LUXCHAIN

Digital Assets of the Luxury Economy

Non-technical Whitepaper
v2.0

VISION

In the last 20 years, over $4 trillion worth of luxury goods have been sold across the globe [1]. All over the world, luxury owners have left their valuable products in their closets, totally oblivious of their appreciation in value. Consider the Hermes Birkin bag, which had a higher annual return in value compared to gold for the last 35 years [5]. Luxury owners are housing valuable assets, but unfortunately, the true value of these items are not translated well into the secondhand luxury market.

Owners are not motivated to sell their products because it is difficult to get it from their closet to a buyer's hand. Finding a reliable authenticator and a safe method to sell secondhand luxury goods is a major challenge for most people. Even if the product is sold, buyers risk being ripped off as they are unable to determine if the item is authentic.

Counterfeits and the lack of robust verification solutions, within the secondhand luxury goods market, are the major obstacles that are stopping the market from reaching its full potential. LUXCHAIN believes that solving these inherent problems will boost transparency and trust in the personal luxury market.

Imagine being able to view verified product information and history at a glance. Buyers feel much more confident if they can see for themselves where the product came from, who the past owners were, and how it was verified. Sellers can then have a much easier time earning the trust of buyers.

LUXCHAIN's vision is to create the Digital Assets of the luxury economy. Digital Assets enable buyers to make informed decisions by viewing verified product information and history. Digital Assets aid sellers in reselling their high-valued product. Our Digital Asset solution provides the foundation to enrich the personal luxury market. Robust verification solutions, peer-to-peer luxury marketplaces, and luxury data exchanges are just few of the many potential use cases made possible with Digital Assets.

LUXCHAIN is the next leap forward for the personal luxury market.

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1. Abstract

LUXCHAIN solves the problems of counterfeits, pricing, and sales channels for the personal luxury industry (such as handbags). We relieve the frustration that many face in a counterfeit-heavy luxury market.

With our Decentralized Verification Solution built on AI and blockchain, LUXCHAIN authenticates personal luxury products to create Digital Assets - a portfolio containing product verification records and history.

With Digital Assets, buyers can shop authentic luxury products with confidence. At the same time, sellers can market their products to buyers with greater transparency. Digital Assets can also be used in a variety of ways - such as being listed on ecommerce sites, used by secondhand retailers, and even on data exchanges.

With our Global Luxury Index powered by AI, LUXCHAIN provides benchmarked pricing and sales channel intelligence. This allows buyers and sellers to know when, where and how to find the best deals or sell for highest profit.

2. Problem

In the past 20 years, over $4 trillion USD worth of personal luxury goods has been sold across the globe. However, luxury owners and buyers continue to face 3 key problems in the global secondary market for personal luxury goods.

2.1 Counterfeits 

As the volume of sales continue to increase in the personal luxury market, so does the number of counterfeit goods. In 2017, over $460 billion worth of counterfeits were sold according to the International Trademark Association [3]. Popular brands such as Louis Vuitton are frequent targets for counterfeits being fraudulently sold worldwide.

Counterfeits have become so common that it is becoming very difficult to distinguish between real and fake products. For example, a counterfeit Rolex watch was so well created that even the Rolex designers had trouble distinguishing the counterfeit from the genuine product [2]. For mainstream buyers, identifying the real product in a market saturated with counterfeits is becoming an increasing challenge year after year.

This leads to fundamental questions that are always asked for personal luxury goods - how do you know if a luxury second-hand product is real or not? As a seller, how do you prove that your product is authentic?

The problem of authenticity is a direct result of data intransparency. Information about where the product came from, who the past owners were, or how it was verified is difficult to obtain for most buyers. Even if it is found, there is no guarantee that the information is accurate since data can be easily manipulated in a counterfeit heavy market. This is especially relevant for secondhand goods as many do not come with original manufacturer tags. Sellers can show false information and easily scam buyers who think they are getting a great deal.

Since buyers make decisions based on very limited product information, they run the risk of buying fraudulent items. Even worse, this information is never guaranteed to be accurate. The ability to make the best decisions does not rest on the buyer, but is in fact largely controlled by the seller.

