



D-Drops

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Table of Contents

Introduction	--	Page 3
Concept	--	Page 3
Decentralization	--	Page 4
System Overview	--	Page 4 / Appendix A
The Treasures	--	Page 5
Tokenomics		
Distribution	--	Page 5 / Appendix B
Release Schedule	--	Page 6 / Appendix B
Mechanisms	--	Page 6 / Appendix C
Calculations	--	Page 7/ Appendix D
Burn	--	Page 7
D-Dapp	--	Page 8
Requirements	--	Page 8
Treasure Location	--	Page 8-9
Tiers	--	Page 9
Applications		
Advertisement	--	Page 10
Charities	--	Page 10
Presents	--	Page 10
Future Goals	--	Page 11
Phases		
Phases One	--	Page 11
Phases Two	--	Page 11
Appendix A	--	Page 12
Appendix B	--	Page 12
Appendix C	--	Page 13
Appendix D	--	Page 14-17
End Note and Links	--	Page 18

Introduction

With the decentralization of currency as done by Bitcoin and the introduction of decentralized apps as seen in the Ethereum network, the world is leaning more and more away from an authoritarian state and becoming more liberal. Moreover, with the introduction of blockchain technology the internet is becoming more transparent, decentralized, and more secure and thus less vulnerable to tempering and less susceptible to censorship. With the invention of the internet, the world has become connected, blockchain technology together with decentralization adds to that by enabling people across the world to cooperate on a global scale. Decentralization is also redirecting more and more money from the corporate pocket to the community itself. Ethereum and Bitcoin for example can be mined by anybody willing to invest a bit of capital and time in it. There is no large company that holds a monopoly on mining Bitcoin or Ethereum and thus taking all the money circulating in the space. Instead, the very nature of decentralization requires a swarm of smaller groups or individuals to cooperate to keep the system running, and thus decentralization among the previously mentioned things also enables wealth to be spread more evenly.

D-Drops builds on the idea of spreading the wealth by using the current crypto market to create valuable items and spread them all around the world for people to find. Furthermore, D-Drops introduces a new more exciting way of earning money than the traditional staking.

By integrating virtual reality with the physical world, one creates what is called augmented reality. D-Drops uses augmented reality to enrich the physical world by dropping valuable items all around the world in form of treasure which people can find and claim.

Concept

Holders of DOP (the D-Drops token) token can go in search of valuable treasures spread all around the world. By taking a small portion during every transaction and putting it in a wallet a prize wallet is raised. This prize wallet is used to fill four different treasure chests each having a greater value than the other. Once a chest is filled it is then digitally dropped somewhere around the world where it can be found by the members of the community using D-Dapp (the D-Drops app). The finder can then claim the content of the treasure chest by sending a claim transaction to D-Drops. Claiming a treasure cost DOP tokens, these tokens are directly burned in the claiming process and thus making the token deflationary which in time results in a value increase of the token. So not only will holders of the DOP token be able to collect treasure chests but the tokens that they hold will increase in value with each chest found.

Spreading wealth in this fashion not only accomplishes the purpose of this project but also introduces a fun way to spend one's time. What can be more exciting and enjoyable than going on a treasure hunt? As the content of the chests vary in value one can simply collect them when one happens to find one or decide to embark on an adventure in search of the more rare and valuable chests spread all around the world.

Decentralization

By decentralizing D-Drops it becomes transparent, and the community is ensured that everything that goes into D-Drops is given back to the community.

Decentralization ensures the fairness of treasure hunting in general. Since the information regarding the location of the treasures is stored inside the smart contract and is masked outside of the smart contract there is no way for anyone to have a leg up on others by implementing some kind of scheme to bypass the necessary steps needed to gain the information. Another added benefit of this way of storing information is that the smart contract has no bias towards any specific user and thus everyone is ensured to receive the same (amount) of information.

Furthermore, as D-Drops is a container of valuable items and crypto assets it is important that the security is tight, and this is to great extent ensured by the very nature of blockchain technology. However, since most security issues in blockchain technology arise from a flawed source code or conceptual deficiencies our team has gathered the brightest minds around us to make sure the source code is bug-free, and the system is as robust as it can be.

