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FREYRCHAIN

FREYRCHAIN WHITEPAPER

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Freyrchain Whitepaper

Whitepaper

CATALOGUE

1 Origin of Freyrchain

2 Technical Route of Freyrchain

I Origin of Freyrchain (Freyr)

1.1 Prosperous Development of Collection Cultural Economy

In recent 10 years, the rate of return on investment in collections in the US investment field is as high as 24%, followed by stocks with a return rate of 17% and real estate with a return rate of 4.7%. According to Barclays Bank's data, institutional investors and high-end individuals will allocate 5% of their assets for collection investment. It is estimated that the potential demand of the Chinese collection market is more than RMB 6 trillion. The current scale is only a few hundred billion yuan; "the potential demand is very large, and the demand we see is only a tip of the iceberg." In 2016, the transaction volume of collections at auctions in the Chinese market reached USD 4.8 billion, accounting for 38% of the global auction; 91,400 auction items were sold; the Chinese market again became the world's largest collection market. In 2017, 42 Chinese collections in total were auctioned at home and abroad with a unit price over RMB 100 million. Collections over 100 million yuan are common in the Chinese market.

At present, the collection economy has entered the Internet+ model. Major auction companies have successively developed new collection transaction models of online auction/transaction and offline services. Fragmented collection information is integrated with big data technology, solving the key issues of traceability in the collection authentication field. The certification, authentication and transaction of collections are basically open and information-based, and a relatively efficient collection appreciation and trading system is formed.

1.2 Realistic Difficulties in Collection Cultural Communication

Throughout several hundred years' development and changes of the collection market, authentication has always been a focus. It is estimated that up to USD 6 billion is involved in collection authentication disputes in the world every year, accounting for nearly one-tenth of the total amount of collection transactions. Although the new collection cultural economy based on Internet can offer a wide range of information, it can't solve the problem of authentication.

Due to the lack of necessary knowledge, participants in the collection market for the purpose of investment and profits tend to select collections relying on external guidance, which may easily lead to human intervention, resulting in an increase in transaction costs. Some collectors and investors even begin to ignore the cultural value of collections themselves; collections are hyped and over-packed under the celebrity effect; as a result, collections are at a high price and the collection market and the collection ecosystem are in chaos.

The development of the collection economy cannot be separated from ownership protection. At the present stage, the process of copyright transactions and copyright confirmation is cumbersome and not transparent

enough. Collection economy informatization, to some extent, facilitates the creation of pirated works; original works are frequently pirated and it's difficult to protect copyrights, exposing the development of collection economy to an unprecedented crisis of confidence.

Development of collection economy requires training of art economy participants. However, collection education has been neglected for its long cycle and low efficiency. As a result, collection fans have nowhere to receive training, which to a certain extent limits the development of collection economy.

The market is in urgent need of a scientific valuation system, so that every collection is traceable, and the collection and transaction are orderly.

1.3 Future Development of Collection Culture (Future Development of Freyrchain)

With the development of global collection finance and the transformation of economic structure, the consumption structure of collection culture will inevitably enter a period of rapid transition. When the spiritual consumption gradually replaces the material consumption, the capitalization, financialization and popularization of collection culture become the inevitable trends. The birth of Freyrchain is to promote the rapid transformation of collection culture, realizing the great prosperity of collection culture while turning the cultural soft power into an economic strength to promote the prosperous development of the global financial field!

In the future, Freyrchain will become not only a digital warehouse for all cultural collections in the world, but also a platform for the development of collection fans around the world. On this platform, people can obtain all the information of collections, including their origins, circulation, value changes, etc. Everyone can contribute to the world art culture library by participating in the creation, circulation and appraisal of collections. Everyone can create his or her own collection museum and transform the passion for collections into collection cultural assets using all the resources on Freyrchain, including works of collection culture, and existing collection fans. In the ecosystem of collection culture, with the circulation of FREC, more valuable collections and works will be released and more valuable collections will be published for appreciation, thereby promoting more convenient collection transactions and building Freyrchain's economic ecosystem.

In a word, the birth of Freyrchain will gradually subvert the concept of collections. When all the collections in the world come together, collections will become necessities of life. When everyone can become a collector, the prosperity of global collection culture is just around the corner!

1.3.1 Stage I:Construction of Authoritative Ecosystem

Our team has extensive and authoritative resources, including collections of major museums, authoritative records, and auction market information data, all

of which are necessary for building an authoritative ecosystem.

Resources including reliable authoritative collection information and collectors' appreciation works and records are digitalized, combined with inalterable and credible block chains; an authoritative, informative database is built with Waltonchain and exclusively presented on Freyr APP.

In the exhibition halls and auction venues, smart guide robots are used to efficiently present collections and authoritative information in a targeted and real-time manner, creating a highly authoritative ecosystem of collection culture.

1.3.2 Stage II:Exploration of Extensive and Potential Private Markets

To create a digital museum exhibition hall, a touch screen digital terminal can be installed in front of the collection booth to change presentations according to collections and promote the Freyr APP platform.

With Freyr APP, users can enjoy all kinds of classic collections on mobile APP, learn related knowledge and check records. Freyr's brand effect is enhanced by constant optimization of user experience and satisfaction, thus expanding the number of users.

The APP's chain window of private collections is developed to explore a wide range of private collections. The ecosystem of collection culture is expanded by encouraging private users to put their collections on the chain.

1.3.3 Stage III: Mass Authoritative Collection Culture Ecosystem

With the promotion of the platform, a large number of collection fans can register a unique credible personal ID through the platform to publish creations and collections, which will be stored in the block chain database.

Collections are shared on the block chain platform in an honest and reliable way and is reviewed by the public and evaluated by experts. The real value of collections will be continuously realized by platform users' different operations on collections, and finally high-value collections will reach the grade of advanced collections.

Collection fans interact on the platform. The number of their eligible collections and adopted reviews will increase the grade of their collections and they can grow from collection fans to collectors to achieve self-growth.

1.3.4 Stage IV:Mature Collection Culture Ecosystem

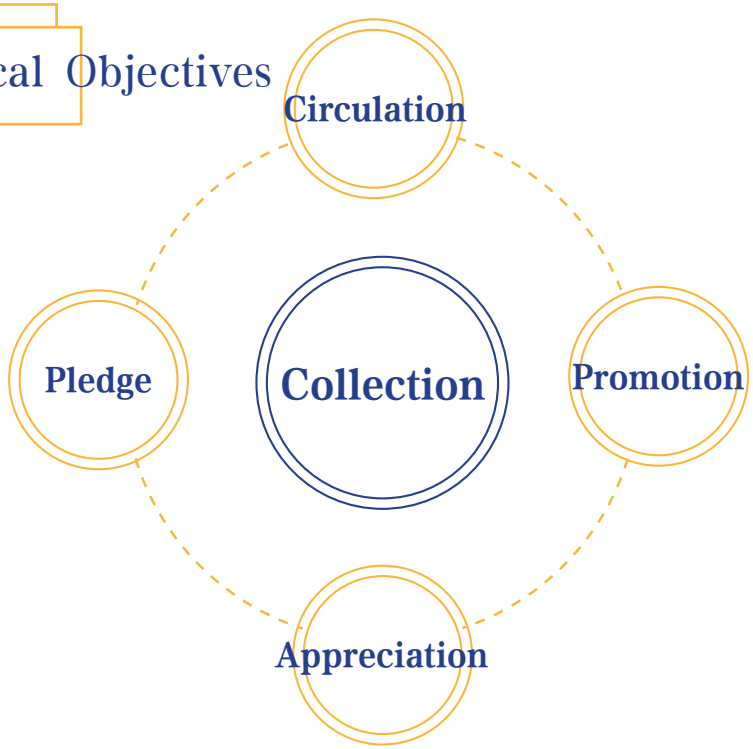
When the platform is popularized among the public to some extent, functions like collection training, creation exhibitions and personal collection studios will be added, helping people who don't know collections understand collections through

the platform and become collection creators. The Qualified collection fans will finally become collectors recognized by the public.

A collection culture ecosystem for everyone is formed based on authoritative information, information, a wide range of collection fans, a perfect and stable operation mode, and a reliable block chain database.

