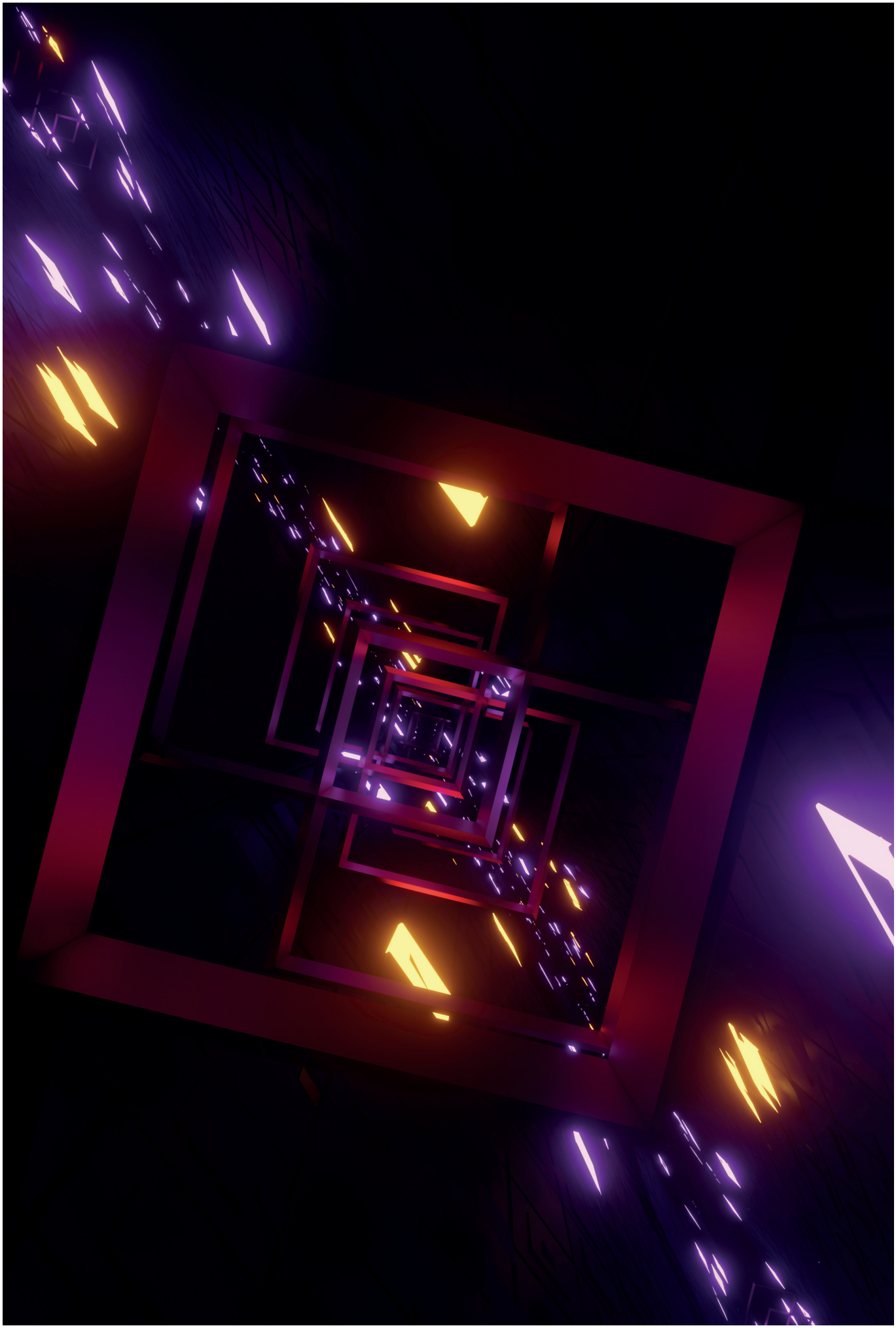

Distributed ledger technology and non-fungible tokens (NFTs)

As the metaverse is intended to represent a public good based on an open economy, distributed ledger technology (DLT) plays a key role in ensuring that representations of value and transactions in the metaverse are not controlled by any single actor and that they function in a transparent and permissionless manner.

The role of DLT in the metaverse

DLT, which involves the registration and validation of transactions on a decentralized network, provides the operational foundation for various cryptocurrencies such as Bitcoin, Monero, and Ripple's XRP. DLT also underpins protocols such as Ethereum, Binance Smart Chain, and TRON, which support smart contracts – essentially, pieces of code that, like automated machines, trigger or record certain transactions or information upon relevant conditions being met. DLT-based smart contracts have become a cornerstone of decentralized autonomous organizations (DAOs) and decentralized finance (DeFi) protocols, which are governed by transparently encoded rules that can only be changed by their users in a collective manner.