System overview

Once a user initiates a transaction it effectively adds ETH to the smart contract's wallet and executes the code of the smart contract. An ETH transaction to the smart contract triggers the smart contract to add DOP tokens to the sender's account.

Furthermore, it takes the required 5 percent from the total purchase sum to add to the fund wallet. Which in turn divides it into four chests. When a claim transaction is sent to the smart contract it burns the number of DOP tokens send with the transaction and then proceeds to the validation of the request. If the request is valid, it awards the sender with the treasure but if the request is invalid an error message is sent to the app. The flow chart of the process can be found in the figure below.

Note that in the event of an invalid claim request the tokens used to make the request are burned and not refunded to the user. This is mainly to prevent cyberattacks such as exhaustive search and Sybil attacks. In the event of a successful claim request, the content of the treasure chest is sent to the wallet of the user.

See *Appendix A* for a visual representation of the process.

The Treasures

The prize wallet is used to fill the treasure chests. There are four different types of chests named common, frequent, rare, and exotic. In general, it can be assumed that the rarer the chest the more valuable the content of the chest (this rule of thumb is subject to change when users themselves will be able to drop treasures). From the 5 percent contribution, 40 percent is used to fill the common chest, and 30, 20, and 10 percent are used to fill the frequent, rare, and exotic chests respectively.

Furthermore, each chest has a different cap on how much crypto assets it can contain. The exact cap is organized as x100 DOP, x1,000 DOP, x10,000 DOP and x100,000 DOP for the common, frequent, rare, and exotic chest type respectively. Even though the value of the chest is determined using the value of the DOP token that does not necessarily mean that the content consists only of DOP tokens. The content can vary from all kinds of tokens and digital currencies to NFT's; however, the max value of the chest is determined using the market price of the DOP token.

Tokenomics - Distribution

Total Supply	--	100%	--	337.5M
Private Sale	--	6%	--	20.25M
Public Sale	--	13%	--	43.875M
DEX Liquidity	--	13%	--	43.875M
Team	--	10%	--	33.75M
Talent	--	3%	--	10.125M
Partners/Angels	--	25%	--	84.375M
Treasury/Events	--	30%	--	101.25M

Appendix B contains a visual overview of the distribution.

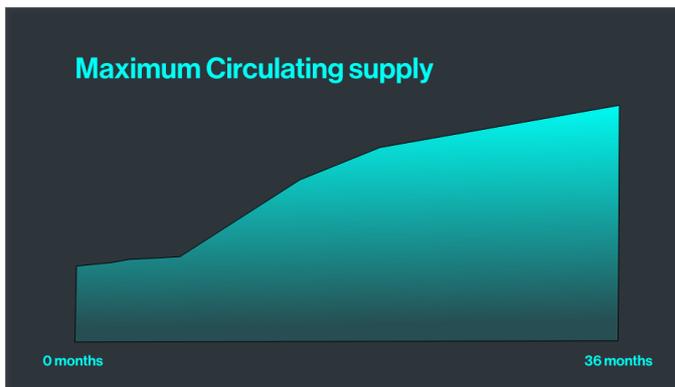
The Tokenomics are set up to create a sustainable project for the long run. The team will hold 10% of the tokens which will have a lock period of 6 months and a vesting period of 1 year. All tokens distributed after the private and public sale will have a multi-year release schedule. This will ensure a smooth increase of supply. Tokens that are not sold in the public sale will either be burned by the 3rd party or recovered by the team and allocated to the treasury.

Partnership tokens will be used to scale and promote the project by collaborating with big brands and implementing new tech solutions to improve the user experience of D-Drops. The events wallet will be used as a price for special events, such as a “New Year’s Hunt” or “Christmas Adventure Chests”.

