



# Introduction to The Space



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# Introducing The Space

## A Fair and Commonly Owned Public Space Inspired by r/place and Governed by Radical Markets

*When the great way prevails, the world community is shared by all.*

— Confucius

Although blockchain and smart contracts let us create and own digital assets in exciting new ways, only the minority have created wealth from trading cryptocurrencies and NFT pixel art.

If digital assets are privatized, we are destined to repeat the inequality of the physical world. This is a pity because there is a great opportunity to create digital spaces that are inclusive, fair, and truly public.

First introduced and popularized by Glen Weyl and Eric Posner in *Radical Markets, Partial Common Ownership (PCO)* is a type of ownership that could be fairer and more efficient than both private ownership in capitalism and common ownership in communism. Unlike fractional NFTs, where different owners share an asset, PCO is based on radical market principles.

PCO requires assets to be in a state of continuous auction (every owned item is always on sale) which differs radically from our daily lived experience. If a property is always on sale, this introduces psychological resistance in the real world. Up to now, there has not been a large-scale experiment on PCO.

In *The Space*, we created a blockchain-based pixel canvas where each pixel is a non-fungible token traded under Harberger Tax, one of the most discussed designs of PCO.

We then use the Universal Basic Income(UBI) concept to distribute the majority of the tax collected. Because everyone gets a basic income, the game is more equal and sustainable. The result is a permanent public space that is constantly evolving, governed by the market, in the form of a collaborative pixel graffiti wall.

The pixel graffiti wall is the ideal medium for radical market principles: each pixel is trivial enough to be continuously auctioned, while the wall as a whole is by nature commonly

enough to be continuously auctioned, while the wall as a whole is by nature commonly owned. This pixel graffiti wall is a miniature attention economy, the dynamic of which is indicative of how market designs such as PCO can be used as the foundation for a new attention economy in Web3.



**The Space: an everlasting co-creation blockchain graffiti wall shared and governed by all participants through radical market principles**

*The Space* is inspired by [r/place](#), the phenomenal co-creation pixel map launched by Reddit in 2017 and 2022. In [r/place](#), millions of players drop pixels together on the canvas, creating impressive patterns and visual memes. [All those works](#) evolve in a bottom-up and democratic way and every creator “votes” for how the whole pixel map looks by adding their pixels every 5 minutes. The emergence of patterns is full of novelty, reflecting the cyberculture of our age.

We love [r/place](#) and are willing to build a Web3 version of [r/place](#), a cultural hub where all ideas can manifest visually. *The Space* brings blockchain technologies, Radical Markets theories, co-creation pixel map, and DAO together, to extend their common fundamental ideas: decentralized common sense.

By introducing a property market to stimulate profit-driven behaviors, Harberger Tax to ensure efficient pixel trading, UBI to redistribute capital, and SpaceDAO to encourage democracy, we designed the creation dynamics in *The Space* to be self-sustainable and able to be revived again and again to endure the erosion of time.

## How it works

In the game, each pixel is minted as an ERC-721 token when it is traded the first time. Different from a market ruled by private property law, pixel NFTs in *The Space* are traded under Partial Common Ownership (PCO), a.k.a. Harberger Tax.

The market has two rules:

1. Every pixel NFT is always on sale.
2. The current owner can set the price for his/her pixel, and pay tax for a percentage of the price.

With those rules, if the owner wants to keep holding the pixel, he/she should set a higher price for it to dispel other buyers, and pay more tax as cost accordingly.

In the current design, most of the tax pool is redistributed to all holders as Universal Basic Income. The rest of the tax pool is reserved for the Community Fund, to support Third-party developers and other operational works.

After the official launch, the administration of the Community Fund is firstly owned by the developer team and then transferred to SpaceDAO. All key economical parameters in *The Space*, such as the tax rate, and the proportion of UBI in the tax pool, are then determined by SpaceDAO.

## About Harberger Tax

The concept of **Harberger Tax** [1][2] is discussed in detail in the book *Radical Markets* and the essay *Property Is Only Another Name for Monopoly*. Harberger Tax is designed to efficiently distribute public resources. It adopts market principles with partial common ownership so that the market can be both fair and efficient. In a market ruled by Harberger Tax, the ownership of assets is fluid and stays longer in the hands of holders who can better utilize it to generate value.

