

DNA Project Profile

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1. Project background

Tokenization of physical assets refers to the process of converting the ownership of real-world physical artwork, luxury goods, cultural relics, precious metals and other high-value items into digital tokens. This enables the storage and transfer of physical assets without the need for a central intermediary, and the value is mapped to the blockchain for efficient and secure transaction circulation. Therefore, how to build a set of effective correlation mapping system for physical objects has become a key part of realizing the tokenization of physical assets. In recent years, with the rise of tokenization of physical assets, the traditional market is undergoing rejuvenation and digital transformation, which not only covers the traditional investment, collection, trading and exhibition business, but also includes emerging businesses such as appraisal and evaluation based on blockchain technology and financial derivatives services. For precious metals, works of art, cultural relics and luxury goods, the high value of a single piece of imitation profits, commonly used mapping means such as: QR code, bar code, RFID, safe deposit boxes, etc. can not effectively identify whether the items are swapped and replaced. Aiming at this mapping problem, we have developed "AI mapping" technology to provide scientific and technological support for cracking the problem of decentralized mapping of physical asset tokenization.

2. Technical realization

2.1 Commonly used mapping methods and issues

- A. Printing or implanting QR codes, bar codes or RFID near-field communication chips on product packaging. This approach has the following challenges:
 - a. QR code or RFID damaged or destroyed

The digital asset on the chain then no longer corresponds to a real-world physical asset, and the blockchain loses the ability to track and manage this physical asset.

b. QR codes or RFIDs are affixed to other physical objects

For example, the digital assets of the blockchain obviously represents Qi Baishi's "sick tiger picture" will represent this asset QR code or REID uncovered, turn around and stick to the netizen's tiger tsunami mountain forest picture, once there is a real label bound to the fake object situation, then the physical asset tokenization will be meaningless.

c. Multiple QR codes or RFIDs representing the same digital asset are affixed to a physical asset.

The equivalent of multiple IDs for one object and finding ways to sell more than one thing before delivery, which seriously harms consumers.

B. Locking up physical assets in the physical world in automated vaults

This approach enables the mapping of off-chain physical assets to on-chain digital assets, which is done in such a way that the physical counterpart of the digital asset is treated as a secondary offering rather than as a closely related component of the product. Once the purchaser completes the transaction and removes the physical asset through the safe deposit box, the corresponding digital asset will be replaced or destroyed, and the ability to track, trace and manage this physical asset will be lost, making the blockchain meaningless.

2.2 Introduction to related technologies

Homogenized token (fungible token, FT), is a kind of replaceable, detachable, with the unity of the asset pass, like BTC and ETH are homogenized pass, as long as the value is the same, it can be exchanged.

Non-fungible Token (NFT), with its unique and irreplaceable characteristics, is thus very suitable for confirming the rights of things with special value, such as artwork, housing contracts, jewelry and other physical assets, which can be used to prove and trace physical ownership using NFT-related technologies.

DNA PassPort is an online + offline identity aggregation dApp that allows users to collect various proofs of identity called stamps from web2 and web3 authenticators. As shown in Figure 1

DNA Wallet is a wallet that supports multiple public chains and their on-chain token storage, transaction, and management. It integrates the functions of "DNA Smart Forensics", DNA PassPort, and NFT minting and verification. As shown in Figure 2

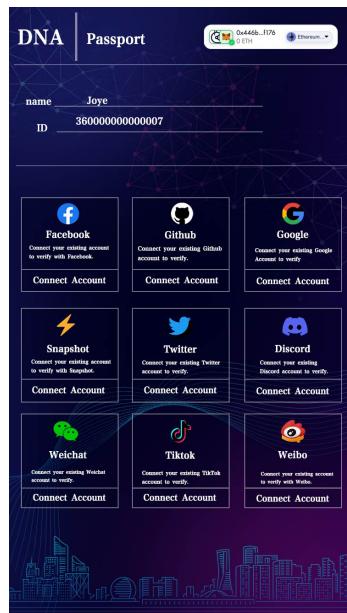


Figure 1:DNA PassPort



Figure 2: DNA Wallet

DNA Intelligent authentication instrument is a portable intelligent electronic microscope device for automatic scanning-type acquisition of microscopic images of the surface of objects used in conjunction with cell phones. It includes: an image acquisition device with a wide-angle lens, a light source device, an image acquisition device with a microscope head,

a casing, a Bluetooth wifi module and a gyroscope. As shown in Figure 3

A safe deposit box is generally a piece of equipment leased to a user by a banking institution for the purpose of storing items with a high level of security and providing the special environment required for the items to be stored. Customers can store valuable or private items such as jewelry, antiques, paintings and real estate deeds in a bank safe deposit box, and sign an agreement with the bank and pay a certain rental fee to enjoy the safe deposit box service. As shown in Figure 4: It mainly includes storage compartments and microcomputer control components.