Tokenomics – Release Schedule

Total Supply

Private Sale	--	50%	--	0	--	3 Months
Public Sale	--	50%	--	0	--	3 Months
DEX Liquidity	--	100%	--	Lock	--	xx
Team	--	0%	--	6 Months	--	12 Months
Talent	--	15%	--	2 Months	--	10 Months
Partners/Angels	--	0%	--	6 Months	--	18 Months
Treasury/Events	--	0%	--	6 Months	--	30 Months
		initial Release		lock period		vesting period



**This chart does not include team & claim burns*

Tokenomics - Mechanism

The main goal when designing the Tokenomics of D-Drops was to create a link between trading activity and the rate of treasure drops as well as an overtime increase in the price of the DOP token thus an ever increase in treasure value. The exact process is described below.

When tokens are purchased 5 percent of the total purchase sum is sent to the prize wallet. The prize wallet is used to fill the treasure chests. As tokens are burned during the claiming process of a treasure this decreases the total supply of the tokens which in turn increases in the price of the token over time. Since there is a percent contribution to the treasure wallet as well as a percentage cap, a more expensive token results in a more valuable content of the treasure chests. This process is visualized in the flow chart see *Appendix C*.

Calculation

In short

The total amount of volume needed per treasure chest to drop is given below:

Type A- Common	value: \$2	\$100 volume
Type B- Frequent	value: \$20	\$1333 volume
Type C- Rare	value: \$200	\$20,000 volume
Type D- Exotic	value: \$2000	\$400,000 volume

Furthermore, per one type D treasure drop the amount of type A, B, and C treasure drops are given below:

Type A: 4000 pcs

Type B: 300 pcs

Type C: 20 pcs

Note: These calculations are made by choosing certain values for the degrees of freedom. Different DOF values yield different treasure chest drop rates and content values. (see Appendix D)

Burn

For every treasure found an amount of DOP token equal to 10% of the total treasure value is needed to claim the treasure. Since the tokens used to claim treasures are burned this will result in a DOP burn of 10% of the total treasure value per treasure found. Furthermore, as the treasure value cap is a function of the token price this results in a constant amount of token burn per treasure type, see below.

Type A: 10% is $0.1 \cdot 100 \cdot \text{DOP} = 10 \text{ DOP}$

Type B: 10% is $0.1 \cdot 1000 \cdot \text{DOP} = 100 \text{ DOP}$

Type C: 10% is $0.1 \cdot 10,000 \cdot \text{DOP} = 1000 \text{ DOP}$

Type D: 10% is $0.1 \cdot 100,000 \cdot \text{DOP} = 10,000 \text{ DOP}$

Given the above scheme, the linear correlation is clear between the burn rate of tokens and the treasure find frequency (TFF) meaning that if there is an x amount of treasure found there will be an $x \cdot b$ number of tokens burned with b being some as of yet undetermined constant. Assuming the TFF depends only on the hunting activity (amount of people hunting for treasures) the burn rate of DOP tokens will entirely depend on the rate of increase of treasure hunt activity and thus on the overall growth of the community. So, a linear growth of the community results in a linear decline of the total amount of token supply while an exponential growth of the community will result in an exponential decline of the total token supply i.e. there is a one-to-one correlation in the growth of the community and scarcity of the DOP token. Once 50% of the total supply is burned the burning process will change into an airdropping process meaning that instead of effectively destroying the tokens, the tokens will be distributed among the holders.

D-Dapp

D-Dapp is the D-Drops app and can be used for the following purposes:

- Identify areas where treasures are hidden.
- Read the treasure code of the found treasure and save it in your code list
- View treasure collection
- Claim treasures

D-Dapp uses google maps to show the location of the treasures. The approximate location ($\pm 500\text{m}$) of the common and frequent and rare ($\pm 1\text{km}$) treasures are shown by default. The exotic treasures are only shown when the users are within 1.5km of the approximate location of the treasure.

Requirements

In order to be able to claim a treasure you need to meet the following requirements:

- Have a valid treasure code for the specific treasure you are trying to claim
- You currently need to own at least the minimum amount of DOP tokens required by your registered rank.

Treasure location

A valuable piece of information that the app needs to have is of course the exact location of the treasure. It has been mentioned before that this information is stored inside the smart contract and there is no way for anyone to get to it other than the smart contract providing you with the information given you meet certain criteria like being in the vicinity of the treasure location.