Generally, Harberger Tax can be summarized in two rules:

- People can set any price for their own assets, as well as pay the property tax proportional to the set price.
- Anyone can buy an asset from the owner at any time (without consensus), as long as the bid price is higher than the set price.

The temporary owners of the asset need to actively set the price of the asset by considering the asset's capacity for tax-paying and value-creating. They need to set a higher price for the asset and thus pay the higher cost if they hope to hold the asset for longer and lower the risk of it being bought by other participants in the market.

## Why we choose the Harberger Tax

In *The Space*, since pixels are limited public resources, it is necessary to distribute them fairly. Through Harberger Tax, those who are willing to set a higher price and pay more tax accordingly can hold a pixel longer. If all assets under Harberger Tax are always on sale, creative works can emerge and evolve at a faster pace and thus bring more vibe to the canvas.

Ultimately, the ideology of Harberger Tax is a perfect match with the ideology of *The Space*. The idea of the Harberger Tax is to adopt the power of the decentralized market and eliminate the centralized control of the authority. Similar to *The Space*, the creation is by nature decentralized. Introducing a market mechanism for the exchange of pixels is much more natural than other arbitrary rules, such as the forced cool-down mechanism introduced by r/place.

## How the Tax System is Implemented

*The Space* is developed as smart contracts on a blockchain, and time is measured by block number within smart contracts. The tax amount corresponds to a pixel and is therefore calculated based on the difference in block number between the last tax collection and now.

For a pixel  $p$  for which tax was collected at time  $t$ , the outstanding tax at any given moment is calculated as:

$$Tax_p = Price_p \times TaxRate \times (BlockNumber_{now} - BlockNumber_t)$$

The global *TaxRate* is one of the 3 configurable variables in the tax mechanism. These configurations can be updated by the DAO that manages *The Space*.

In principle, tax can be collected at any time. Since there is no equivalence of a job scheduler in smart contracts, tax collection is triggered by the following operations:

1. Pixel owner updates price for a pixel
2. A creator places a bid on a pixel
3. Pixel owner transfers a pixel to another address
4. A creator calls the tax collection function

The last operation, the designated tax collection function, can be called by anyone at any time on any pixel. Pixels without 1~3 economic activities can still be taxed this way by the managing DAO or any other creator. In our test runs, we have seen creators organize themselves to be volunteer tax collectors and develop tools for collecting tax in batches.

After the tax is collected, it is divided into two buckets: Universal Basic Income and Community Fund. The ratio between these two, *TreasuryRate*, can be updated by the managing DAO.

## Defaulting pixel and transferring pixel

If the pixel owner cannot pay the total amount of outstanding tax, the pixel will default. This is performed by burning the corresponding ERC721 token. If pixel default results from tax collection during pixel transfer (via ERC721 transfer functions), it causes the transfer to fail.

Therefore, in order to keep the ownership of the pixel, the owner needs to keep enough balance and approve enough allowance to the smart contract. After a pixel is defaulted and burnt, any user can mint the pixel again so that the pixel is back into circulation. This creates a potential form of attack, where a user can set an arbitrarily high price, and mint it back after it defaults. Therefore, we introduced *mintTax*, which is a tax collected during pixel mint. The amount of *mintTax* can be adjusted by the managing DAO.

Another form of attack can be formed by first raising the price of a pixel, then transferring the pixel to another user. The second user is now obligated to pay a large amount of tax. To mitigate this, pixel price is set to 0 during pixel transfer. The idea behind this design is as follows: assuming the ownership of all pixels is governed by Harberger Tax, then transferring a pixel for free equals setting its price to 0, which allows the receiver to buy it for free.

## About Universal Basic Income

Universal basic income (UBI) is a way of income redistribution. UBI does not depend on individuals' or families' financial situations. Instead, everyone has the same "basic income". For the wealthy, the marginal utility for "basic income" is trivial, perhaps less than one-tenth of their monthly income. However, for the poor, the marginal utility for "basic income" is significant.