Figure 3:DNA Intelligent authentication instrument

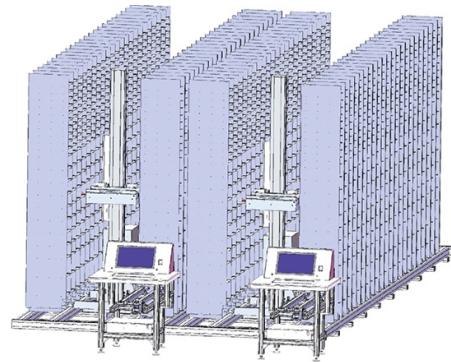


Figure 4:Automatic Safe Deposit Boxes

2.3 Principles of realization

Through the use of self-developed portable equipment ("Intelligent Forensic Apparatus"), collect the micro-images of the surface of the article with local magnification N ($N > 180$) times (these micro-images are unique) and upload them to the IPFS storage to obtain the ipns link, and then summarize all the information of the article through the real-name authenticated public chain account and mint them into NFT. When verifying, first confirm the real name information of the person who mints the NFT and then shoot the microscopic images of the same location and the same magnification of the items, and compare them with the microscopic images on the ipns link in the NFT with artificial intelligence algorithm

to realize the one-to-one, solid and trustworthy mapping relationship between the digital assets on the chain and the physical assets under the chain, so as to realize the introduction of the real world trillion-dollar market into the crypto-market.

Ceramics, for example, in the high-temperature firing process, subject to physical and chemical changes, even if the same kiln firing and the same shape of any two pieces of ceramic art, the surface microstructure (glaze bubbles, microcracks, etc.) are different, and this random formation of the characteristics of the information can not be reproduced, constituting the only identification of the ceramic art, as the ceramic art of the "DNA".

3. A bridge to the real world - DNA

DNA Intelligent authentication instrument combines smart contract, DNA PassPort , DNA Wallet and automated safe deposit box technology to realize the minting and circulation of NFT assets on the chain as well as the mapping and hosting of corresponding physical assets under the chain, and to solve the mapping and efficient and credible circulation of assets. The chain relies on the automatic safe deposit box and DNA Intelligent authentication instrument to guarantee the safe custody of assets, and the intelligent contract ensures decentralized acceptance and delivery. The intelligent asset management platform, meta-universe and mall based on DNA protocol is essentially a legally compliant real-world physical asset trading and mortgage lending platform.