There is no problem with sending the approximate location of the treasures to D-Dapp because that's all it is, it is an approximate location and if one wants to know the exact location it is necessary to go to the approximate location and search for the treasure which is the whole purpose of this project. But how can D-Dapp know when a treasure is found if it only knows the approximate location of a treasure. If that is all the information to work with D-Dapp would have to decide when a treasure is found just by checking if the user is in the approximate location of the treasure which is known to everybody. This would mean that all one has to do to find the treasure would be to go to the approximate location and send a claim request. Which will result in a first come first serve system and would defeat the whole purpose of the project which is meant to have users go on an adventure to searching for treasures and not simply collecting them at the specified location.

If the exact location of the treasures is sent to D-Dapp it is susceptible to cyberattacks. Among other things, one could program a script to send the coordinates of each point within the approximate location of the treasure and have it find the treasure in a matter of minutes. In order to prevent cyberattacks and still make it possible for users to find the treasures, the exact location of the treasures is sent to D-Dapp in a masked form. This masked form is designed in such a way that it will be easy for a human to recognize it but impossible for an AI. Not even D-Dapp itself will be able to recognize the exact location of the treasure. The way this is done is by hiding the location of the treasure within the virtual landscape D-Dapp will know how to construct the landscape but will not be able to tell what a treasure and whatnot is. A human on the other hand will be able to recognize the treasure as such just by looking at it. A human will know how a treasure chest looks like and thus when found will be able to walk to the treasure chest and send a claim request to claim the treasure. An AI, on the other hand, has no concept of how a treasure chest looks like and as such will not be able to identify its location. Furthermore, as mentioned before a claim request requires DOP tokens which regardless of whether the claim is approved or not will be immediately burned by the smart contract. This makes it for the cyber attacker unfeasible to try and use exhaustive search to find the treasure because the only way to know if a treasure is located at a certain location is by sending a claim request. On average it would take up to $10e6$ tries to find the location of the treasure by the exhaustive search method and since every claim request requires tokens that would mean that the cyber attacker will lose $x * 10e6$ times the token price which can go into millions of dollars depending on the DOP value at the moment.

Tiers

From the moment a user purchases his or her very first DOP token they will be placed in a tier list according to the amount of DOP token they hold, the tier list is updated during each transaction. Below you can find the tiers with the required amount of DOP tokens required to be placed in one.

Tier 1 Beginner

Tier 2 Explorer

Tier 3 Hunter

Tier 4 Pirate

Tier determines which treasure you will be eligible to hunt for. The higher your rank the more valuable treasures you can hunt for. Beginners will be able to hunt for a couple of ETH's while someone with the rank Pirate or Hunter will be able to hunt for treasures with rare NFT's and much more crypto coins thus the rewards increase with one's tier.

Note: The tier list is created for illustration purposes only, the actual tier rankings will be announced when the D-Dapp is close to launch.

Applications

In essence, D-Drops, creates digital retrievable items or DRI's, in the subsequent part of this section digital retrievable items will be referred to as DRI's. D-Drops uses DRI's to create treasure chests with valuable content for the D-Drops holders to find and collect or cash in for serious money. However, the application of DRI's is not limited to just that. One can create anything and make it a DRI and drop it for the world to find. Enabling users to create their own DRI's in the future is one of the goals of D-Drops. That way the ecosystem can grow exponentially with unlimited growth potential. Of course, the use of DRI's is only limited to one's imagination however a couple of uses for DRI's with the D-Drops system are described below.

Advertisement

Using DRI's to spread coupons, discount cards, and or flyers in the immediate surrounding of a local business is a fun way to attract customers and keep up with the digital world. For the bigger companies who are established all around the world DRI's offer even greater advantages since using D-Drops the DRI's are dropped all around the world. Furthermore, since D-Drops drops chests with valuable content for its community members, the D-Drops community is an attractive audience to advertise your business to.

