

Bringyourown.art is a DAO & DeFi project that aims to create the infrastructure and economic mechanisms for a network ecosystem where art, cultural or humanitarian projects can be funded through the DAO's resources, and the results of their projects monetised through NFT releases to benefit the artists and project members as well as the community overall. We aim to achieve this goal through smart contract integration on the XRPL via a hooks/ EVM model that will constitute how the DAO functions, distributes its available funding, and decentralises governance tasks back to the community. In addition, a collateralized economics model is being developed and will be implemented through an algorithmic sidechain, represented by the \$BYO token.

We also aim to introduce a 'soft staking' DeFi model that allows community members to receive rewards for simply holding NFTs in their wallet, through a novel use of hooks and the createtickets transaction.

Lastly, the BYOart Foundation is being established as the engagement arm of our community and serves to handle executive tasks unable to be automated now, such as artwork or artifact scanning, remote outreach/ education, project funding and other support services.

In its secondary function, we aim to use the DAO to liberate traditional (physical) art and artifacts. Using data-focused imaging hardware & techniques, we survey and preserve physical artworks and historical artifacts recreating them as 1-1 phygital NFTs that express the immensely rich detail, texture, and lifelike colour unavailable through traditional photography or laser 3D modelling.

Initially we will be working with geographically isolated artists and the not-for-profit foundations that operate on their behalf, bridging the technology gap and giving traditional and emerging artists a pathway into web3 and the meta-verse.

As we are using techniques to accurately measure the physical dimensions of the surface of an artwork, sculpture or artifact, the raw data associated with this these files will be made available upon request for research purposes.

The foundations – What are we trying to solve?

In 1957, Russell Kirsch produced the first digital image – A digitally scanned picture of his son measuring 176 x 176 pixels. During the NASA Mariner 4 mission in 1965, a rudimentary digital camera using a vidicon tube to translate the optical wavelengths into digital ones captured the first images of the surface of Mars. In 1975 the first commercial fully digital camera, the Cromemco Cyclops (a hobbyist construction project featured in the Feb 1975 issue of '*Popular Electronics*' magazine) was released with a MOSFET sensor resolution of 32 x 32 pixels.

By 1990 professional digital SLR cameras were on the consumer market and by the early 2000s, it was the medium of choice for much of the industry. Since then, digital photography & the digital camera has become ubiquitous in our lives, recording and documenting everything in the world around us for the past 20 years; The entirety of Web2's lifespan. Now we are living in a period where the virtual and digital worlds are meshing, and with the rise in popularity of the Web3 concept we are clearly heading towards a truly augmented reality.

This now presents a unique problem relating to how we translate the world around us and then present it in the virtual one.

Reflectance Technology Imaging

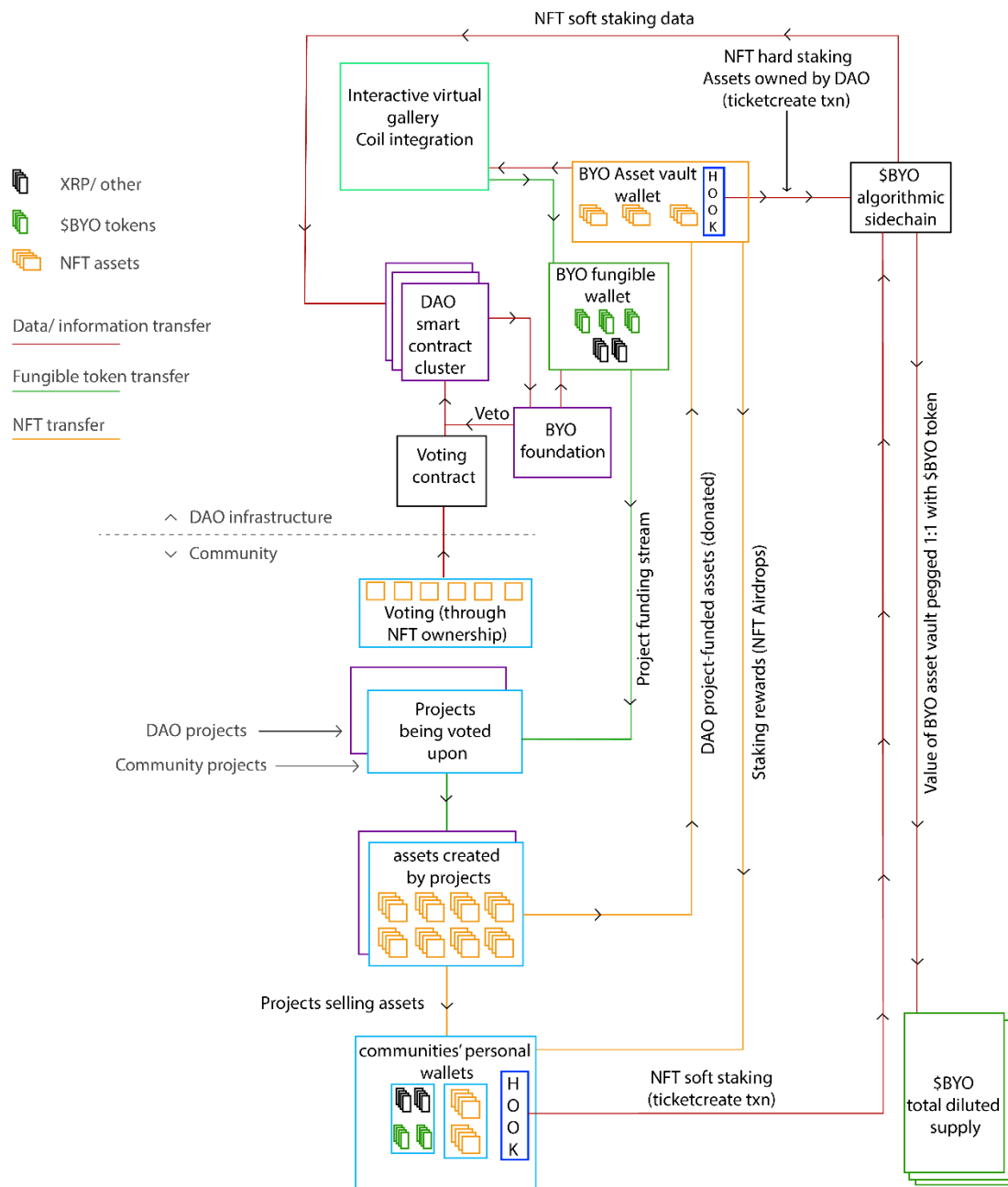
In 2001, Tom Malzbender of HP labs developed and released techniques for a process called Reflectance Technology Imaging. The technique – created initially for computer graphics development – is one of the most accurate techniques for capturing an image of an artwork's surface for research, monitoring change and historical/ cultural preservation. By taking multiple images of the object under altered lighting, the light direction can be referenced to X/Y axis grid points, mathematically measuring and accurately interpolating the object's surface texture digitally.