DLT therefore provides an ideal foundation for the exercise of self-sovereign ownership and user-directed exchanges of value. A prime example of this open economy is Decentraland, an Ethereum-based virtual world in which users can interact through games and activities, as well as purchase parcels of land they can use to build and monetize applications, marketplaces, and environments. Decentraland operates through a DAO, and transactions occurring in its virtual environment are smart contract-based. Users can employ a native token, MANA, to pay for avatars, wearables, names, and other items, and can hold unique parcels of land represented by LAND and Estate tokens.

Non-fungible tokens (NFTs)

While cryptocurrencies that are designed or used as a means of payment (for example, Bitcoin or Ether) are fungible (that is, fully interchangeable and replaceable), non-fungible tokens (NFTs) are a means of representing and certifying ownership in an item or content that is intended to be unique. For example, in the case of Decentraland, as referred to above, MANA tokens are fungible, whereas LAND and Estate tokens are NFTs.

While the technology that enables NFTs has existed for several years, NFTs have recently experienced a surge in popularity with the success of NFT-based applications such as CryptoKitties (which allows users to purchase, collect, breed, and sell virtual cats) and NBA Top Shot (which allows users to purchase and collect moments in NBA history, memorialized in video form). The vast majority of NFTs are based on the Ethereum protocol and use either the ERC-721 or the ERC-1155 standard, which ensures the uniqueness of a representation on the protocol.

Beyond the novelty value of being a digital, DLT-based representation of a unique item, some NFTs have use cases that add significant value to the process of transacting in and owning the item. Where NFTs are based on the Ethereum protocol, they can embed smart contracts that, for example, can trigger automated payments to designated persons upon relevant conditions being met. An illustration of this use case would be an NFT representing a piece of music or art that makes a royalty payment to the original artist each time the NFT changes hands. The programmability of NFTs therefore opens up a range of new ways of incentivizing and monetizing creativity.

The content represented by an NFT – for example, artwork, music, literary work, etc. – can be stored on-chain as

"Digital art represented by an NFT enjoys security of ownership but can continue to be enjoyed by the public."

part of the programming of the smart contract, or, more commonly, the NFT can be a representation of content or an asset that is stored off-chain. In the context of the metaverse, NFTs have proven popular not only due to their suitability to represent unique items such as avatars and virtual land parcels, but also due to the fact that they certify the holder's ownership of the underlying content while allowing third parties to enjoy that content. Unlike physical artworks that are sometimes confined to a vault and remain unseen by the public for indefinite periods, digital art represented by an NFT enjoys security of ownership but can continue to be enjoyed by the public. This is exemplified by Metapurse, a Singapore-based art collector and metaverse initiative that owns the largest known collection of NFTs (famously, works by artist Beeple) and has issued fractionalized entitlements to that portfolio, which can be purchased by investors. The art represented by the NFTs can be viewed in three custom-built, virtual museums in the Cryptovoxels, Somnium Space, and Decentraland environments.

Legal considerations

Businesses looking to acquire, trade in, or issue digital tokens should, as a first step, confirm the legal categorization of those tokens and whether their proposed activities may be subject to restrictions under applicable law. The nature of this legal assessment will depend on the fact pattern and jurisdictional touchpoints – for example, a developer of a decentralized platform that issues a native governance token to users should seek comfort on the legal treatment of that token in the location where the platform is hosted or the development team operates, as well as under the laws of the countries where the token may be offered to investors for fundraising purposes. A key priority will be to ensure that the token does not qualify as a security or other type of regulated instrument under relevant laws, because this will typically trigger a range of restrictions on the marketing of the token. While the risk of a token qualifying as a security or other regulated instrument may be more acute for fungible tokens that are treated by their users as an interchangeable store of value or investment, the same assessment should also be carried out with regard to any NFT that a business is looking to issue, acquire, or transact in.

With respect to NFTs specifically, it should also be kept in mind that an NFT representing an underlying item does not necessarily mean that legal ownership of or a right (for example, copyright) in that item passes to a purchaser of the NFT. Such transfer of ownership or rights will need to be appropriately documented in the terms governing the transfer (for example, in the terms of use governing the relevant platform where the NFT is traded, or in a contract directly between the purchaser and the seller). Separately, the parties should ensure that the transfer from the seller to the purchaser of the responsibility for storing the underlying off-chain item is appropriately documented, if required.

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NFT