2 Technical Route of Freyrchain

2.1 Technical Objectives



Freyrchain, focusing on collections, will provide such functions as collection pledge, reviewer's appreciation, information promotion and transaction & circulation. Specific functions are as follows:

- **Pledge** — Publishers can value and pledge their collections with FREC;
- **Appreciation** — Reviewers or experts appreciate and evaluate collections by paying a certain amount of FREC representing the value of collections, and are responsible for the behavior;
- **Promotion** — Freyrchain can publish and display collections, guiding the public to discover the value of collections;
- **Transaction & Circulation** — A credible transaction is reached on the Freyrchain platform based on the traceability of block chain technology and the platform is responsible for the behavior;

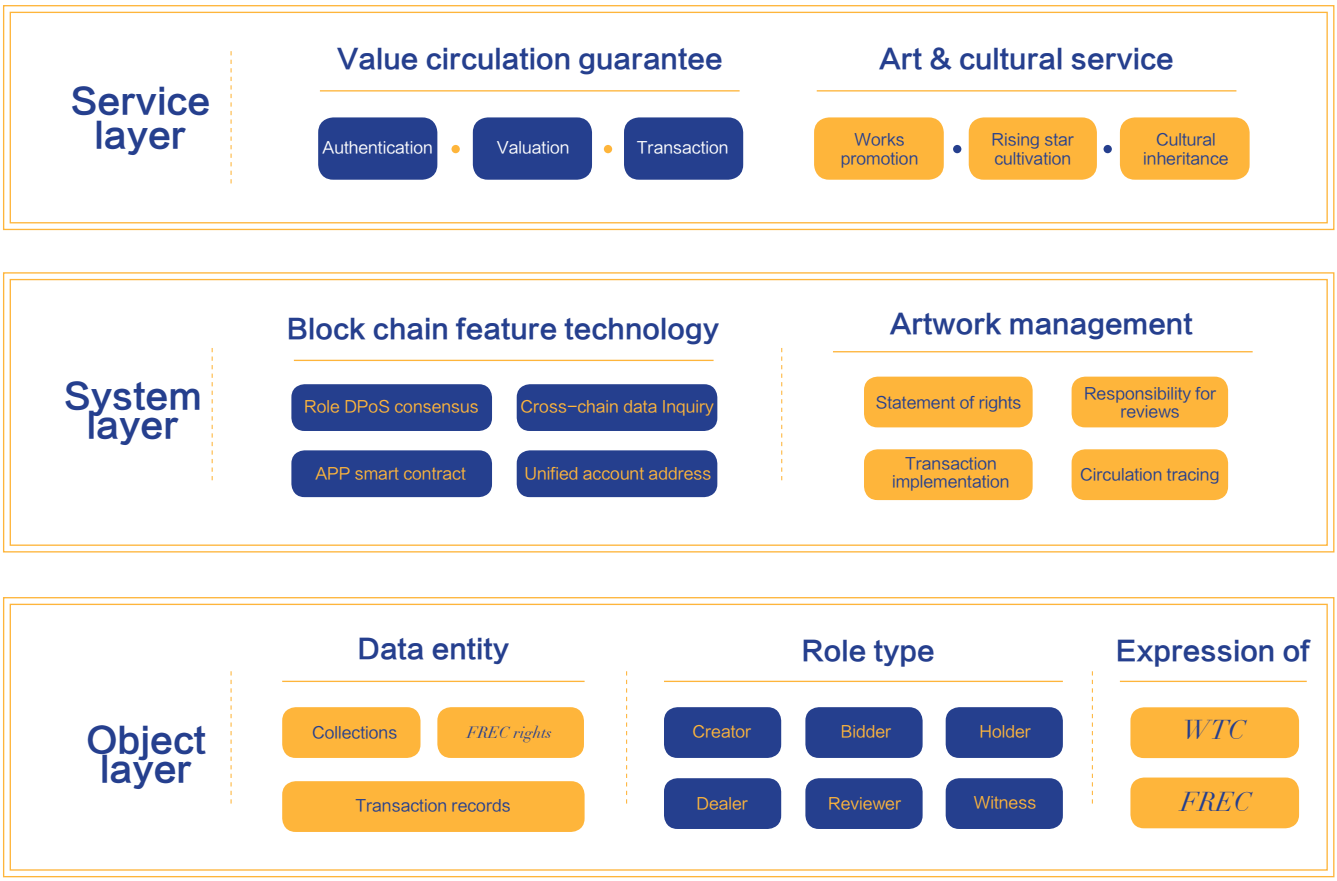
All roles on Freyrchain are credible, traceable and can be evaluated and reviewed.

Role information is based on the block chain technology and is credible and traceable. Block chain information of collections contain their appreciation, transaction and circulation information after put on the chain. Collections can be evaluated and traced based on that information.

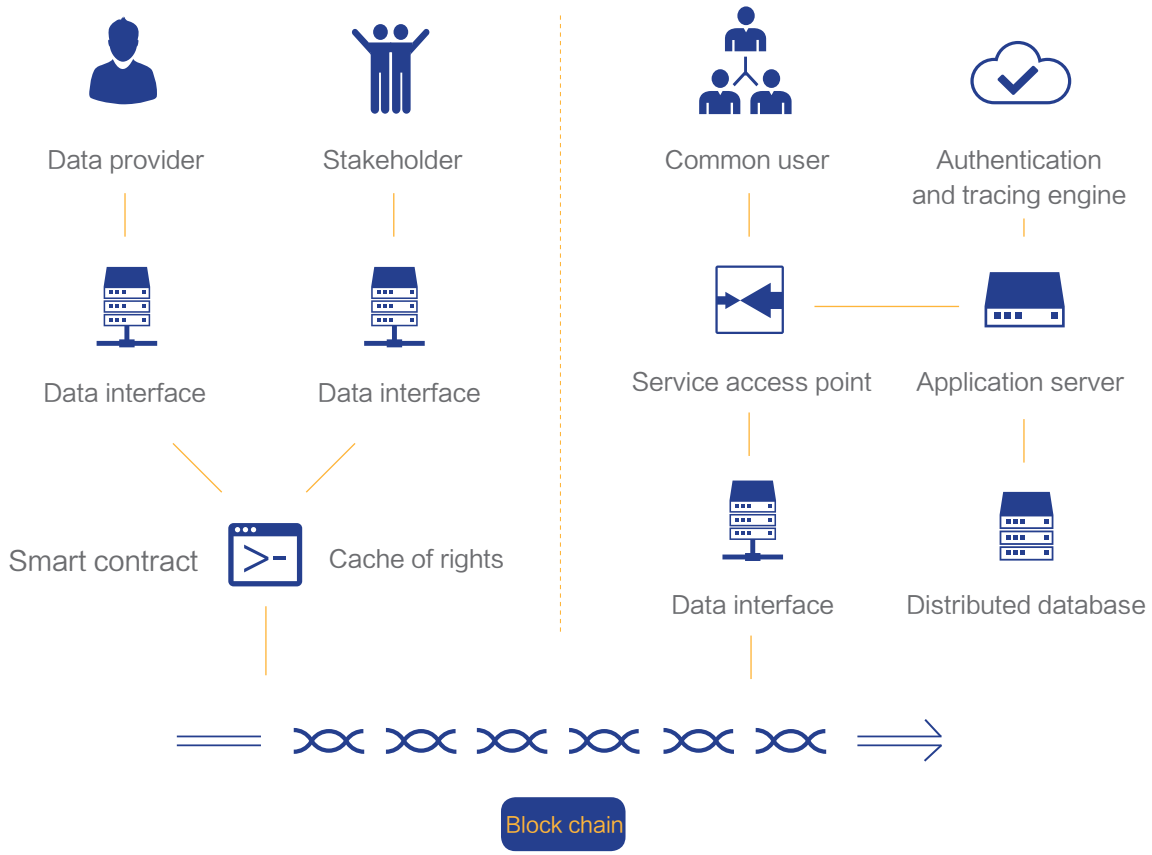
2.2 Freyrchain Ecosystem

The Freyrchain ecosystem consists of basic elements, equipment, interfaces and application events.

- **Basic elements** — Role, block chain and data information;
- **Equipment** — Intelligent terminals, intelligent helper, network server and transaction and exhibition places;
- **Interfaces** — APP, Web service and exhibitions;
- **Events** — Release, search, transaction, exhibition and appreciation;



2.3 Entities and Roles



The figure above shows the roles and their interactions in the ecosystem.

- **Collections**: collected by holders or created by creators;
- **Creator:** The creator or the first publisher of collections; the role that puts a collection on the chain.
  The creator should have FREC to publish works; the first valuator of collections;
- **Reviewer:** A role that can review and value collections; the reviewer should have and pay FREC to write reviews;
- **Dealer:** A role that temporarily holds collections, solicits transactions and acts as a go-between; the dealer can start a bid;
- **Bidder:** The one who bids for collections held by others; the successful bidder will pay FREC to obtain the ownership of collections;
- **Holder:** A role that holds collections for the moment and is the one who obtains the ownership of collections by FREC transaction;
- A person can be any of the creator, reviewer, bidder or holder of a collection (item);
- A person can only be the creator, reviewer, bidder, holder or dealer in an event.