Charities

Charities can profit from DRI's by dropping their logos or some NFT's and such in order to raise funds. Charities can create a fund wallet and drop DRI's all around the world that can only be retrieved when someone offers a certain amount of money. Of course, another way for the users to support a charity would be to simply drop some cryptocurrencies right on top of the charity's location.

Presents

Since in the future NFT's can be used to prove ownership of real-world items, imagine dropping a brand new next-gen console right in the living room of someone and sending all kinds of gifts to each other.

Of course, these are just a few things that can be done shortly with the current day technology. We truly believe in the potential of D-Drops and have great expectations for the future.

Future goals

Shortly D-Drops times to be able to enable users to make and drop their treasures and create their fund wallets. The way to fill a fund wallet would be to offer DRI's to users who are willing to offer a by the user decided amount of fund with a minimum set by the fund wallet owner. Another big goal of D-Drops is to keep working on the digital layer where the treasures are hidden. It should go from as simple as showing the approximate location of a treasure on a map to an entire virtual world with music and entertainment. Furthermore, we strive to find the best and most balanced way to set the degrees of freedom used in the Tokenomics section. Community feedback in this process is invaluable therefore there will be a feedback section added to the website for users to provide their feedback.

Project Phases

Phase One

The purpose of Phase One is, building the community and securing enough funds to build the platform. For the platform to work there has to be a decent amount of volume as soon as the platform is launched. That is why community building is an essential part of the project and has a phase dedicated to it. With Phase One and the short-term roadmap (can be found on the Phase One website) D-Drops aims to grow the community and introduce the concept to the world.

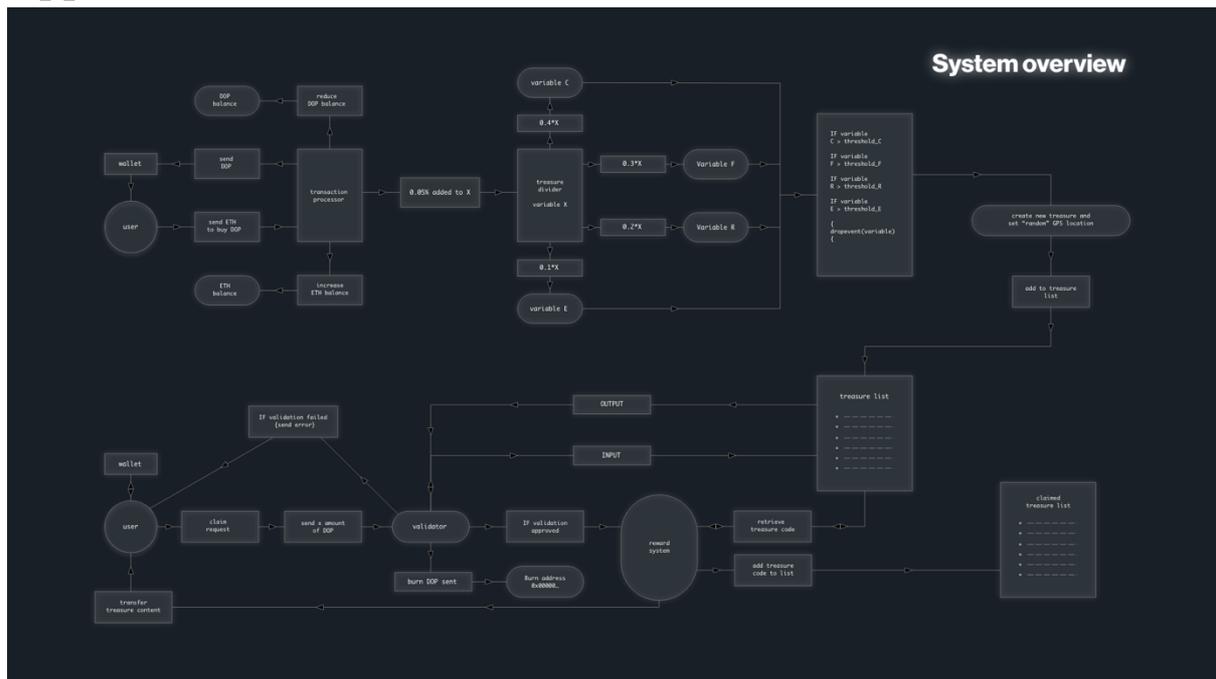
Furthermore, it is a way to give a taste of what is to come when the full D-Drop project is launched.

