

CHRONO LOGIC

FIRST PROOF-OF-TIME TOKEN

Introducing the DAY Token, the first
Ethereum asset pegged to time

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PREFACE

TIME, VALUE & THE BLOCKCHAIN

Time is immutable and irreversible. Time exists, it is value. Time is equally used in nature and artifice; however, its distribution among humans' life is unknown and unequal. Its total supply is unknown.


Throughout the history of mankind, man has assigned value to a variety of objects and concepts including food, shelter, resources, gold, fiat money & even cryptocurrencies. The value of each often fluctuating depending on fundamental & psychological factors.

Traditional currencies have been pegged to gold, other currencies or even nothing. The first generation of cryptocurrencies have been based on the concepts of mining & staking.

In reality, true value is time. Unlike other resources that can be gained & lost including all of the above objects & concepts, time is the only asset which cannot be regained. Once lost it is lost forever. It cannot be gamed and although the exact supply of time is ultimately unknown it is the scarcest resource of all.

ChronoLogic considers time as value. Rather than proof-of-work or proof-of-stake mechanisms, ChronoLogic works on proof-of-time. In its first use-case ChronoLogic pegs time to a store of value token named DAY based on the Ethereum blockchain. This cryptocurrency enables future value to be independent of third party assets that can be harvested such as electricity & processing power in the case of traditional cryptocurrency mining. The only way additional DAY can be produced is via the passage of time.

The blockchain offers the right means to implement more of the features of Time. ChronoLogic expands the possibilities of using time in blockchain projects in industries such as finance, transportation & eCommerce.



“TIME IS THE COIN OF YOUR LIFE. IT IS THE ONLY
COIN YOU HAVE, AND ONLY YOU CAN DETERMINE
HOW IT WILL BE SPENT.”

— CARL SANDBURG —



TIME, VALUE & THE BLOCKCHAIN

ChronoLogic - project introducing the concept of Proof-of-Time for blockchain technologies initially with the launch of the DAY Token and eventually through its own protocol

DAY Token - first Proof-of-Time ERC20 token integrating the concept of TimeMints, which mint additional DAY based on the predefined MintingAlgorithm

TimeMint - One of 3,333 minting addresses with the power to produce additional day depending on the MintingAlgorithm; the first TimeMint is denoted as TimeMint0001 with the last denoted as TimeMint3333

MintingAlgorithm - The halving of a TimeMint's ChronoPower; halving occurs every 88 days

ChronoEra - 88 day periods during which the daily ChronoPower of a TimeMint stays the same; at the end of each ChronoEra halving of the ChronoPower occurs; for example, ChronoEra II would be days Days 89 to 176 after the birth of the Day Token

ChronoPower - The minting power of a specific TimeMint; each of the 3,333 TimeMints has a different ChronoPower ranging from 0.5% to 1% additional DAY tokens minted per day

DayZero - The birth of the ChronoLogic smart contract at which point ChronoPower starts producing additional DAY in each TimeMint on a daily basis

Chronos - the future Proof-of-Time Platform on which additional Proof-of-Time tokens & projects will be launched

TimeTx - the TimeMint transfer process

01

THE BACKGROUND OF CHRONOLOGIC

WHAT IS CHRONOLOGIC?

ChronoLogic is the vision of time merging with the blockchain. It's an introduction of the concept of Proof-of-Time for blockchain technologies & practical applications.

The first phase of the ChronoLogic project is the DAY token after which the concept will be expanded to allow practical implementation of Proof-of-Time by other projects & entities.

WHAT IS THE DAY TOKEN?

The DAY Token is ChronoLogic's implementation of the Proof-of-Time concept on the Ethereum blockchain.

The day token is an ERC20 Token based on the Ethereum blockchain. In the next stage of the project, ChronoLogic will have its own platform in the future -- Chronos -- which will allow the launching of additional Proof-of-Time tokens. DAY tokens will be transferable in the case that another token is launched on a separate blockchain developed by ChronoLogic & additionally DAY tokens will be used to launch Proof-of-Time Blockchain projects such as the ones described in the Use Case section.