2.3.1 Collections

A collection has its ID, description, value and history and other information. Collections have the following properties:

- **Unique ID;**
- **Many bidders;**
- **Any number of reviewers;**
- **There is only one holder at a certain time. There are many holders in the whole lifecycle.**

2.3.2 Creator

The creator or the first publisher of collections; the role that puts a collection on the chain
The creator should have FREC to publish works; it's also the first valuator of collections.
The creator has the following properties:

- **Unique ID;**
- **Creating collections;**
- **Publishing collections;**
- **Grade;**

2.3.3 Reviewer

A role that can review and value collections; the reviewer should have and pay FREC to write reviews;

The reviewer has the following properties:

- **Unique ID;**
- **Grade;**
- **Reviewing artworks;**

2.3.4 Dealer

A role that temporarily holds collections, solicits transactions and acts as a go-between; the dealer can start a bid;
The dealer has the following properties:

- **Unique ID;**
- **Grade;**
- **Starting auctions and bids of artworks;**

2.3.5 Bidder

The one who bids for collections held by others; the successful bidder will pay FREC to obtain the ownership of collections;
The bidder has the following properties:

- **Unique ID;**
- **Grade;**
- **Reputation value;**
- **Bidding for collections;**

2.3.6 Holder

A role that holds collections for the moment and is the one who obtains the ownership of collections by FREC transaction;
The holder has the following properties:

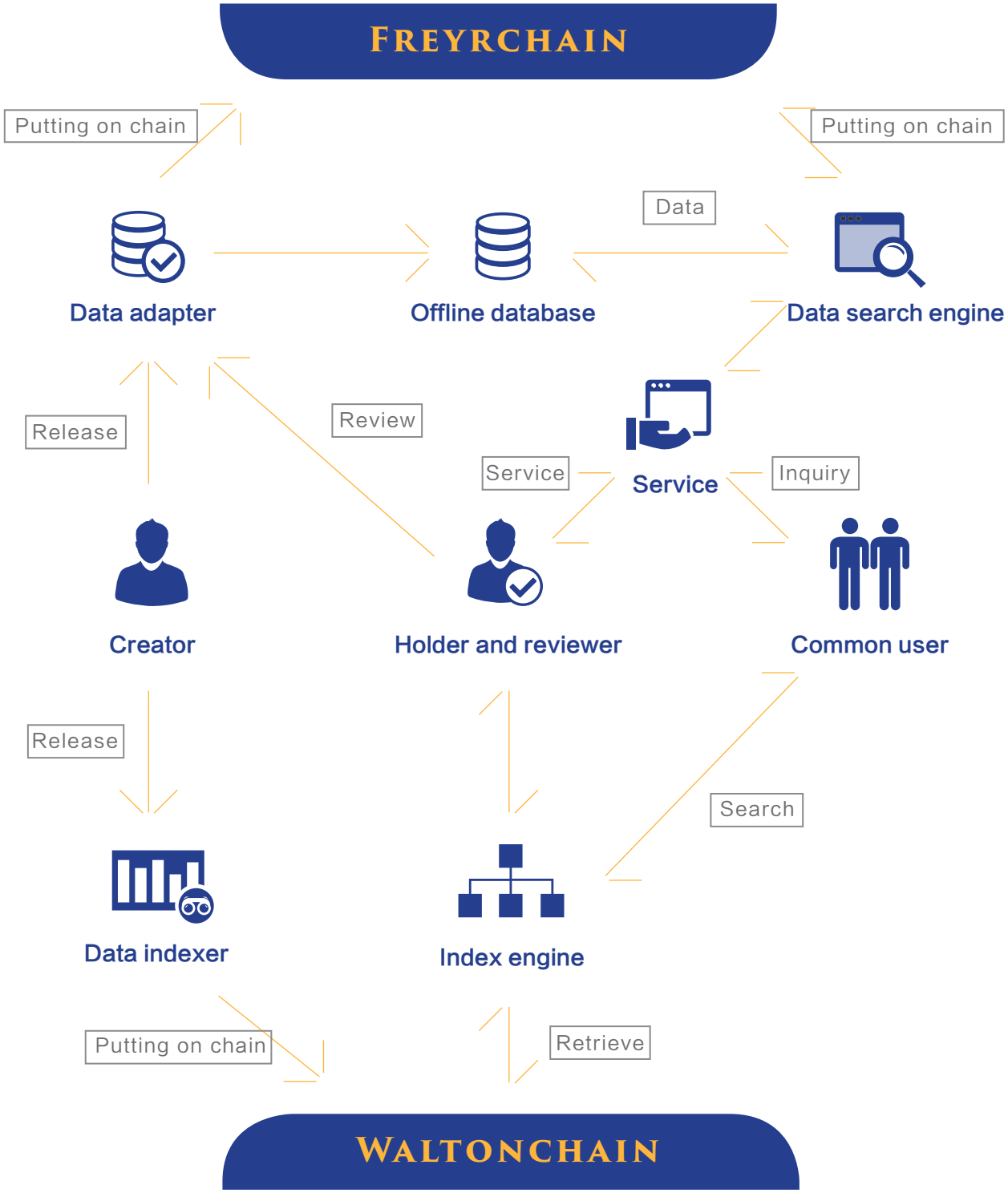
- **Unique ID;**
- **Grade;**
- **Starting and applying for artwork auctions.**

2.4 Circulation of Collections on the Chain

Collections need a unified ID during circulation. The ID can be in many forms. For contemporary collections, the unified ID can be achieved through the RFID tag. At the time of creation, the RFID tag is bound to the collection. For some antique paintings, etc., unique digital IDs can be generated through combination of historical data with software. These IDs can be used as the unique ID for the circulation of the collection on the block chain. In addition, the collection should be bound to its owner' s identity during circulation on the chain. The owner also has a unique digital ID on the chain, which corresponds to the owner's identity information. During circulation, when the events are packaged, the digital ID contains the relation information of the collection and its owner, such as holding, has been transferred, and the transferee information.

With the above ID and binding, it' s easy to trace the origin and circulation information of collections.

The figure below shows the events and process of collection circulation on the chain:



The process starts from the creation of a collection is completed or a traceable time point; the relevant collection information is digitized; the creator or holder releases digitalized collection information. The publisher shall have Freyrchain rights, namely FREC, upon release. After release, relevant information can be synchronized at all nodes. After synchronization, the reviewer can review the related information of the collection through the APP or the corresponding platform, including the photo, the holder, time and transaction information of the collection, and can make comments; summaries of comments can be synchronized on the chain, and all corresponding information are stored in the distributed central server. In the transaction link, bidders and dealers can view the transaction price and reviews of the collection through the information summary on the chain, and reasonably estimate the value of the collection.