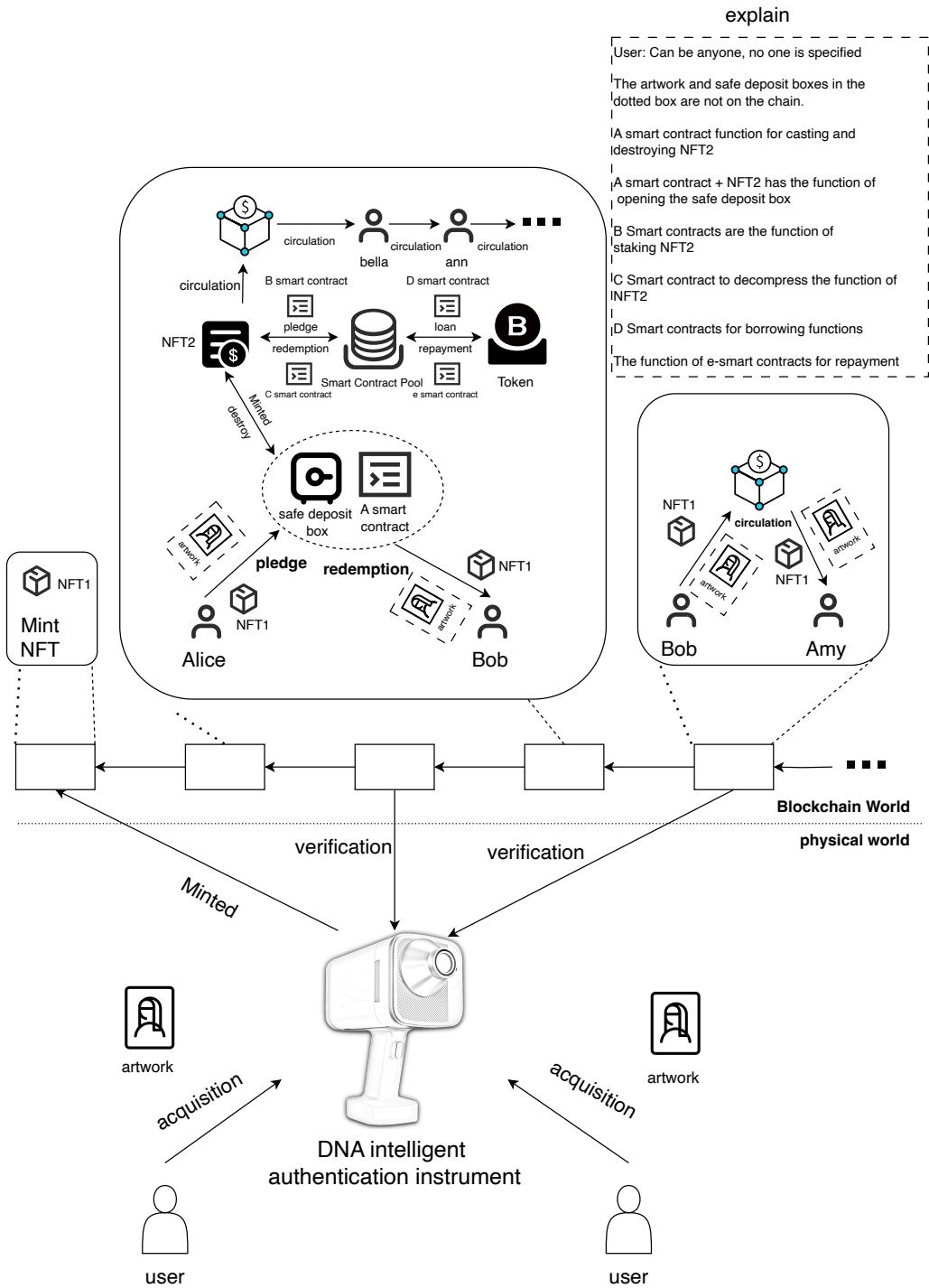


Figure 5:Cross-domain flow of physical assets in blockchain

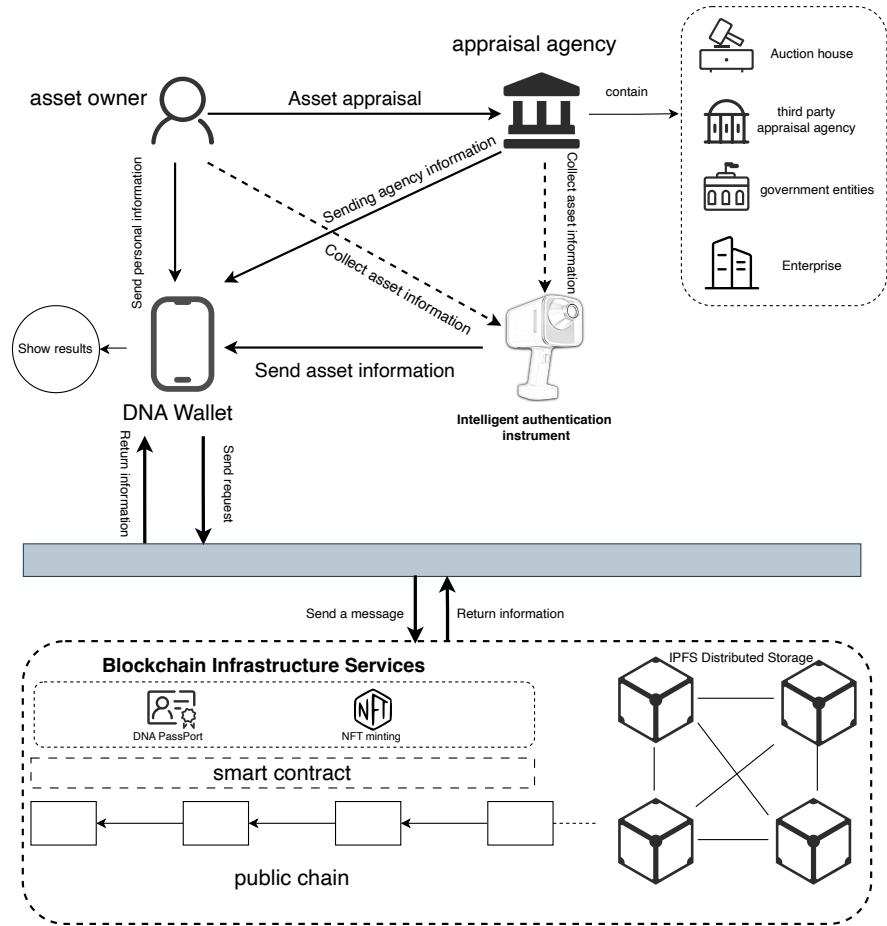


Figure 6 Linking Reality World Flow

For example: master Leng Feng firstly uploaded his personal identity and social information to the public chain with the help of DNA PassPort, which in simple terms means publicizing his anonymous public chain account with his real name. Then, he uses DNA Smart Forensics to capture the microscopic image of his work "A" magnified 180 times, and uploads it to IPFS storage to obtain the ipns link of the image. Then, using the public chain

account with real name authentication, the master uses the NFT minting function in DNA

Wallet to fill in all the information and ipns link of the work "A", thus minting NFT1.

Subsequently, the master deposits the work "A" into the bank's automated safe deposit box,

and at the same time, the bank staff verifies whether the NFT1 and the work "A" are bound

together, and after the verification is successful, the NFT1 can be pledged into the pool of

smart contracts to generate a smart contract with the ability to open the work "A" stored in

the pool. After the verification, NFT1 can be pledged to the smart contract pool to generate

NFT2 with the contract address of NFT1 that can open the safe deposit box of Artwork A.

After that, Leng Feng can hold NFT2 to carry out auctions, transactions, mortgages and

lending operations. Suppose Li Lei buys Leng Feng's NFT2 with 5 million dollars and then

pledges to borrow 3 million dollars from aave. Due to inability to repay, aave liquidates

NFT2. Eventually Bob photographed NFT2, with which to open the safe deposit box to

unlock the NFT1. Intelligent authentication instrument to verify the binding relationship

between the work A and NFT1 in order to prevent the transfer of packages, such as the

transfer of packages bank or insurance company compensation. Since the safe deposit box

can be accessed anonymously, anyone can redeem the work A with NFT2. This integration