RELATIONSHIP BETWEEN CHRONOLOGIC & THE DAY TOKEN

ChronoLogic's first implementation of the Proof-of-Time concept is the DAY Token with future use cases expanding to Proof-of-Time concepts implemented by corporations and other third parties.

The DAY token is an ERC20 wallet compliant token based on the Ethereum blockchain. It is the first phase of the ChronoLogic project and the first implementation of Proof-of-Time on the blockchain.

The DAY Tokens will be used 2-fold first as a store of value, pegged to time, that over time mints additional DAY tokens in the respective TimeMints and second spent by companies & individuals to launch their own Proof-of-Time token once ChronoLogic's future Chronos Platform is released. The supply of DAY is limited and like time once the ICO is over it is immutable.



THE BLOCKCHAIN'S “TIME” PROBLEM

Time is the most valuable “asset” for humans yet most of mankind measures an individual’s wealth by the amount of resources the person has been able to accumulate often ignoring the amount of time sacrificed in exchange for these transient resources.

For example, even with most cryptocurrencies the concept of mining is based on the amount of resources such as electricity & processing power an individual or pool can accumulate when determining who to reward.

ChronoLogic introduces a new way to peg time to assets. For example, in the future, ChronoLogic will create reward & punishment systems, model investment growth & implement this concept in other real world scenarios all based on time.

In the same way that mankind uses Gold and Fiat as items of value, ChronoLogic will implement the use of time & its value into blockchain technologies.

ALL THAT REALLY BELONGS TO
US IS TIME; EVEN HE WHO HAS
NOTHING ELSE HAS THAT.

— BALTASAR GRACIAN —

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PROOF-OF-TIME & THE BLOCKCHAIN

MINTING LOGIC, TIMEMINTS & TOKEN SUPPLY

The DAY smart contract has advanced minting capabilities and a halving mechanism to limit the total supply of DAY in the future.

DAY tokens mint in the holder's TimeMint based on time. To distribute ChronoPower & initial DAY tokens evenly, ChronoLogic allotted 3,333 TimeMints and contribution limits ranging from 1 to 333 ETH. Further limits are set to ensure fair distribution throughout the network.

Every contributor in any phase of the token contribution period will receive a minting address called a TimeMint with a specific minting power called ChronoPower.

ChronoPower is based on the current balance of DAY in a TimeMint and ranges from 1% to 0.5% additional DAY per day. ChronoPower decays linearly among contributors based on their contribution order. The first contributor receives TimeMint0001 with the highest ChronoPower of 1% & the last TimeMint receives the least ChronoPower of 0.5%.

The original ChronoPower given to the TimeMint is:

$$MO(I) = M - (M - M') * I / X$$

Mo(i) is the initial ChronoPower given to TimeMint A(i).

X is the number of total allowed contributors.

M & M' is the minimum & maximum ChronoPower as a fraction.

X% ChronoPower means that the specific TimeMint is able to produce X% of their DAY token balance & add it to their current balance at the end of that day.

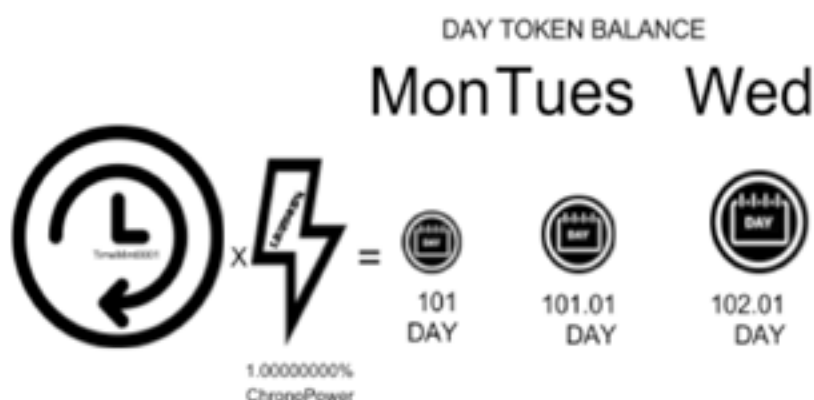
The Mathematical formula to calculate the new DAY Token balance of a TimeMint is:

$$B(I, E) = E * Y * (1 + MC(I))$$

Here $B(i,E)$ is the DAY Token balance of TimeMint $A(i)$ given the TimeMint id 'i' which originally committed 'E' Ether. 'i' is the order of commitment. The first committer will be given the id $i = 1$, then id $i = 2$ etc. the last one has id $i = X$. $Mc(i)$ is the ChronoPower of TimeMint $A(i)$ calculated using the above formula. Y is the initial Ether purchased per Ether.



For example, if a TimeMint has 1% as its ChronoPower & 100 DAY as its balance, then on the first day the TimeMint will mint 1 DAY token, which will be added to the TimeMint's balance resulting in 101 DAY. On the second day the TimeMint will mint 1% of its 101 DAY tokens totaling 1.01 DAY resulting in a balance of 102.01 and so on.



There are also different ChronoEras, which have halving periods after which the ChronoPower of the each TimeMint is reduced by half of it's current ChronoPower.

The ChronoPower of the TimeMint will be halved every Q days.

The Mathematical formula to calculate ChronoPower for TimeMint A(i) on a particular day is:

$$MC(I) = (MO(I)/2^{\text{FLOOR}(D/Q)}) \quad [\text{IF } 0 < I \leq X]$$

$MC(i) = 0$ [$i > X$ or the A(i) is not the contributor]

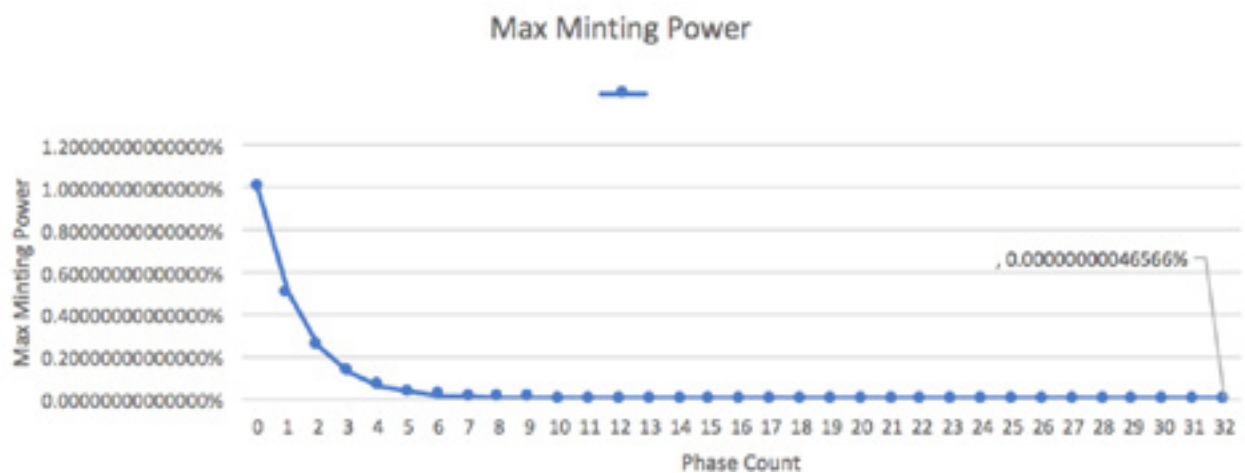
$MC(i)$ is the current ChronoPower of TimeMint A(i)

$MO(i)$ is the original ChronoPower of TimeMint A(i)

D is the Day count since day 0. On the first day $D = 1$, on the second day $D = 2$ etc.