2.5 Circulation of Collection Culture Data on the Chain

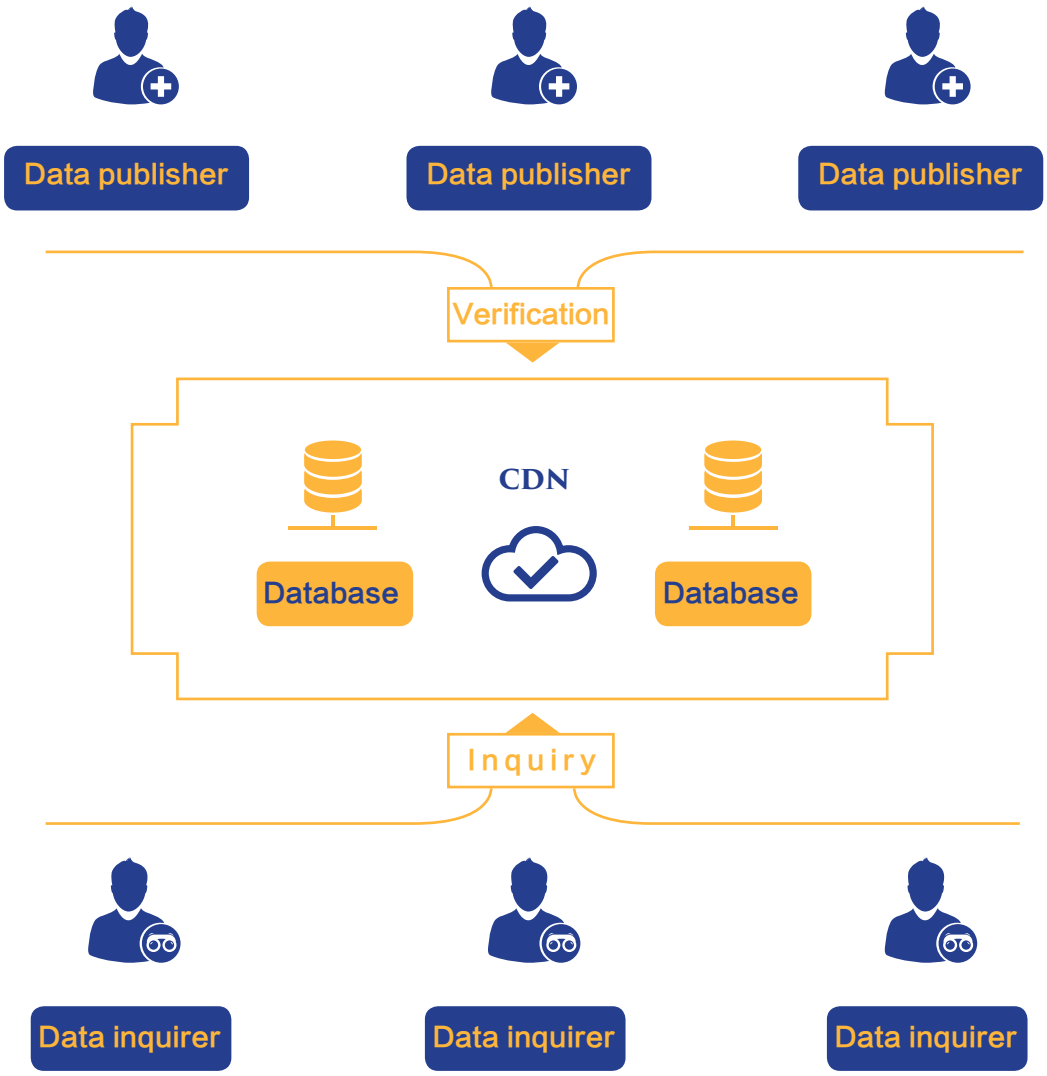
In the collection circulation, each link involves data processing, including data packaging, data summary extraction, data uploading, data Inquiry, and data validation. Freyrchain uses a distributed central server to store big data. The data on the chain is a summary of all the information and reduces the amount of data on the chain. Data storage adopts a fixed structure and follows a certain data storage physical mapping relation. The information of a collection is relatively independent of the information of other collections, and can be easily isolated and extracted. In every link of collection circulation, the information of collections can be constantly added.

2.6 Core Technology of Freyrchain

2.6.1 Data-oriented Distributed Verification and Centralized Service

The core functions of Freyrchain are realized around the credibility data and traceability records of collections.

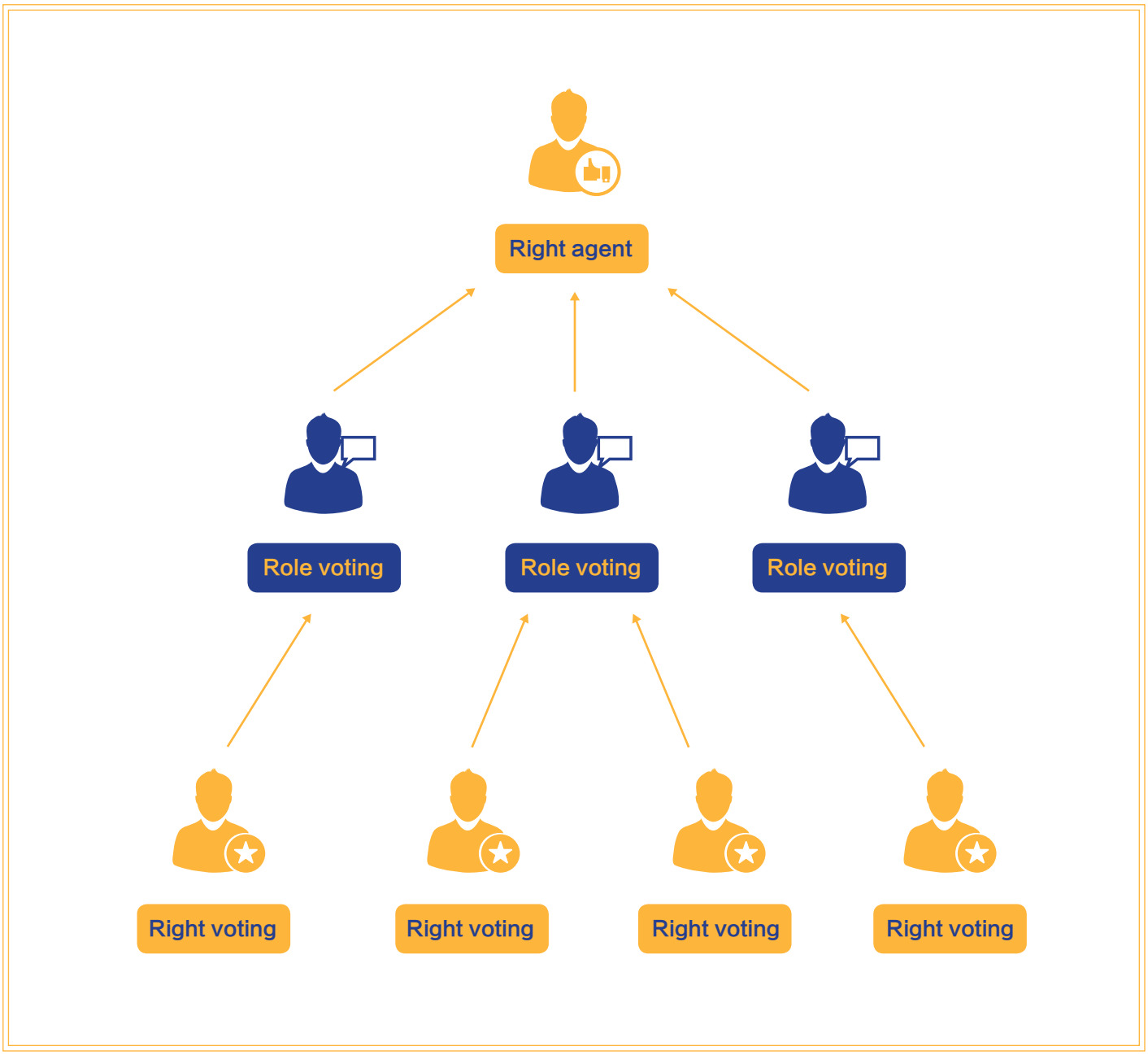
To ensure the integrity and correctness of data, distributed storage and asymmetric information based on block chains are used to realize distributed verification of multiple nodes, multiple centers and multiple stakeholders. To ensure reliable data access and real-time data Inquiry, a centralized polymorphic data service mode based on a central server and a content distribution network is adopted to extract, check and verify collection data for users in a wider range of space-time.



2.6.2 Role-oriented DPoS

The different nodes of Freyrchain and the users' right of collection appreciation and transaction determined by the amount of FREC in the account. In order to reflect the authority and speaking right of the entities involved in different collections, an election-based agent mechanism is used for validation between data packaging and blocking. Different from traditional PoS or DPoS,

FREYRCHAIN fully considers the contribution and risk of different transaction processes and transaction roles, and adopts the method of parallel calculation of role weights to dynamically adjust the probabilities of agent election and the tenure of agents during the consensus process.