More info about Phase One will be released in the designated "launchpaper". A link to this paper will be added in an updated version of this whitepaper.

Phase Two

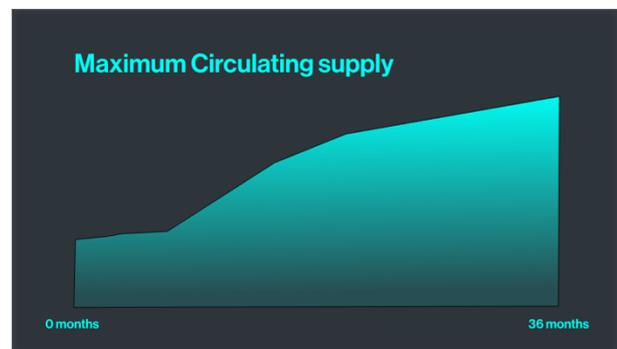
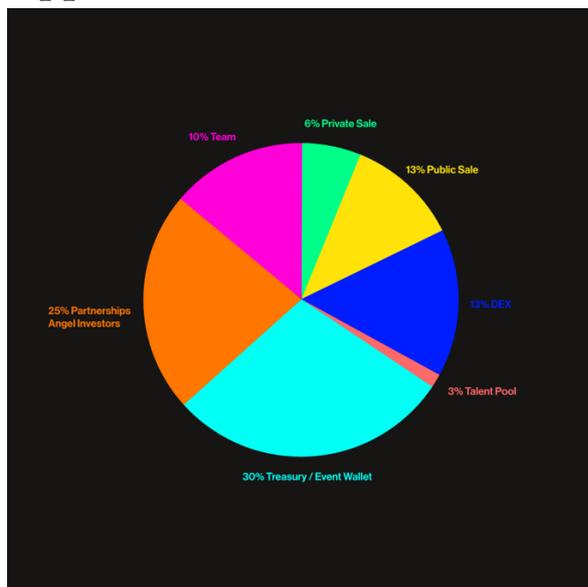
When Phase One has been successfully executed Phase Two begins. Here D-Drops main objective is to create, test, deploy all of the technology that is essential for the platform to function. There will be heavy debugging and a grand bug bounty program to make sure the Smart Contract and Platform Code are airtight. D-Drops will undergo multiple Code audits by trusted 3rd parties to ensure everything is of the highest standard. D-Drops aims to launch Phase Two as early as January 2022.

Appendix A



Link to actual size: <https://ddrops.world/wp-content/uploads/2021/10/SYSTEM-OVERVIEW.pdf>