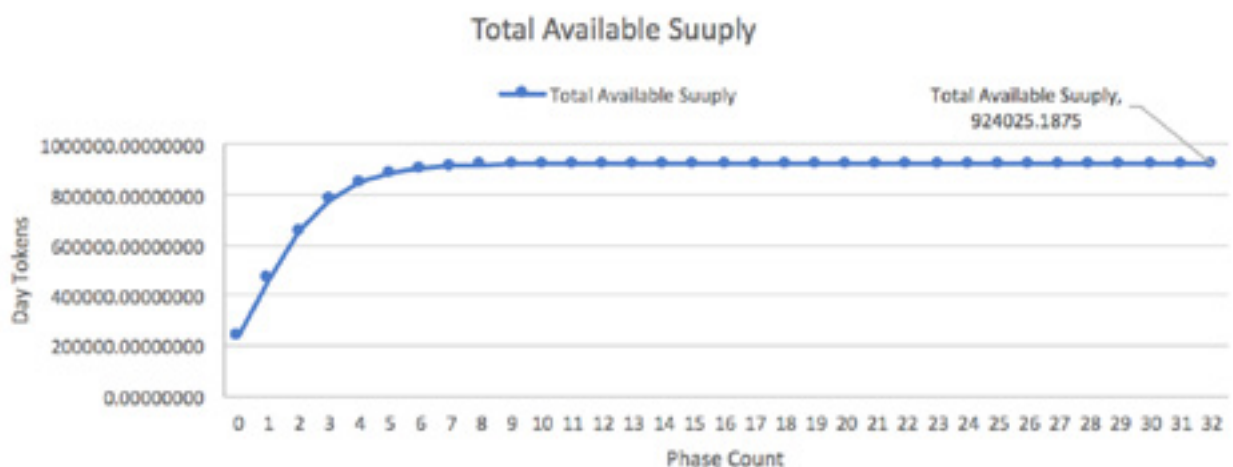
Q are the total number of days to halve ChronoPower

ChronoPower of TimeMints holding DAY tokens is halved every 88 days. See how this maximum ChronoPower of TimeMint0001 decays over time in the below diagram:



Total tokens created on DayZero depend on the amount of ETH contributed in each phase; however, there is a hard cap of 38,383 ETH during the ICO, which will result in the ICO closing even if all of the 3,333 TimeMints have not been assigned.

An example of total token supply in the entire ecosystem can be calculated as follows. The below diagram shows the total token supply after each ChronoEra. If every contribution to each TimeMint is 3 ETH then hypothetically the total supply results in the following number of DAY tokens:



After the crowdsale closes & all non-reserved TimeMints are assigned and the TimeMints will start minting DAY tokens.



TIMETX - TIMEMINT TRANSFER & ACQUISITION POST-ICO

TimeMint holders may sell their TimeMint to a buyer. ChronoLogic has a process called TimeTx that allows the sale/transfer of TimeMints to a buyer/receiver. This construct is separate and unrelated to the auction function.

To initiate TimeTx, the seller needs a minimum balance of 8,888 DAY tokens in their TimeMint. The seller then specifies the minimum bid in DAY tokens & the expiry block number to start TimeTx. During the TimeTx process the seller's 8,888 DAY tokens are locked and not accessible until the sale is over or the expiry block number is reached.

During TimeTx, a buyer can send the requested price to the TimeTxContract to acquire the TimeMint. Any transactions lower than the seller's price are automatically rejected & receive a refund of their DAY tokens. The first one who has transferred the requested amount of DAY tokens or more will acquire the TimeMint from the seller.

Once a buyer sends the correct amount of DAY, the buyer acquires the TimeMint. The total tokens involved in the transaction including the seller's 8,888 DAY tokens plus the buyer's amount are then be transferred to the seller's wallet.

The TimeTx flow can be seen below:

1. Seller sends 8,888 DAY to the TimeTxContract specifying the minimum reserve price denominated in DAY & an expiration time resulting in the unlocking of the seller's TimeMint.
2. Buyer sends DAY to the TimeTxContract which equals or exceeds the reserve price.
3. Buyer acquires the TimeMint converting his address into a TimeMint.
4. All DAY tokens including the original 8,888 DAY are transferred to the seller.
5. If no buyer surfaces then the 8,888 DAY is returned to the seller after the expiry block number is reached.