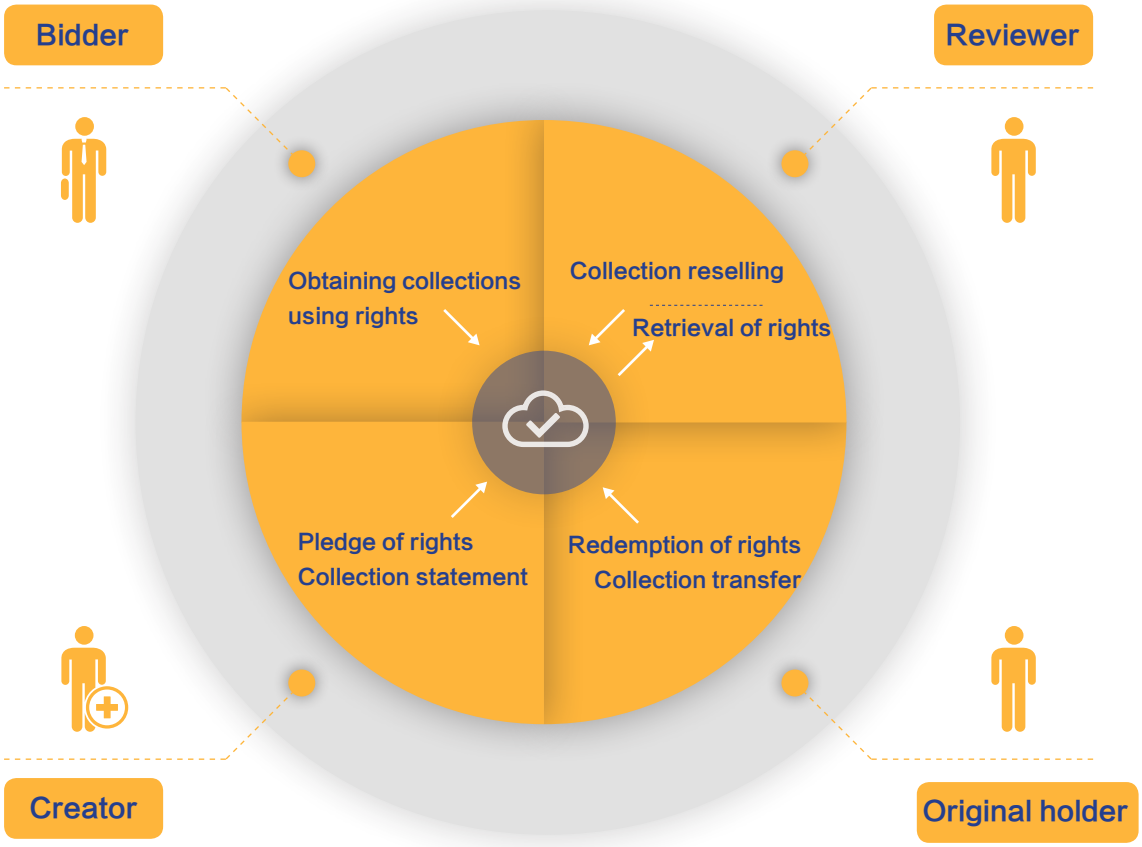
2.6.3 Value-oriented Smart Contract Evaluation Circulation Mechanism

Freyrchain uses a smart contract for business roles to value the collections on the chain and make a statement of rights.

- The publisher of each collection shall submit the FREC of corresponding rights to enter the smart contract account of the collection, as a guarantee of the value of the collection. The publisher is the stakeholder of the collection.
- Each reviewer needs to provide a certain amount of FREC to enter the management contract account of the collection, as a guarantee for his or her reviews and the principal of valuation. Through the review process, the reviewer automatically becomes the stakeholder of the collection.

◈ When the ownership of a collection is transferred, the bidder (new holder) needs to inject rights into the right management contract account to obtain all right records of the corresponding collection. The amount of rights injected is determined by the transaction price negotiated between the bidder and the original holder.

◈ When the ownership of a collection is transferred, the stakeholders such as the original holder and the reviewer can retrieve part of the rights they have pledged in the contract. The amount of rights recovered depends on the amount of rights that the bidder (new holder) submits to the smart contract account during the transaction, which may involve surplus or loss.



2.6.4 Inquiry-oriented Cross-chain Data Service

As a part of the Waltonchain ecosystem, Freyrchain independently realizes the organization, management and inquiry functions of the holding, transaction, distribution and review data of collections, and uses data adapters and data summarizer technology to realize the data distributed authentication and double-link indexing functions between Waltonchain and Freyrchain. Among them, distributed authentication uses the data unicast asynchronous distribution service based on the Waltonchain fundamental chain and the data multicast asynchronous interoperation service based on the Freyrchain sub-chain; all are realized using the multi-source data-oriented application smart contract of the block chain 3.0 technology.

2.7 Public Welfare Property of Freyrchain

2.7.1 Collection Publicity

Freyrchain has very important role in publicity of collections. Using this platform, most of collection creators publishes collections and provides users with opportunities of appreciation, exchange and transaction to promote the publicity of modern collections.

The traditional collections are like isolated islands and are always circulated and propagated among small groups; they can't be interconnected and shared. The Freyrchain project team focuses on collection-related data like historical data, records and photos based on the previously established large collection database, and puts these data on the chain, to realize resource sharing; these data are open, transparent and traceable and can't be changed. This facilitates collection publicity and the popularization of less-known works among the public.

In addition, due to the characteristics of the block chain, we can guarantee the authenticity of original works. Users in the ecosystem need not worry about fakes, inferior goods and counterfeits. For some ancient works, although the authenticity can't be confirmed, the appraisal opinions, expert evaluation, auction time, auction price, and auction houses or collectors can be recorded, thus guaranteeing the authenticity of the circulation process.

2.7.2 Collection Rising Star Cultivation

In the past, many excellent collection creators and their works have missed many opportunities to participate in exhibitions and competitions for objective reasons like time, space and even energy and financial resources. In the area of collections, they have no resources and platforms to show themselves. During the course of pursuing their dreams, they often encounter such problems as infringement and piracy.

With the block chain+ RFID technology, Freyrchain intends to create a truly decentralized, absolutely credible collection evaluation system. Every collection creator has a unique RFID. Every collection and its creator, from creation to putting on the chain, can be recognized by other roles in the system such as collection fans, and can be reviewed and evaluated by famous reviewers and collectors beyond time and space limits; their system ratings can be enhanced for each positive event, enhancing industry awareness and recognition. This is a self-organized, decentralized, realistic and fair evaluation system, and is the best platform for development of rising stars.

2.7.3 Collection Culture Communication

◈ Online crowd funding for collections: Funds are raised from investors on the existing platform to allow investors to participate in the whole process from design, packaging, publicity, optimization to sales of collections.

◈ Offline exhibition: Exhibition hall resources can be combined to form an offline exhibition alliance with featured collections to regularly carry out offline exhibition activities that are open for all.

◈ Collection customization: Collections are customized for users with special needs; works are exclusively marked with the block chain technology, forming a complete, transparent and open information chain with traceable creators, completion time and steps of customized collections.

◈ Collection online auction: Collections are auctioned regularly online; the auction items are graded; users who have points on the platform or have higher membership levels will have qualifications for auctions of higher-level auction items.

◈ Establishing a public database: Share information with the public and break information barriers. Detailed information of collections can be obtained by the method published on the platform, including sources, circulation and exhibition halls. All information is transparently registered in the database and transmitted to the block chain and becomes true and valid information that can't be altered.

◈ Meanwhile, collection information on the platform is accessible without geographical restrictions, so that global collection fans can obtain the information they want.

2.8 Economic Value of Freyrchain

Anyone who passes identity verification can be registered as a Freyrchain member.

FREYRCHAIN members and the collections circulating on the platform will continue to grow and reflect the value of each stage. Members may develop into professional collectors recognized by the public, and the collections may continue to increase in value and grow into classic collections.