of the DNA protocol eliminates the need to rely on a third party and allows for the

liquidation of physical assets through smart contracts.

4. DNA Leads Real-World WEB 3.0 Change

a. To digitally empower physical assets, open up channels for asset digitization and build a new pattern of global transactions. To bring massive liquidity, exposure, traffic and visibility.

b. Give any physical asset a reputation and social context. As the item interacts with brands,

communities and individuals in the real world, its on-chain history will be enriched and become an important part of its value and appreciation. Since the on-chain record of an item is separate from its owner, the item can be sold along with its complete history and priced accordingly.

c. Creating a new community distribution channel for businesses, organizations, creators and individuals

d. Unlocking full-stack utility for users, owners of physical assets can derive value from both physical (wearable items) and digital (display ownership, early access, exclusive rights) domains.

e. Opening up new financial lending services for physical assets (DeFi 2.0)

f. Providing sustainable, genre-rich, traditional asset-backed real yields for crypto markets

g. Importing into the crypto market the massive liquidity, vast market opportunities and enormous value capture of traditional financial markets

5. DNA on the ground

China Customs builds a "Smart Supervision of Artwork" project based on "DNA Intelligent authentication instrument" (hardware + software service 100,000/set), introduction link:

<https://rdna.pro/video-3.html>

China Mobile creates ceramic artwork authentication solution based on CMCC Chain+ Intelligent Forensic Apparatus. Introductory link: <https://t.cn/A6QMGwrQ>

State Administration of Cultural Heritage based on "DNA Intelligent authentication instrument" (hardware + software services 100,000 / set) to create a "cultural relics full-process supervision" project, to solve the antique cultural relics from the excavation of the

whole process of supervision of museum exhibitions and so on.