TimeMintAuctions

This is a possible functionality that will be released in the future with advanced capabilities implementing various Time constructs into these auctions. ChronoLogic is reserving 88 TimeMints for release in the future via different auctions.



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CHRONOLOGIC & THE REAL WORLD

CHRONOLOGIC'S GOALS

ChronoLogic will eventually launch a platform, which will allow other users to launch their own Proof-of-Time tokens. The use cases for Proof-of-Time tokens are varied and will grow as additional projects are launched.

The goal of the crowdsale is to launch additional Proof-of-Time blockchain projects implementing ChronoLogic's technology.

PROOF-OF-TIME BLOCKCHAIN PROJECTS & IMPLEMENTATION GOALS

ChronoLogic 2017 Goals:

- Develop a Proof-of-Time mechanism for the finance space.
- Beta test the implementation of a finance Proof-of-Time use case with ChronoLogic's crypto private equity partner Wired Investors.
- Develop an auction functionality for a decentralized exchange of DAY tokens & DAY TimeMints.
- Finalize development roadmap for the future Proof-of-Time Chronos Platform.
- Partner, support & launch 6 Proof-of-Time blockchain projects.

ChronoLogic's 2018 Goals:

- Deploy the finance Proof-of-Time use case for the public.
- Work with other partners to beta test additional Proof-of-Time use cases.
- Develop the open Proof-of-Time Chronos Platform to enable the launch of Proof-of-Time tokens by third parties.
- Partner, support & launch 18 Proof-of-Time blockchain projects.

USE CASES

Proof-of-Time blockchain projects & use cases that will be supported from contributions may include implementations on the future Proof-of-Time Blockchain such as the following.

Finance Use Case

In finance, many securities including debt securities are heavily dependent on time.

For example, a debt instrument with a 5 year term paying 12% is effectively a smart contract that can be housed on the future Proof-of-Time Blockchain.

To define the roles:

- Company: Issuer of the debt
- Investor: Subscriber of the debt
- Debt Raise Goal: 10,000 DAY
- Interest Rate: 12%
- Terms: Balloon payment after 5 years
- COM: Company's token
- 1 ETH = 5 COM

The Company launches their Proof-of-Time token to help raise & pay their crypto debt via the issuance of a smart contract. When an Investor sends DAY to the specific receiving address the Investor in return receives the Company's token COM. Investor A sends 200 DAY and receives 1,000 COM.

Chronologic's Proof-of-Time technology automatically identifies the sending address as a TimeMint and additional COM tokens are produced as interest accrues. In order to pay the debt back the Company needs to send back the respective amount of DAY borrowed plus the additional amount accrued.

Interest payments can also happen automatically by the receiving address automatically sending from its DAY balance the respective interest payment to any addresses holding COM. Because of the interconnectedness of the blockchain, investors can trade COM between each other and repayment then happens across the network depending on who holds COM.

TRANSPORTATION USE CASE

When checking in for a train one supplies their address. If the train is delayed the smart contract is activated. If the train is delayed then for every minute or 10 minutes that it is delayed the customer receives the company's Proof-of-Time token. This token can then be redeemed later for cash or used in order to buy additional tickets from the Company depending on the company's policy, which is modeled in their smart contract.



A MAN WHO DARES TO WASTE
ONE HOUR OF TIME HAS NOT
DISCOVERED THE VALUE OF LIFE.

— CHARLES DARWIN —



04 THE CHRONOLOGIC CROWDSALE

DAY TOKEN CONTRIBUTION PLAN

The DAY token contribution period is divided into four blocks:

Block 1: Pre-Contribution Phase

1% of the available TimeMints (TimeMint0001 to TimeMint0033) are allotted for this phase. The minimum contribution is 33 ETH. Phase 1 contributors are assigned the top 33 TimeMints with the highest ChronoPower. Please contact the team to participate in this phase.