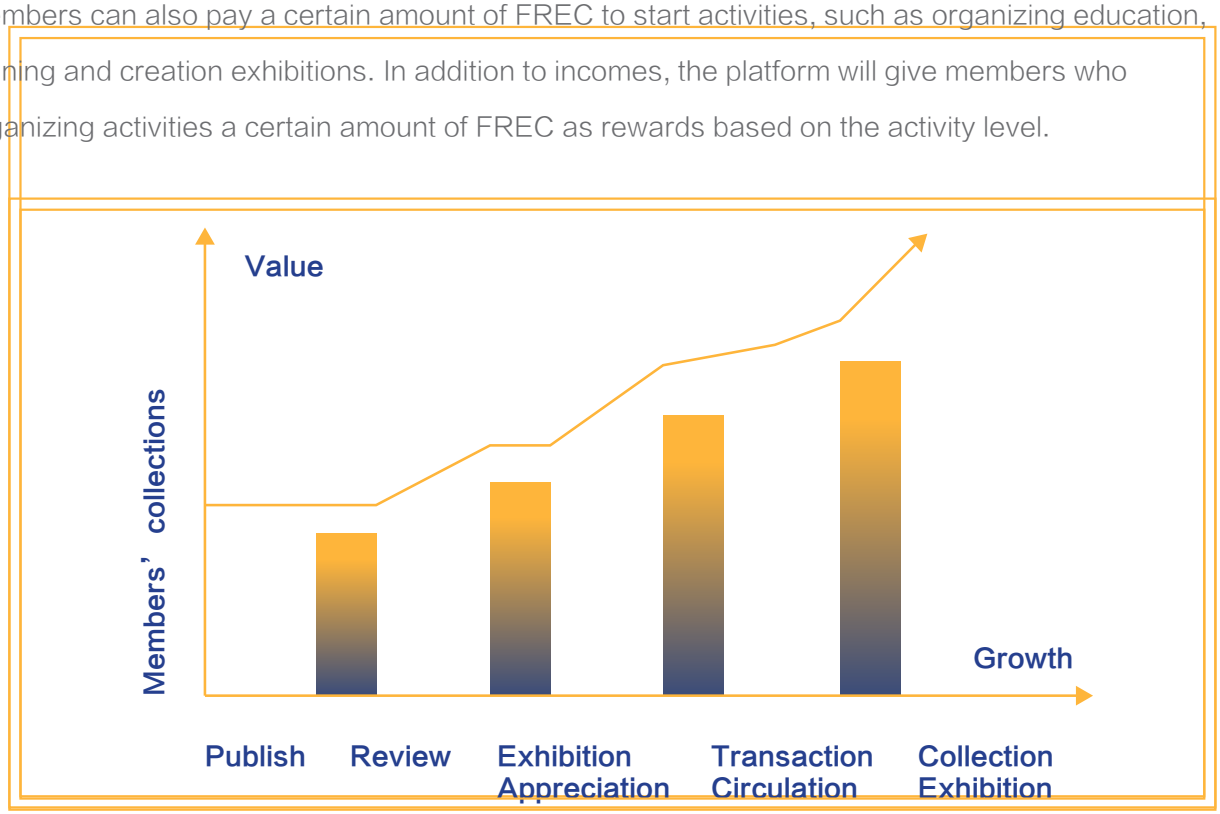
To publish a collection, members need to pay a certain amount of FREC representing the estimated value of the collection. The collection will be continually appreciated in Freyrchain and its value will change. When a transaction occurs, the platform calculates the amount of FREC according to the estimated price, the actual transaction price and the number of positive evaluations received, and gives them as rewards to the publisher.

Members can learn more professional knowledge on the platform to improve themselves. The platform is based on a professional and authoritative information database, providing members with valuable information inquiry service and some inquiry services charges a certain amount of FREC.

Members can, based on their research on collections, pay a certain amount of FREC to publish reviews. When a transaction is finished, the platform calculates a certain amount of FREC according to whether the review meets the development direction of collections and the number of likes by other members, and gives them to the reviewer as rewards.

Members comment on collections, and the platform will enhance the membership grade according to the number of comments that meet the development direction of collections, thereby promoting the growth of members. Members of different grades receive different rewards for their comments, thus promoting the platform develop in the positive and correct direction.

Members can also pay a certain amount of FREC to start activities, such as organizing education, training and creation exhibitions. In addition to incomes, the platform will give members who organizing activities a certain amount of FREC as rewards based on the activity level.



As the value of the collection increases and its popularity increases, its creators become well-known collectors. The platform will appeal to a wide range of fans, cultivate collectors and shape collections, playing an important social role.

2.9 Application Scenarios of Freyrchain

2.9.1 Freyrchain and User Interaction Interface

2.9.1.1 Intelligent AI Helper

Intelligent AI helpers in museums and trading venues can provide consultation services in voice and graphic forms.

The intelligent AI robot obtains the voice of visitors, analyzes it, obtains the corresponding information from the block chain, and presents it to visitors voice in forms of voice, video or even AR, vividly presenting the stories behind collections to visitors.

The intelligent AI robot has the following characteristics:

- Presenting cultural relics vividly without boring test introductions;
- Making introductions according to the user's age, gender and regional dialect reflected by the voice, giving play to museums' cultural inheritance and education functions and making museums carriers of all-round civilization perception;
- Helping museums analyze data, improve visitor experience and predict the future development.

2.9.1. Freyr APP

Freyr APP: providing collectors with platforms of inquiry, exhibition, transaction and information release.

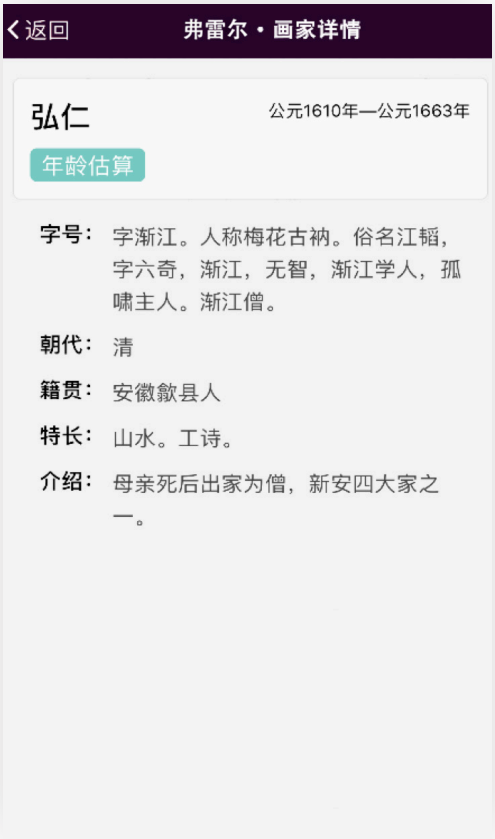
The biggest pain point in the collection market: asymmetric information. Freyr relates collections to information digitalization to achieve the symmetry of collection information, which solves the pain point in the collection market and concerns thus caused: disputes over the authenticity of collections.

Freyr digitalizes the information in the following industries:

- Seal impression: The seal impression database is the unprecedentedly most complete seal database; it collects nearly 150,000 pieces of seal impressions and includes authoritative work at home and abroad, presenting authoritative and precise seal impressions to users.

Painter：Data of over 100,000 Chinese painters in various dynasties are included relying on unique inventions.

Patent：The "age" estimation technology and the multinational period conversion technology provide users with precise identification information.



Archives : The data of the ancient calligraphies and hand-written scripts are exclusively digitalized into a database available for logical query, which contains compete records of the earliest ancient Chinese books and collections and includes hundreds of millions of characters of massive information, including recognition of ancient variant and ancient characters, and the most comprehensive and complete collection historical data.

Core archives: A summary of collections of the Qing Palace with the highest market value. Digitized archives are must-have resources for museums, auction houses and art dealers, providing users with the most authoritative reference information and liberating users from the vast sea of information.

Another pain point in the collection market: loss of collections.

Freyr provides the function of tracing private collections.

◈ On the platform, users can display their collections, works and knowledge so that collections won't be neglected and lost, and can record personal knowledge to perfect the collection database and provide first-hand data for collection inheritance.

◈ The platform provides transaction and social functions so that collections can show their glamour and meet the right collectors

2.9.2. Museum Application

Exhibition visitors can buy museum tickets through FREC. The collections in the museum's exhibition hall are all marked with a QR code. Visitors can use the APP to scan the code for information about the collection for free. Some collection information such as the latest price and holder information can be obtained by paying a certain amount of FREC. Visitors can also comment on the exhibits via the APP.

The museum's exhibition hall is equipped with smart assistants with voice and display functions and connected to the back-end database, which are able to communicate with visitors by voice and present visual information on the display screen. Smart assistants can move and accompany visitors to introduce the various exhibits and provide query services after visitors pay a certain amount of FREC.

The museum can also assemble an intelligent terminal in front of each booth, which connects to the back-end big data center and provides different information consulting services depending on the exhibits.

2.9.3. Auction Application

Auctions can be held simultaneously both inside and outside the venue.

In the auction house, each bidder's seat is equipped with an intelligent terminal. The bidder uses the intelligent terminal to participate in the auction, and can query the relevant information of the collection. Some valuable information which is helpful to the auction needs to pay a certain amount of FREC to obtain. Outside the auction house, bidders can remotely participate in the auction

through APP, which will display the on-site and off-site price records.

After the auction is completed, all bidders who have participated in the bidding will receive the appropriate FREC as a reward.

2.9.4. Copyright transaction and contract filing application

Freyr c hain makes it more convenient, efficient, transparent and open for the obligee to dispose his rights and query the ownership, which creates a better trading environment for both parties. Based on the block chain technology, contracts, works, pictures and other documents can be solidified by the hash certificate, using CA certification and electronic signature technology to achieve the electronic contract signing of online business process and the electronic certificate of the whole process, so as to form a trusted electronic voucher of the whole process. Each node can keep a copy of the complete block chain data, jointly witness the state of the block chain, avoid the centralization of credit risks, and prove the authenticity of the signed documents for the stakeholders when necessary.

2.9.5. Collection Description Application

The rare collections data will be sorted and digitized, combined with cloud technology to build a wide range of information data center, and combined with network systems to provide substantive support information for Freyr APP, collection education, collection community and other sectors.