6. Awards and progress



7. Token Economics

There are two tokens in the DNA ecosystem, issued by the Hong Kong DNA Foundation (DNA and RNA). DNA is the fuel token, with a total of 1 billion tokens in a constant quantity, which is used to realize the control of the DNA ecosystem resources, and is mainly used to pay for the use of the "DNA Smart Forensic Apparatus" (on a pay-per-use basis).

RNA is a management token, the quantity is zero initially, users can get RNA by pledging DNA, the total amount is capped at 1 billion pieces, the quantity is not constant, used to realize the management right of the DNA ecosystem and revenue. Management rights include community proposal voting, revenue distribution voting, node revenue voting, and revenue includes "DNA Smart Forensics" usage fees.

The rules for RNA production from DNA pledges are as follows:

Pledge for 36 months: DNA:RNA 1:1

Pledge for 12 months: DNA:RNA 1:0.3

Pledge for 6 months: DNA:RNA 1:0.14

Pledge for 1 month: DNA:RNA 1:0.02

DNA Token Allocation

1. Development team receives 20% DNA tokens (pledged for 3 years in exchange for RNA)
2. Private equity, VC, community DAO, incubator (private rounds, public rounds) coinlist, etc. 20% tokens
3. 60% community-owned tokens

8 Application scenarios for tokens

DNA application scenarios:

- A. All users of the application ecosystem need to pay DNA as a service fee if they need to use the "Smart Forensic Instrument".
- B. RNA needs to be obtained with DNA pledges

RNA application scenarios:

- A . Have the power to participate in community voting and propositions
- B . Airdrop rights for eco-tokens invested by the Foundation
- C . Share the service fee of "smart forensic instrument" according to the proportion of ownership
- D . Exclusive access to additional Foundation incentives

9. Advantages of DNA

- A. Artificial Intelligence Comparison Algorithm, It is jointly developed by artificial intelligence expert Dr. Cheng Xi'en and a team of computer vision experts from Fudan

University over a period of eight years, after tens of thousands of experiments , and has been verified in the China International Import Expo (5th, 6th, 7th), Jingdezhen International Ceramics Expo. For ceramics, painting and calligraphy, sculpture, metalwork, woodwork, rhinoceros horn, ivory tusks and other seven categories of items , Currently appraisal success rate of 100%!

Introductory link: <https://rdna.pro/video-6.html>

B. Mature Blockchain Infrastructure Tools and RWA Ecologies, Since 2016, the crypto market has gained unprecedeted success and attention, many projects have started to utilize blockchain to solve real-world problems, and many mature ecologies have developed. For example, Anhui Zhongjingge, which provides automated safe deposit box business, Societe Generale, which provides money lending, Centrifuge, which provides asset financing agreements, Securitize, which provides digital asset securities services, MarkDao, which provides stablecoin collateralized lending, opensea, which provides NFT trading services, and many other very mature basic tools and application ecologies.

C. Visualization and friendly operation of the front-end, one-click minting, verification of NFT, reduce user learning costs and access thresholds, to achieve the demographic shift from Web2.0 to Web3.0, and to provide a driving force for the future growth of Web3.0 billion users.

D . The digital empowerment of traditional industries brings massive mobility, vast market opportunities and huge value creation for traditional industries.

E. excellent token economics, using the Vtoken mechanism, the power will be more decentralized , the distribution of benefits is more equitable and reasonable. And as a

solution to real problems and have a practical use of DNA future can be expected.

The real world has a massive amount of high-value items that urgently need to be digitized, assuming that in the future there will be 1 billion high-value products in the real world, they will have 1 billion minting needs simply by being on the chain, and 1 transaction will generate at least 2 billion verification needs, and there will be a huge demand for DNA from companies and individuals in the future.

As the ecological prosperity, the service fee of the "Intelligent authentication instrument" rises, which means that the income from holding RNA becomes more, then it will stimulate more people to pledge DNA tokens, and the circulation of DNA on the market will plummet, which will further lead to an increase in the price of DNA, and thus further make the income from RNA become more, and there will be the advantages of the spiral of ascension, but not the evils of the death spiral. The advantages of ascension without the evils of a death spiral.

F. Decentralized asset uploading, centralized platforms are prone to internal evil or attack by hackers, and user's assets and data security cannot be guaranteed. DNA protocol enables users to complete information uploading without relying on a third party, the data ownership belongs to the users themselves, and the data on the chain cannot be tampered with or forged, which ensures the security of user's data and assets.