Allotted TimeMints: 33

Minimum Contribution: 33 ETH* (Gas must be paid extra by contributor)

ChronoPower: Based on contribution order between 1-33

DAY Tokens per ETH: 24 + Bonus DAY % per table below

*Contribution below this amount will be rejected by the contract

TimeMint0001 to TimeMint0033 receive up to a 33% bonus in DAY tokens issued to their TimeMint above the 24 DAY per each 1 ETH regular contribution amount. Bonuses given out in ChronoLogic order. Additionally, these initial TimeMints have the highest ChronoPower.



TIME IS THE MOST VALUABLE
THING A MAN CAN SPEND.

— THEOPHRASTUS —

TIMEMINT	DAY / ETH BONUS
TimeMint0001	33%
TimeMint0002	32%
TimeMint0003	31%
TimeMint0004	30%
TimeMint0005	29%
TimeMint0006	28%
TimeMint0007	27%
TimeMint0008	26%
TimeMint0009	25%
TimeMint0010	24%
TimeMint0011	23%
TimeMint0012	22%
TimeMint0013	21%
TimeMint0014	20%
TimeMint0015	19%
TimeMint0016	18%
TimeMint0017	17%
TimeMint0018	16%
TimeMint0019	15%
TimeMint0020	14%
TimeMint0021	13%
TimeMint0022	12%
TimeMint0023	11%
TimeMint0024	10%
TimeMint0025	9%
TimeMint0026	8%
TimeMint0027	7%
TimeMint0028	6%
TimeMint0029	5%
TimeMint0030	4%

TIMEMINT	DAY / ETH BONUS
TimeMint0031	3%
TimeMint0032	2%
TimeMint0033	1%

Block 2: ICO Phase

Remaining TimeMints (except for Blocks 3 and 4, which are reserved for the Team & Auction) will be allowed to contribute in a 7 day long open token sale.

Allotted TimeMints: 3194

Minimum Contribution Allowed: 1 ETH* (Gas must be paid extra by contributor)

Maximum Contribution Allowed: 333 ETH** (Gas must be paid extra by contributor)

ChronoPower: Based on contribution order between 34-3194

DAY Tokens per ETH: 24

* Contribution below this amount will be rejected by the contract

** Contribution above this amount will be rejected by the contract

Block 3: Team Bonus

Team TimeMints will be filled as per committed % of DAY token after the Block 2 TimeMints have been fully assigned. Team TimeMints will be given lower ChronoPower than Block 2 TimeMints because of their TimeMint numbers -- in essence they will be receiving the least ChronoPower.

Allotted TimeMints: 18

ChronoPower: Based on contribution order between 3217 - 3245

DAY Tokens per Address: 0.5% of the distributed tokens

3 testing TimeMints with 88 DAY each & no vesting period; TimeMint3243, TimeMint3244 & TimeMint3245

Rest of TimeMints have 6 month cliff followed by quarterly vesting for 18 months.

Block 4: 88 TimeMints Reserved for Future Auctions

Once the Auction Mechanism is developed, 88 TimeMints are reserved to test its implementation before rolling out for the transfer of normal TimeMints.

WE MUST USE TIME
AS A TOOL,
NOT AS A CRUTCH.

— JOHN F. KENNEDY —

05 THE CHRONOLOGIC TEAM

TEAM

Just like time, the DAY token is human-independent once deployed and immutable. It has been one of the fundamental values of the team to design the DAY token to have a life of its own & be incorrigible without requiring human involvement. We hold no titles & everything is designed to function without key man risk. Our individual roles are diverse with each member involved in every part of ChronoLogic.

Deven Soni - former Goldman Sachs, Lazard & Highland Capital investment banker & principal investor in charge of deploying over \$300M of capital; currently General Partner at Wired Investors in charge of the Crypto Private Equity strategy & implementing proof-of-time.

Eric Weiss - bringing along the backing of the entire Digital Strategies team to ChronoLogic, he and his team are the blockchain Proof-of-Time concept originators; pre-ICO EOS equity investor; Crypto Private Equity investor & advisor to Polymath, a Blockchain Security Token Platform currently in stealth mode.

Jovar Gaylan - mathematician and computer scientist; the genius behind the Proof-of-Time Chronos protocol; co-founder of multiple software startups including VideoRemix, a video personalization B2B platform.