Another similarly important technique is Photogrammetry; First described in 1897 by the Prussian architect Albrecht Meydenbauer. This technique (in its modern form) uses multiple images of an object taken in a grid-like sequence which are then referenced to XYZ axis points in 3D space, a dense point cloud of

the object is produced and from this extract 3D reproductions of the object can be made to within an accuracy of $1/10^{\text{th}}$ of a millimeter.

The Cultural Heritage Imaging society have been the champions of this field of study, carrying the torch for the past 20 years and have made invaluable contributions to the field of digital imaging. A non-profit organisation that relies on donations for funding, they have documented some of the most spectacular artifacts and artworks and have helped unlock parts of our history previously undiscovered. It is their work that has inspired this project and we aim to engage with them to fund future community projects through the DAO.

When we think about using techniques such as photography or 3D modelling to document and record, we should be considering who we are creating this work for and what purpose it serves. While there is nothing wrong with using traditional digital photography or 3D modelling/ texture wrapping techniques to bring parts of our physical world into Web3 & the metaverse, we believe that with computing and storage limits increasing so quickly it is important to use this period of web3 infancy to ensure indigenous and traditional artists have a clear pathway into web3 and the metaverse. Artistic, historical, and cultural treasures around the world - especially those currently at high risk of damage, degradation, or destruction – Should also be preserved and documented accurately, not treated as an afterthought due to web3's narrow field of adoption at this point in time.



With the DAO's inaugural NFT project release, we will be allocating 30% of the total supply of NFTs to an asset vault that pegs \$BYO 1:1. With every subsequent project that is developed or funded through bringyourown.art, a portion of the NFTs generated will distribute to the DAO's asset vault. As the DAO becomes established and future projects initiated through the bringyourown.art community (with the community proposing projects and

voting upon how to distribute community assets to them) this will provide an economic system that promotes art, culture and research and encourages community members to create high quality content whilst serving to buffer the community from movements in the NFT market. The assets held in the asset vault by the DAO will also be displayed publicly in an interactive virtual gallery that will be integrated with Coil, enabling micropayments from consumers back to the DAO's fungible wallet (which becomes funding for projects proposed by the DAO's community).

For this concept to work, each NFT collection released by bringyourown.art needs to be valued fairly and accurately; those values are then combined to evaluate the \$BYO token. On the XRPL, each NFT contains a 'Taxon' value which can be set to identify NFT collections. From this, we can assess the market cap of each collection using the following formula (currently implemented by NFTgo for assessing NFT market caps on their analytics platform):

$$C \times N1 = MC$$

Where C equals the floor price of the collection and N1 equals the number of individual wallets that hold one or more NFTs from the collection.

We believe this to be the most accurate method currently available of assessing an NFT collection that also takes the distribution of the NFTs in the community into consideration.

The market caps of all collections are then combined to give the total value of the asset vault that \$BYO's value is pegged with.

In conclusion, the bringyourown.art project aims to introduce new capabilities and functions to the digital art, history, and cultural research communities and to remove barriers of entry into the web3 space for artists that use traditional mediums (i.e., Sculpting, paint on canvas, etc.). It also aims to develop a network economy that is (at a minimum) partially insulated from market fluctuations and is pegged to the quality and quantity of content produced by the community, evaluated in the open market.