In theory, UBI can effectively increase the welfare of the poor. Compared to the traditional welfare system, UBI reduces dependence on the centralized system and its administrative costs, as well as avoids potential discrimination and privacy invasion of those who need welfare.

## How UBI is Implemented

In *The Space*, creators pay a tax proportional to their offer price for that pixel. The UBI received is proportional to the number of pixels they own. The introduction of UBI encourages players to reclaim areas that are lacking attention on the canvas rather than focus on areas with intense competition or "abundant attention". This increases the liquidity of the pixels.

UBI also benefits creators who care more about artistic expression. Even if these creators don't participate in the price competition of the pixel market, they can still benefit from



those who set a higher price.

The majority of the tax collected is returned to the participants of *The Space*. The intention of a Universal Basic Income (UBI) is to distribute income evenly so more creators can

continue participating in the game. However, since *The Space* is an open system where anyone can create arbitrary addresses and join, rewarding all players encourages free-riding. Therefore, we designed the UBI to be distributed to pixels, while pixel owners are able to withdraw it to their own accounts.

This design also simplifies the calculation and storage of UBI data, since the only information that needs to be recorded for each pixel is the amount of UBI withdrawn, then the amount of UBI available can be calculated based on the total tax collected.

For pixel  $p$ , the amount of UBI available for its owner to withdraw is calculated as:

$$UBI_p = TotalAccumulatedUBI \div TotalSupply - WithdrawnUBI_p$$

Where  $TotalAccumulatedUBI$  is accumulated by each tax collection,  $TotalSupply$  is the total amount of pixels, and  $WithdrawnUBI_p$  is the amount of UBI that has been withdrawn for this pixel.

## About \$SPACE

We issued \$SPACE as an exchange medium to support the economic activities in *The Space* such as buying and selling pixels, paying tax, receiving UBI, etc, as well as supporting the operation of SpaceDAO. \$SPACE is a standard ERC-20 token that people can obtain by claiming Airdrop or Fairdrop, completing community publishing tasks, or buying directly from a Decentralized Exchange (DEX).

Check  [Introducing \\$SPACE](#) for more details.

## About SpaceDAO

SpaceDAO is the home of all creators. In the future, SpaceDAO will have the ownership and governance of *The Space*. Put in short, *The Space* canvas is governed by the market laws under Harberger Tax, but the rules of the Harberger Tax are determined by SpaceDAO.

SpaceDAO determines a series of economic parameters such as the Harberger Tax rate, UBI ratio, or the canvas size, as well as the use of the Community Fund. In SpaceDAO, members can propose to change parameters in *The Space*, initiate bounty programs, and recruit third-party developers.

The governance detail for SpaceDAO will be gradually established after *The Space's* Launch. After the launch, The Space Development Team will manage the parameters in *The Space* and the use of the Community Fund at first, and will gradually transfer the governance rights of *The Space* to SpaceDAO, and finally transfer the ownership of *The Space* Community Fund.

## Future Plans

After *The Space* is officially launched, we will establish a Creator Fund from the Community Fund & Contributors that are reserved from \$SPACE issuance. These funds are used to continuously invite various Web3 communities, opinion groups, and artists to create in *The Space*.

We will also establish the Creator Fund to reward the developers who develop various third-party tools for *The Space*. In addition, *The Space* canvas will be minted as an official NFT regularly, and the sales revenue will be returned to the Community Fund.

After *The Space* is launched, the developer team will perform necessary centralized operations such as adjusting tax rate and triggering tax collection, then gradually establish SpaceDAO. After SpaceDAO matures, operations and ownership of *The Space* will be transferred completely to SpaceDAO. The future development of *The Space* will be determined by SpaceDAO.

## About Matters Lab

The Space is powered by [Matters Lab](#), the creator behind Matters.News, the biggest successful application of blockchain social media in the world with over 100,000 content creators, and other co-creation NFT projects, such as *Traveloggers*. Our mission is to enable a truly decentralized, self-sustaining community in a public space for content creators to monetize their digital assets with complete control.



Stay tuned and find us on [Twitter](#) and [Discord](#)!





The Space 乌涂邦简介

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