2.9.6. Collection Community Application

With great inclusiveness, it provides a learning and communication platform for collection fans, collection practitioners, collection economic participants and collection researchers.

Users are graded according to their loyalty and involvement to the collection community. Users can obtain membership points by logging in, publishing notes, commenting and other ways to exchange for corresponding services. They can also pay FREC to buy biggie users' star-class notes.

2.9.7. Works Transaction Application

Creators and collectors of the works can display their works on the trading platform. Collectors can view the growth process and value of the works and pay FREC for collections. At the same time, electronic tags can be added to new works. Block chain technology can be used to mark ownership and record transaction data.

2.9.8. Virtual Exhibition Hall Application

The virtual exhibition hall can use VR technology to develop VR terminals and create a cooler exhibition effect than the real exhibition hall. It is connected to the database center through a wireless network, to present visitors with a wide range of information.

People can buy a portable virtual museum through FREC. Some exhibition venues will always be open and constantly update the contents of the exhibition, also providing the number of visitors and visits, so as to promote publicity.

Virtual facility builders can also pay a certain FREC to create their own exhibition hall, and release the exhibition hall information through the platform column.

Collectors can pay a certain amount of FREC to the owner of the exhibition hall, and rent a virtual exhibition hall to create an exhibition of personal works. Virtual exhibition halls will continue to improve their popularity and fees according to the operation.

2.9.9. Collection Education Application

Freyr APP can open up education columns, and collection experts can publish education training information by pledging the FREC with an estimated value.

Collection fans can register for training, using FREC to pay the training fees. They can also upload exclusive training materials and video data to the Cloud for collection fans to download by paying FREC.

The platform allows collectors and connoisseurs to impart knowledge, improve fame, and receive corresponding FREC rewards.

2.9.10. Raw Material Trading Application

The platform can open up e-commerce columns for well-known brands of raw materials for collection creation.

Raw material suppliers can pledge a certain amount of FREC with their credit to release raw materials for trading, and get the year-end FREC reward according to the circulation quantity of FREC and the number of praise.

Collection fans can use FREC to obtain authentic and quality raw materials through the platform.

2.9.11. Distribution shares

Distribution shares	Percentage of distribution
Foundation	30%
Team rewards	25%
Air-drop	5%
Cornerstone investment	15%
Angel investment	25%

3 Project Foundation

The Freyr c hain Foundation is established in 2018. The Foundation is committed to the sustainable development of Freyr c hain projects and the implementation of RFID integration block chain applications, and promotes the development of early de-centralized applications. Initially, 30% of FREC Foundation resources will be applied to some start-up projects in the collection area, the content of which is not limited to project strategic planning, project support, project promotion and FREC replacement. The Foundation focuses on the selection of de-centralized applications developed on the Freyr c hain, and has developed a sound incentive mechanism that an appropriate incentives will be given for the actual number of users of the project application.

The Project Decision-making Committee has three sub-departments of the Market Operation Committee, the Backup Management Committee (including the finance, HR and logistics team) and the Technical Research And Development Committee, which are responsible for the decision-making and implementation of the overall operation and marketing of the project, the formulation and supervision of financial system, and the development and supervision of technology development strategy respectively. Members of decision-making group will be changed once every four years, and members generally consist of 2 representatives recommended by each sub-department, one representatives of project investor, community and Freyr c hain team separately. Members of each sub-committee are elected on a four-year basis and are generally composed of persons with outstanding abilities in the relevant industry. The overall structure of the Foundation is shown in the figure below:

The Foundation advocates a transparent and efficient operating philosophy, aimed at promoting the healthy and stable development of the Freyr c hain ecosystem. The main objective of that governance structure is management effectiveness and sustainability, and financial security. Regular foundation development meeting will be holding to considerate and approve the strategic planning, annual plan, budget and other major issues of the Foundation. A project assessment group will be established to report to the Foundation, and be responsible for the examination, approval and quality control of the Foundation' s projects. The mission that the Foundation has always insisted on is to promote the connection of block chain technology from the internet to the internet of things. The funds raised will be invested in the following directions:

- the development and construction of the ecosystem, including R&D expenditures, recruitment of outstanding technicians, incentives all kinds of ecological roles, etc.;
- the promotion, operation and maintenance of the ecosystem, to store more valuable information, improve the database, and absorb new ecological roles and promote the self-growth of the roles;
- the realization of a complete up-chain and traceable customization of all database materials and ecological roles' historical growth information through the optimized block chain data structure design;
- the incubation of the excellent works and the growth of excellent talents in the ecosystem, to realize the resource circulation and sharing of the global collection market through the optimization of the block chain technology.

The development of the above projects will build an extensive and humanizing cooperation platform, and provide a convenient interface for data query, tracing, analysis, processing, management and trade for users, and provide intelligent management interface for merchants. In combination with the deep application of machine learning, artificial intelligence, the needs of users will be expanded through the continuous innovation of project mode, to ultimately achieve an effective and fast intelligent ecosystem.

4 Core Team Instruction

Initiator

Feng Langquan

Initiator & CQO

Born in Beijing, grown up in Guangdong and settled in Hong Kong, Feng Langquan has decades of working experience in art piece investment. He has been communicated and learned with experts, scholars and top antique dealers around the world, and is the world's top collectors and connoisseurs of antiques.

He engaged in international trade in the early 1980s

In the early 1990s, he engaged into classical furniture market of the Ming and Qing dynasties.

In 2004, he established Daguantang Classical Furniture, which has developed into three major operating bases centered in Beijing, Guangzhou and Hong Kong, with business scope covering the whole China. The Daguantang Classical Furniture has established good cooperation patterns with the various major auction companies in China and abroad, and has been succeeded in recovering the overseas collections for many times.

The company has gathered many professionals with international collection experience, devoted to integrating the knowledge of Chinese collection, studying Chinese collections and keeping pace with the times with cooperation partners of all walks, to jointly create a new kind of objective, fair and comprehensive culture platform between collection knowledge and collection market.

Leo Lee

Co-founder & CEO

He was born in Fujian Province.

In 1994 – 2009, he was engaged in international import and export business.

In 2009, he started equity investment. The first investee HON-Flex of Hongxin Startup Workshop has been listed in 2017, code 300657.

In 2015, he has invested in the Longling Capital.

In 2016, as a cornerstone investor, he invested in Meitu which has listed in Hong Kong in December 2016, code 01357.

He has an abundantly professional experience in investment.

Huang Shiyang

Co-founder & COO

He was born in Hong Kong and is settled in Beijing.

With decades of working experience, he is the world's top collector of antiques and collection broker. He has established a good cooperation pattern with well-known auction companies at home and abroad, and has successfully operated many overseas collections to return to China.

In 2008, he established Liangketang.

In 2012, he started to operate Haihan Auction officially and has achieved an excellent results and been recognized and praised by the peers

In 2013, he formed a team of professional consultants for the Liangketang's collection of antiques, and has achieved success in the international and domestic collection market.

In 2015, Liangketang successively established and operated the collection private fund of official kiln porcelain in Ming and Qing dynasties returned from Japan, and the collection private fund of Himalayan Buddhist art returned from Europe and the United States.

In 2016-2017, the operation of the collection private fund has achieved unprecedented success. Both have successfully auctioned the collections of Liangketang in domestic and foreign famous auction houses, and the fund investors have considerable profits.

The company has gathered many professionals with international collection experience, devoted to integrating the knowledge of Chinese collection, studying Chinese collections and keeping pace with the times with cooperation partners of all walks, to jointly create a new kind of objective, fair and comprehensive culture platform between collection knowledge and collection market.

He Mingfeng

Co-founder & CGO

He was born in Fujian and settled in the Philippines in the 1980s.

With decades of working experience, he is one of the world's top collectors and connoisseurs of antiques.

He returned to China in the 1990s to run mohair.

In 2004, he established Daguantang Classical Furniture, which has developed into three major operating bases centered in Beijing, Guangzhou and Hong Kong, with business scope covering the whole China. The Daguantang Classical Furniture has established good cooperation patterns with the various major auction companies at home and abroad, and has been succeeded in recovering the overseas collections for many times.

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Zheng Kaili

CMO

She is a returnee and has lived in California for a long time.

She was a supervisor of Chinese Business Development Department of SUNY GROUP Inc.

She was in charge of the Asian import trade of UNI LANE Inc.

She worked for a small private equity firm FDC INVESTMENT Co., in the United States and is responsible for the account management of some investors, fund product discussions and earnings and reinvestment analysis of VIP customers. She has financed for several small businesses.