Appendix B

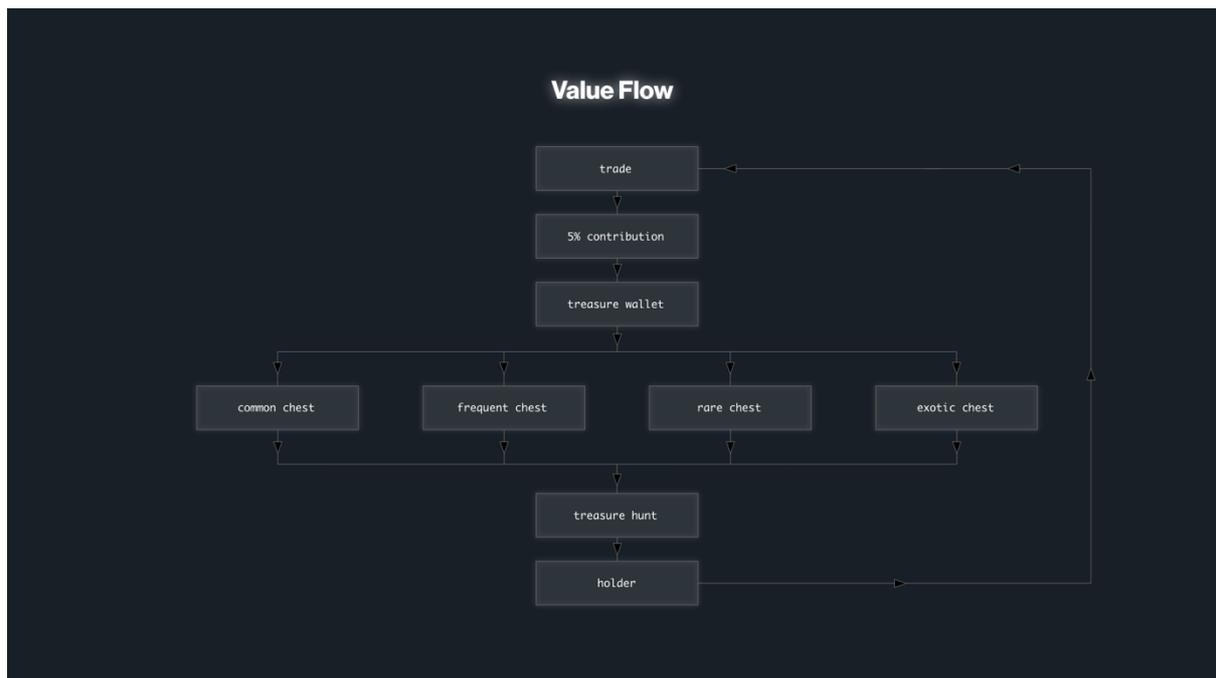


Link to actual size: <https://ddrops.world/wp-content/uploads/2021/10/TOKENOMICS.pdf>

Appendix C



Link to actual size: <https://ddrops.world/wp-content/uploads/2021/05/chest-increase.pdf>



Link to actual size: <https://ddrops.world/wp-content/uploads/2021/05/value-flow.pdf>

Appendix D

In- depth Calculations and Formulas

In this section, a more detailed overview of the calculations is given

To be able to determine a token price with respect to the treasure drop rate (TDR) first some formulas need to be derived.

As mentioned in the treasure section the value cap on the treasure chest content per treasure chest type is as follows:

Type A: Common chest, the cap is equal to $100 * P$

Type B: Frequent chest, the cap is equal to $1,000 * P$

Type C: Rare chest, the cap is equal to $10,000 * P$

Type D: Exotic chest, the cap is equal to $100,000 * P$

Where P is the average price of the DOP token over a week.

Let x be the total purchase sum since 5% and 1% of the total purchase sum is taken as a contribution to the price wallet and project wallet respectively. The remaining 94% is used for the purchase of DOP tokens.

Let P be the price of one DOP token and c the number of tokens then formally we could state

$$P * C = 0.94x$$

Or

$$x = \frac{PC}{0.94}$$

Where P is the price of the DOP token, x the total purchase sum, and c the total amount of purchased tokens. Furthermore, since 40%, 30%, 20%, and 10% from the 5% contribution are sent to the Type A, Type B, Type C, and Type D treasure chests respectively we can formally state the following for the content of each treasure chest type.

$$\textit{Type A} = 0.05 * 0.4 * x$$

$$\textit{Type B} = 0.05 * 0.3 * x$$

$$\textit{Type C} = 0.05 * 0.2 * x$$

$$\textit{Type D} = 0.05 * 0.1 * x$$

Since we will use the common chest drop rate to calculate the price of the DOP token, we will use the corresponding formula.

$$\textit{Given that } x = \frac{PC}{0.94}$$

substituting for x in the above formula will give:

$$\text{TypeA} = 0.05 * 0.4 * P * \frac{C}{0.94}$$

Substituting with the formal definition of the cap for the Type A, treasure chests and introducing the variable r which represents the number of transactions needed to fill the chest gives the following:

$$\frac{10 * P}{r} = 0.05 * 0.4 * P * \frac{C}{0.94}$$

Dividing both sides of the equation by P gives:

$$\frac{10}{r} = 0.05 * 0.4 * \frac{C}{0.94}$$

Rewriting c in terms of r will give us the relation between the number of transactions needed to fill a chest (r) and the number of tokens traded during a transaction (c).

$$\text{TypeA: } C = \frac{100}{0.05 * 0.4} * \frac{0.94}{r}$$

The formula above can be used to determine how many tokens need to be traded per transaction to ensure a certain treasure drop rate.

