transaction, effectively reducing the total supply. By adjusting the width of the spread, Morpher can control the overall inflation rate of the token economy and reach any desired target inflation rate. Simply put: Morpher can reduce the inflation rate by widening spreads dynamically.

## 10.2.3 Operating Rewards

As reward for operating the protocol, Morpher receives 0.015% of the total token supply in newly minted token every day. That compounds to about 5.6% newly minted token per year and is comparable with the inflation rate of Ethereum between May 2019 and May 2020 (~4.6% per anno).

## 10.3 Equilibrium

Equilibrium and a fair token price are reached at the intersection of supply and demand for MPH Token.

Morpher's economy will undergo two different phases: The adoption phase, and the steady state phase. Each phase has their own equilibrium.

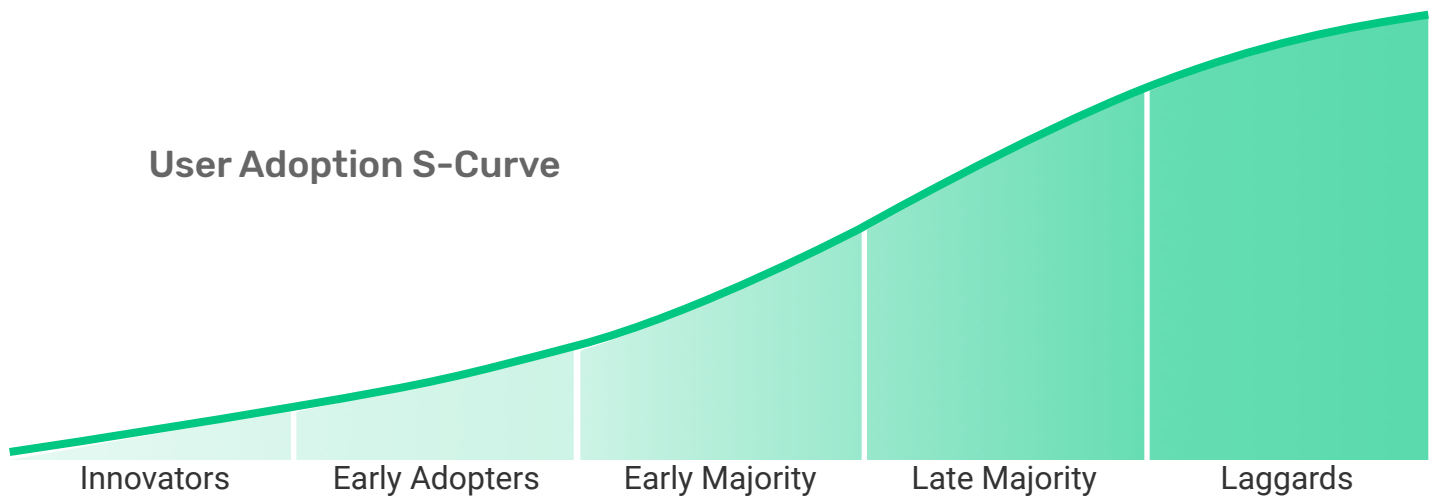
### 10.3.1 Adoption Phase

New technologies, services, and platforms typically undergo an S-shaped adoption curve.

Morpher estimates its adoption curve will start to plateau about 10 years after the protocol's inception. During the adoption phase the demand for token from a growing user community outpaces the growth rate of the token supply creating a systematic upwards pressure on the token price.

For example: a token inflation rate of 20 percent annually will still lead to higher token prices if the number of protocol users increases by more than 20 percent.

Consequently, token inflation will likely be irrelevant during the first years after protocol introduction, and the analysis should focus on the steady state economy about 10 years after inception.



### 10.3.2 Steady State

The economy will reach its steady state when the market is saturated, and Morpher's annual growth rate drops to single digit percent. For simplicity, it can be assumed that in the steady state economy everyone who wants to use Morpher is already using it, and everyone else will never become a user.

There is no significant upwards price pressure through adoption on the token anymore in the steady state. The volatility of the token price will decrease. For simplicity, we can assume a constant market capitalization of the token, i.e. the collective value of all MPH Token in existence remains constant.

Despite a constant overall market capitalization, the token supply may still change. An increasing token supply will lead to falling token prices, a decreasing supply to rising prices.

Regardless of the nominal inflation rate (i.e. the increase or decrease in supply), a trader will be profitable if they outperform the inflation rate and sustain losses if their returns are below the inflation rate. Trading better than average gives you a bigger piece of the pie, even if the size of the pie does not change.

This effect is equivalent to trading on traditional markets: traders need to outperform inflation to increase their buying power in fiat denominated markets. For example, US stock investors need to generate returns over 2% to pocket any gain against annual USD inflation.

### 10.4 Price Discovery

The price of MPH Token is free floating and determined on crypto exchanges by supply and demand for MPH. Buyers and sellers of MPH will meet on centralized and decentralized crypto exchanges and transact token for prices they deem fair. While trading within the Morpher Protocol comes with infinite liquidity, Morpher depends on third party exchange partners for the liquidity of MPH Token.