She returned to China in 2009 and settled down. In 2010, she has jointly established and operated Liangketang Collection Company, in which she is mainly responsible for the development of Liangketang's overseas resources, contacting international antique dealers, collecting overseas auction information, tracking the supply channels and managing the daily operation of the company.

Jerry Chen

CTO

2005

Obtaining Master degree of Automation Institute of Tsinghua University

2005–2009

He worked for Beijing Whaty, a leading distance education enterprise in China, and was responsible for product research and development

2009–2013

He worked for Zhejiang Jiuzhou Pharmacy Network, the first batch of pharmacy networks obtaining the medical e–commerce license, and was responsible for the research and development of e–commercial platform.

2013–2018

He worked in Beijing Hu’ai Technology Co., Ltd. and was responsible for the research and development of mobile games.

2016

He started to study the application of block chain and games combination.

Consultant Team Introduction

CHEN ZUCHANG

Overseas consultant of All-China Federation of Returned Overseas Chinese;

The Chairman of Philippine Longwei Group

The Chairman of Philippines Soong Ching Ling Foundation and the Vice President of the first board of directors; The Instructor of Philippines Jin Jiang General Association Inc.; the Instructor of Shanghai, Jiangsu and Zhejiang Sodality in Philippines; the Instructor of the Promotion Association of Peaceful Reunification in China and Philippines; the Forever Honorary Chairman of the General Association of Jinjiang Jinjing Town Fellows in Philippine; the Forever Honorary Chairman of Association of Liujiang Fellows in Philippines; the Forever Honorary Chairman of Association of Liujiang Fellows in Hong Kong; the Vice Chairman of the Board of Quanzhou Normal University. He has been known as the leader of Chinese businessmen in Philippines, and once has been called as the "King of Paper" for his remarkable performance in papermaking industry.

He has led overseas Chinese in the Philippines to return China to exchange views and led the domestic delegations to visit Philippines for many times, so that he has played an important role in strengthening relationships between China and the Philippines and promoting economic and trade exchanges.

Zhai Jianmin

Founder of Yongbaozhai, the world's top collectors and connoisseurs of antiques and renowned antique broker

He has organized the Helihuodao Antiques Festival of the Hong Kong Arts Gallery association, and is a guest lecturer of the antiques appreciation course organized by the Hong Kong Tourism Board.

Chief expert of the experts group of Collections All Over the World

The first overseas professor of Archaeological Institute of graduate students of Chinese Academy of Social Sciences.

As president of the World Chinese Collectors Association, he is dedicated to promoting Chinese ceramics and collection culture, exchanging cultural knowledge with Chinese collectors around the world, and carrying forward the essence of cultural relics.

Now, he is the Forever President and the Vice President of the Hong Kong Arts Gallery Association and the Director of the Antique Appraisal Committee. He is also a member of the Hong Kong Qiuzhiya Association and the Oriental Ceramic Society.

Now, he is a Director of Zhai Investment Co., Ltd and holds regular international antiques exhibitions to seek business opportunities for peers of different countries, promote cultural exchanges in the antique industry, and strive to advance the development of the antique market.

Shi Yongchang

The Executive Vice President of Philippines Jin Jiang General Association Inc. and the Honorable President of Chinese Merchants General Association in Philippines

The Executive Vice Chairman of Philippines Soong Ching Ling Foundation and the former President of Philippine Iron Merchants Association.

The Standing Consultant of the Philippines-China Sports General Association; the Standing Director of the World Linpu Shi Clan General Association

The Standing Consultant of the General Association of Shaode Fellows in Philippines; the Chairman of Jinmandi Huangye Group; and the Chairman of the Meile Shanzhuang Natural Habitat Club

In 1975, Shi Yongchang became the chairman of the largest iron merchants association in the Philippines. Thereafter, he had involved into the real estate sector of Philippines. He had bought a large number of agricultural lands in the suburbs of Manila successfully, and sold them out in segment after converting them into industrial and commercial land, thus the profits have increased by dozens of times, received the name of "King of Land" in Manila at that time.

Liu Xiaoying

Well-known collectors, members of the Chinese Calligraphy Society, and the former coach of China paragliding team

President of Heshi Development Group Co., Ltd.

President of Zhonghe Foundation Investment Co., Ltd.

He is graduated from the Central Conservatory of Music, and then studied in the L.A. City College of the United States.

He opens a Jingduyuan Restaurant in Beijing, founds Jingdu Jiuyuan Club, and opens a farm in southern Xinjiang to plant pistachio.

Yang Zhongqiang

Chairman of Strategic Committee of LH Group

With 20 years of experience in real estate sector and the development and integration of the internet and the service core of resort hotels, cultural tourism, and tourism agriculture, he has created an health resort town with international level by the concept of "the dreaming land – Sanlang" to provide one-stop comprehensive life service for the whole life cycle and the overall industrial chain based on real estate development.

LH Group has won the Chengdu innovative tourism model, the key financial support of China National Tourism Administration, the leader of Sichuan tourism investment enterprises, and the first prize of 2017 national preferred tourism project in Sichuan Province.

Li Xiong

As the Founder of Chaininfor, continuous entrepreneur of internet finance, and senior media worker of block chain industry, he has 7 years of product design, market operation, brand public relations, and team management experience. In 2013, he has started up business in the block chain industry, and has successfully founded three block chain service platforms, that is, sosobtc, ico365 and icolive. He has a deep understanding of block chain, and now he is mainly studying the ecosystem and product application of block chain and digital cash.

Yang Jianjun

As the Founder of Bitcoin International Group (BIG) and eBTCbank, and continuous entrepreneurs in the Internet industry, he has 19 years of program development experience; he is also the early entrepreneurs in digital cash industry, and the angel investors of block chain industry, and has successfully invested in dozens of block chain projects. He has a deep understanding of the block chain, and now is mainly studying the ecosystem of block chain and financial technology.

Yao Yuan

Yao Yuan, founder of the spot exchange network HB.top; 15 years' experience in the BAT software industry; co-founder of several TMT companies; some projects have received investment of up to hundreds of millions of yuan; entered the block chain industry in 2013 and established BTCT.com; one of the first practitioners in China who were engaged in block chain application, Bitcoin payment cloud computing; has rich experience in the mining machine, ore pool, exchange, OTC and other digital currency business.

Team of Academic Experts

Jeff Watt

Director and Chief Curator of Himalayan Art Resources (HAR)

Founder and former Curator of New York Rubin Museum of Art

Himalayan Art Resources funded by Jeff Watt is an online Himalayan art resource platform that documents thousands of works of art from Tibet, Nepal, Bhutan and Mongolia. Jeff Watt also produced a photo album including 60,000 images of Himalayan art.

Rubin Museum of Art has one of the largest Himalayan and Tibetan art collections in north America.

Mr. Jeff Watt is a scholar and curator of Tibetan and Himalayan art, as well as a Tibetan translator. Mr. Jeff Watt was invited to give an academic lecture entitled How To Approach The Studies Of Tibetan Paintings at the institute of Tibetan studies of Sichuan University.

5 Freyrchain's Partners

Linwoods Auction is one of the emerging auction houses on the West Coast of the United States, and cooperates with many buyers and sellers in the United States and even the world. With the technology changes and attractiveness of online bidding, Linwoods began offering internet bidding on its own websites.

The Linwoods Auction events organized regularly are welcomed by more than 500 local and global dealers and collectors.

Baolong Auction is a platform for art auctions for its culture industry. With abundant resources of collectors, customers, and artistic boutiques, Baolong Auction provides professional and convenient services of art auction for collectors, also provides information and latest news on art market. In recent years, Baolong auction has successfully organized many art auctions and earned a good reputation in the industry.

Blanc creates the first comprehensive culture bonded platform in China to realize the integration of domestic and international cultures. From the "International Contemporary Art Exhibition – Poetic Community" to the "Exploring Eternal Life – Mysterious Treasure of Ancient Egypt" exhibition, and to the introduction of the Danish national treasure in culture bond form – "The fairy tale master Hans Christian Andersen's old objects" in a culturally bonded form, Blanc successfully achieved artwork bonded entry auction. These prove the success of building the entire arts industry chain and promote Blanc comprehensive culture bonded platform.

Fujian Ding Xin Auction Co., Ltd. was established in August 2002. Since its establishment, it has successfully held hundreds of large and medium size auctions with a accumulated turnover of more than 6 billion RMB. It was awarded to AAA-level enterprise of the China Auction Association.

It's the only auction house nominated by China International Investment and Trade Symposium Group

DX has very professional experience, occupies big market share and abundant industry resources.

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