Lee Pennington - serial SaaS entrepreneur, private equity investor & crypto-marketing expert spreading the ChronoLogic prophecy to the world in Slack & on live crypto-webinars.

Matteo Rossi - internationalization expert into Bitcoin since parity with USD price seemed like a dream. 7 years of experience in crypto as a miner, analyst, strategist and trader. Traded hundreds of crypto assets worth millions of dollars.

Toshendra Sharma - Forbes 30 under 30; founder of Allchains, a Blockchain-as-a-Service company and Toshblocks; well-known instructor & speaker in the Blockchain space teaching more than 11,000 students worldwide across 145+ countries.

Wired Investors - Digital Asset & Crypto Private Equity fund backing ChronoLogic, collaborating to identify Proof-of-Time acquisition targets & to implement Proof-of-Time use cases in private equity, venture capital, hedge fund & debt style investments.

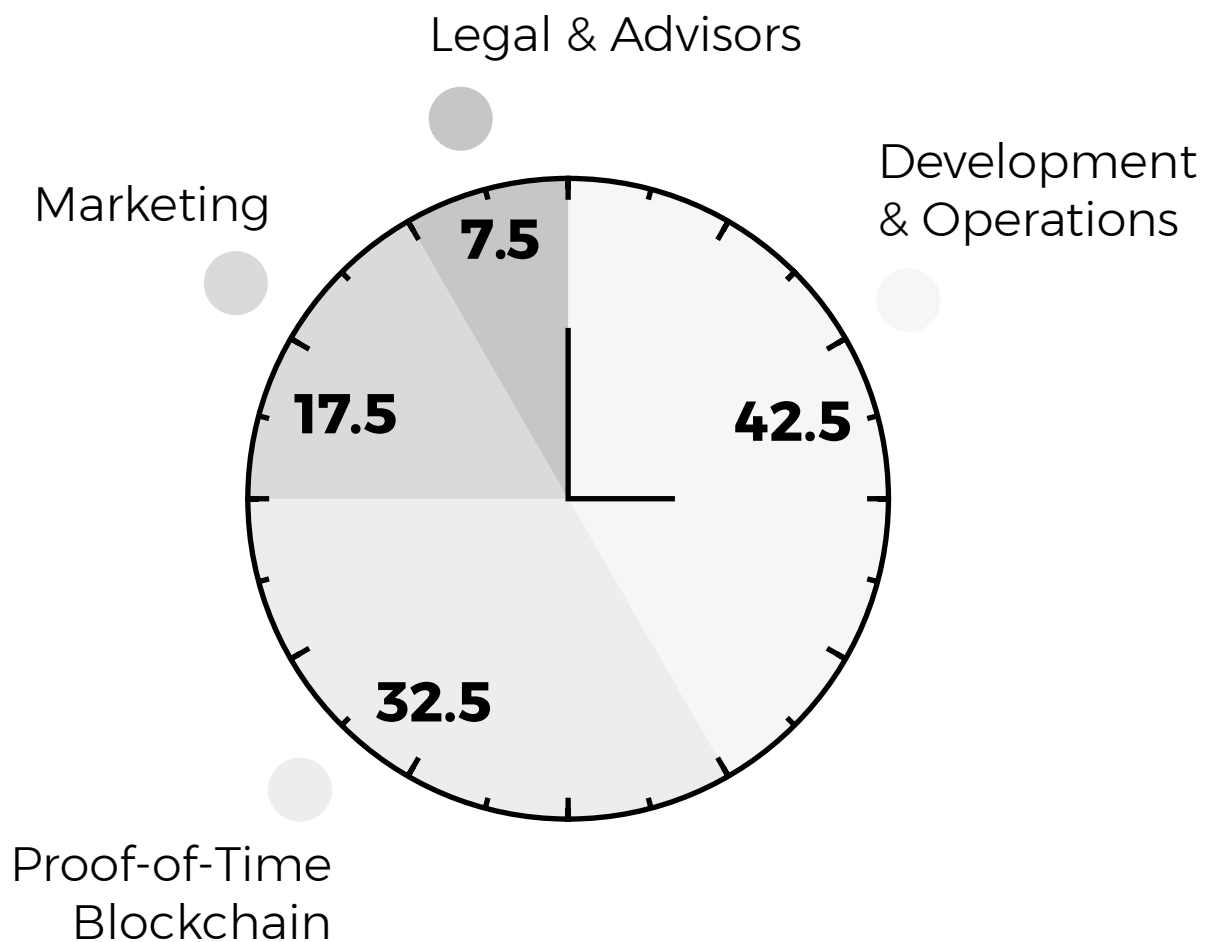


06

CONTRIBUTION USAGE PLANS

DAY TOKEN CONTRIBUTION PLAN

42.5% Development & Operations
32.5% Proof-of-Time Blockchain Projects
17.5% Marketing
7.5% Legal & Advisors



DEVELOPMENT & OPERATIONS

Development entails the implementation & development of:

1. The Proof-of-Time mechanism for the finance space
2. The auction mechanism for a decentralized exchange mechanism of DAY tokens & TimeMints
3. The Chronos Platform
4. Additional development work may be undertaken to support Proof-of-Time blockchain projects

Operations include regular day-to-day operations such as HR & staff, accounting & expenses to advance the project.

PROOF-OF-TIME BLOCKCHAIN PROJECTS

Without critical mass an ecosystem cannot function. Development of ChronoLogic blockchain projects is vital for long-term viability. Certain contributions will be set aside to support additional Proof-of-Time Blockchain Projects & the implementation of Proof-of-Time on the Blockchain into real world applications.

The first ChronoLogic partnership includes that of helping Wired Investors <http://wiredinvestors.com/> implement Proof-of-Time for securities such as debt & equity instruments.

Additional projects will be supported and in addition to helping fund projects ChronoLogic will provide ongoing consulting services on the technology side for architectural frameworks of Proof-of-Time implementations.