Note: that this formula does not determine the absolute value of the treasure chest it merely tells us how many tokens need to be traded per transaction. The way the absolute value of a treasure chest is determined is by either choosing a certain price for the token and have the total purchase sum roll out the formula or choosing a certain amount of the total purchase sum and have the token price roll out. The absolute content of the treasure chest is then calculated using the acquired token price in combination with the treasure chest cap as it has been defined earlier in this document.

Of course, the number of tokens someone chooses to trade per transaction will be completely up to the user. These formulas are therefore only meant as a guide to determine the total token supply as well as the initial price per token and thus do not suggest a certain minimum number of tokens be traded per transaction. In short, there are several degrees of freedom that can be arbitrarily chosen to give a certain amount of total supply and token price. These degrees of freedom are for clarity listed below.

- *Contribution percentage per transaction*
- *Number of transactions needed for one treasure drop of the common type i.e., Type A. (symbol: r)*
- *Number of tokens to be traded per transaction (symbol: c)*
- *Total purchase sum per transaction (symbol: x)*
- *Token price (symbol: P)*

For now, the following values for the above parameters are chosen. These parameters are at all times subject to change by a majority community vote.

- Contribution percentage per transaction = 5%
- Number of transactions needed for one treasure drop of the common type i.e. Type A. (symbol: r)

$$r = 10$$

- Amount of tokens to be traded per transaction (symbol: c) This rolls out of the formula by substituting r = 10 :

$$C = \frac{100}{0.05 * 0.4} * \frac{0.94}{10} = 470$$

- Total purchase sum per transaction:

$$x = \$10$$

Which combined with the number of required transactions will give a required volume of $10 * 10 = \$100$ to drop a chest.

- Token price (symbol: P)

This rolls out of the formula by substituting C = 470 and x = 10

$$P = \frac{0.94x}{C} = \frac{0.94 * 10}{470} = 0,02$$

Since the content of the common treasure chest is capped to 100*DOP this will result in a treasure content value for the common chest of \$2 given a token price of \$0.02.

This means that for every 10 transactions given a minimum amount of \$10 per transaction leading to a trading volume of \$100 a common chest with a value of \$2 dollar is dropped somewhere around the world. Using the determined degrees of freedom and the formula below it can also be calculated how many transactions there are needed for a frequent (Type B), rare (Type C) and exotic chest (Type D) to be dropped.

Type B:

$$r = \frac{1000}{0.05 * 0.3} * \frac{0.94}{470} = 133 \frac{1}{3} \text{ TR or a volume of } 133 \frac{1}{3} * 10 = \$1,333 \text{ (value: \$20)}$$

Type C:

$$r = \frac{10000}{0.05 * 0.2} * \frac{0.94}{470} = 2000 \text{ TR or a volume of } 2000 * 10 = \$20,000 \text{ (value: \$200)}$$

Type D:

$$\begin{aligned} r &= \frac{100000}{0.05 * 0.1} * \frac{0.94}{470} = 40,000 \text{ TR or a volume of } 40,000 * 10 \\ &= \$400,000 \text{ (value: \$2000)} \end{aligned}$$

In the above equation, we calculated the number of transactions (Tr) and volume needed for one treasure of a certain type to be dropped.

End Note and Links

D-Drops is excited for the future we are trying to build. We hope that you share our vision and will join us in this journey.

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D-Drops Team

Website

<https://ddrops.world>

Documentation

<https://docs.ddrops.world>

Telegram Community

<https://t.me/ddropsworld>

Telegram Announcements

<https://t.me/ddropsannouncements>

Twitter

<https://twitter.com/ddropsworld>