# 11. Team



**Martin Fröhler**  
CEO

Martin is a mathematician with over a decade of experience in quantitative finance. Prior to founding Morpher, Martin developed quantitative trading algorithms for commodity futures, managed a quantitative research firm in Zürich, and founded a decentralized quantitative hedge fund in Silicon Valley. Martin co-developed the Morpher Protocol and its tokenomics. At Morpher Martin handles the company's day-to-day operations, investor relations, compliance, and develops Morpher's smart contracts.



**Denis Bykov**  
CPO

Denis holds multiple engineering degrees from Stanford University. Denis served in project management at companies like StartX, Quantiacs, and Apple. Denis co-developed the Morpher Protocol and led design and development of the Morpher trading platform. Denis initially served as Morpher's CTO and is now in charge of product development and design.



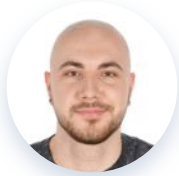
**Thomas Wiesner**  
CTO

Thomas holds multiple degrees in Computer Science with over a decade of experience in software engineering and managing teams of engineers. Thomas previously served as CTO at Bitcoders, developing and overseeing cloud based ETL Projects and global financial platforms at scale. Thomas trained Fortune 500 executives, governments, and over 60,000 students on Blockchain Development, Docker, and Amazon Web Services. Thomas joined Morpher in summer 2020 as CTO.



**Beorn Bishop**  
Senior Fullstack Engineer

Beorn holds a degree in CS with over 19 years of professional experience as a software engineer. Beorn also has over 10 years of experience as a software team leader for applications specialized business process automation. At Morpher, Beorn is a fullstack engineer seamlessly managing frontend and backend development.



**Arjet Kraja**  
Backend Engineer

Arjet holds a degree in CS and has several years of experience as software engineer under his belt. At Morpher, Arjet merges cutting edge technology from our backend with the demands of our complex blockchain architecture. Arjet develops and maintains our backend and blockchain systems to keep them reliable and performant.



**Milos Zecevic**  
DevOps Engineer

Milos has a background in embedded systems and IOT. His passion for tough computer science problems has led to wins at multiple prestigious international hackathons. At Morpher, Milos develops our live data ingestion and processing architecture along with managing our deployments.



**Ivan Struk**  
Associate Analyst

Ivan holds a management degree and has several years of experience as a trader and financial analyst. Ivan creates content to educate Morpher’s community of traders and to position Morpher as thought leader in the space. Ivan is in charge marketing, optimization, data analysis, and supports our fast-growing community.

## 11.1 Investors



Draper Associates is the Venture Fund of legendary investor and crypto bull Tim Draper. Draper backed Morpher in two financing rounds with a total of USD 1.9 million. With investments in companies like Hotmail, Skype, Tesla, Robinhood, Coinbase, SpaceX, Ledger, Tim has become famous worldwide for his incredible track record. Tim was the first Morpher backer, empowering our company to turn its vision into reality.

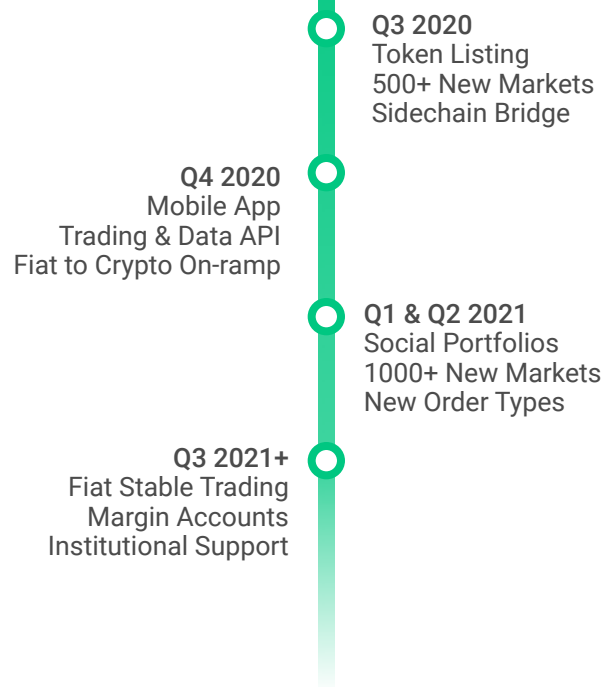


APEX is an early stage deep tech fund based out of Austria with a great network in Central Europe. Knowing that choosing the right partners can make or break a company we specifically wanted to work with APEX. Their founder friendly team is incredibly smart, data-driven, experienced, and supportive, while never losing focus of the big picture. APEX backed Morpher with USD 600k.

## 12. Roadmap

The Morpher Protocol was successfully deployed in Q2 2020 supporting over 700 markets. Remaining milestones for 2020 are the listing of MPH Token on crypto exchanges, a trading app for mobile devices, and an API endpoint to support algorithmic trading.

In 2021 Token price neutral trading will be rolled out (i.e. settlement of trades in USD, EUR, and other fiat currencies instead of MPH Token), and social trading features will be introduced. The roadmap is indicative but subject to change along the way.



## 13. Conclusion

Investing is the biggest industry in the world, and fundamentally broken. Billions of people do not have access to the markets at all. Those that have access, pay high commissions to many middlemen that do not add value.

In an ideal world, all markets are accessible by everyone, 24/7 without liquidity constraints. There are no fees for trading, no minimum capital requirements, no third-party custodians, and no counterparties that can default.

**Blockchain created the ideal financial architecture.  
Morpher built the ideal investment app for everyone.**