ESCROW FUNDS ARRANGEMENT

When the DAY token sale is completed, the DAY tokens will:

- Be transferrable right away
- TimeMints will start production

To foster trust in the ChronoLogic project and facilitate execution of the successful Token sale, we have established an escrow arrangement using a Multisig wallet for Ether.

Ether Multisig Wallet: We will be using the standard Ethereum Multisig wallet contract created through the Ethereum/Mist Wallet for best security practices.

Every withdrawal will require 2 out of 3 below signatories to sign the withdrawal transaction. Escrow signatories will be Eric Weiss, Jovar Gaylan & Matteo Rossi from the team.



ALL GREAT
ACHIEVEMENTS REQUIRE
TIME.

— MAYA ANGELOU —

CONCLUSION

Proof-of-Time and the various concepts presented in this whitepaper are necessary for the evolution of blockchain technologies & the application of the blockchain to real world challenges.

Support of these projects is vital for the long-term implementation of the above concepts & ChronoLogic will lead these projects. The Time is now to merge Time with the Blockchain.



LEGAL DISCLAIMER

NOT AN OFFER TO SOLICIT SECURITIES & RISKS ASSOCIATED WITH CHRONOLOGIC & DAY

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- (i) reliance on any information contained in this document,
- (ii) any error, omission or inaccuracy in any such information or
- (iii) any action resulting therefrom.

The ChronoLogic DAY token, or “DAY”, is a cryptographic token. DAY is not a cryptocurrency. At the time of this writing,

- (i) DAY cannot be exchanged for goods or services,
- (ii) DAY has no known uses, and
- (iii) DAY cannot be traded on any known exchanges. DAY is not an investment.

There is no guarantee – indeed there is no reason to believe – that the DAY you purchase will increase in value. It may – and probably will at some point – decrease in value. DAY is not evidence of ownership or right to control. Controlling DAY does not grant its controller ownership or equity. DAY does not grant any right to participate in the control, direction or decision making of ChronoLogic.



CHRONO
LOGIC

CHRONO LOGIC

FIRST PROOF-OF-TIME TOKEN

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