The lack of data transparency is also an issue for resellers. Suppliers who distribute counterfeits can damage the honest reseller's reputation. If an issue arises, the reseller's reputation is at risk even if the problem is outside of his or her control. Thus, resellers have long demanded for a complete solution to create accountability and detection across their complex supply chain. However, information is inefficiently transferred from different parties in the supply chain making product retracement time consuming. Different vendors, suppliers and distributors have to communicate with each other just to

identify where the problem occured. This can create further problems if each party has inconsistent records.

Without solving these fundamental problems, buyers will continue to be scammed by illicit sellers who take advantage of the counterfeits crisis. Honest sellers will also continue to have a difficult time competing with illicit sellers who offer better prices for their "real" products that are in fact counterfeits.

2.2 Unknown Value 

Determining the best market value of a personal luxury product is a key challenge for most sellers and buyers. Even for the same product, luxury goods such as handbags can widely vary across different countries and sales channels.

Knowing the accurate value is especially difficult for secondhand items. Factors such as the product's condition, rarity, and current popularity for example all contribute to the product's exact value as determined by market demand and supply. To analyze all of these micro factors affecting the product's value, hours of time-consuming research is often necessary.

Despite this problem, sellers wish to get the highest margin when they resell their product. Charging too high of a price can end lead to no buyers. On the other hand, offering the product for too low of a price means that the seller is losing on potential profit.

Buyers also need to know true value of the product they are interested in. It is important to know the best price to buy a certain product, as expensive luxury goods can be a huge purchase decision. Considering time and effort, buyers need to know the best purchasing price on demand, without conducting hours of unnecessary research.

2.3 Nonoptimal Channels 

Even if the optimal price is known, sellers still need to know where they can sell their product for the best price. Not understanding the best channel to sell means that sellers will also need to do research. Should the seller sell online or through a secondhand shop? Which ecommerce sites have the best conversion rates? Answering these questions seems fundamentally simple, yet often blurry in the luxury market where pricing and sales channel information is severely fragmented.

Buyers face a similar problem when trying to understand which channel to buy for the best deal. Buyers are especially keen when purchasing secondhand goods, as they wish to make sure that they are paying the lowest price on trusted channels.

3. Solution

LUXCHAIN is the Decentralized Verification Solution for personal luxury goods. We verify products to create Digital Assets, provide benchmarked pricing, and information on optimals sales channels.

3.1 Verified Products 

We are solving the counterfeit crisis by creating Digital Assets - a portfolio containing verified product information and history, authenticated by luxury experts. By recording verified product information into a non-fungible digital token, we allow buyers and sellers to confidently view the authentication results.

Buyers view the product's Digital Asset information to confirm for themselves what kind of data has been verified. Verified data includes all product specifications, attributes, images, videos, and documentation if available. For example, Digital Assets contain the product's brand, collection, condition, material, and origin. It also contains the product's history over its lifetime such as the past owners, current owner, origin, and supply chain logistics.

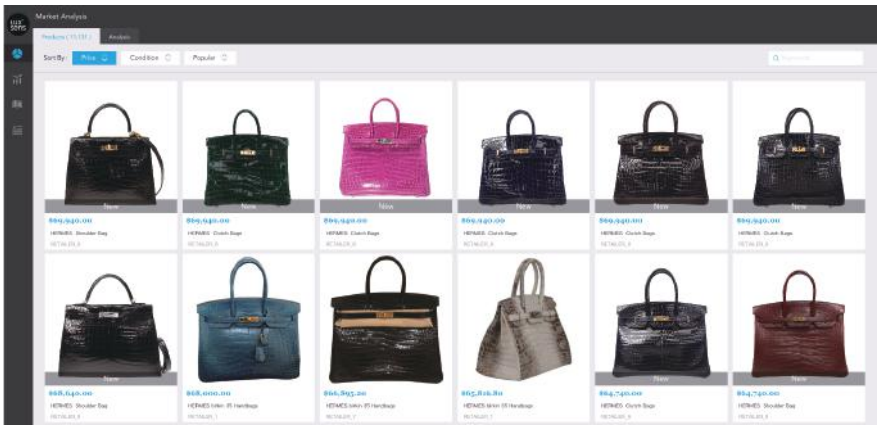
Digital Asset information is registered and secured by leveraging the significant advantages of decentralized ledger technology, namely blockchain. Transaction history is also secured over the product lifetime as records of ownership change, supply chain logistics, and location are appended.

A Digital Asset is a non-fungible token that contains verified product information and history

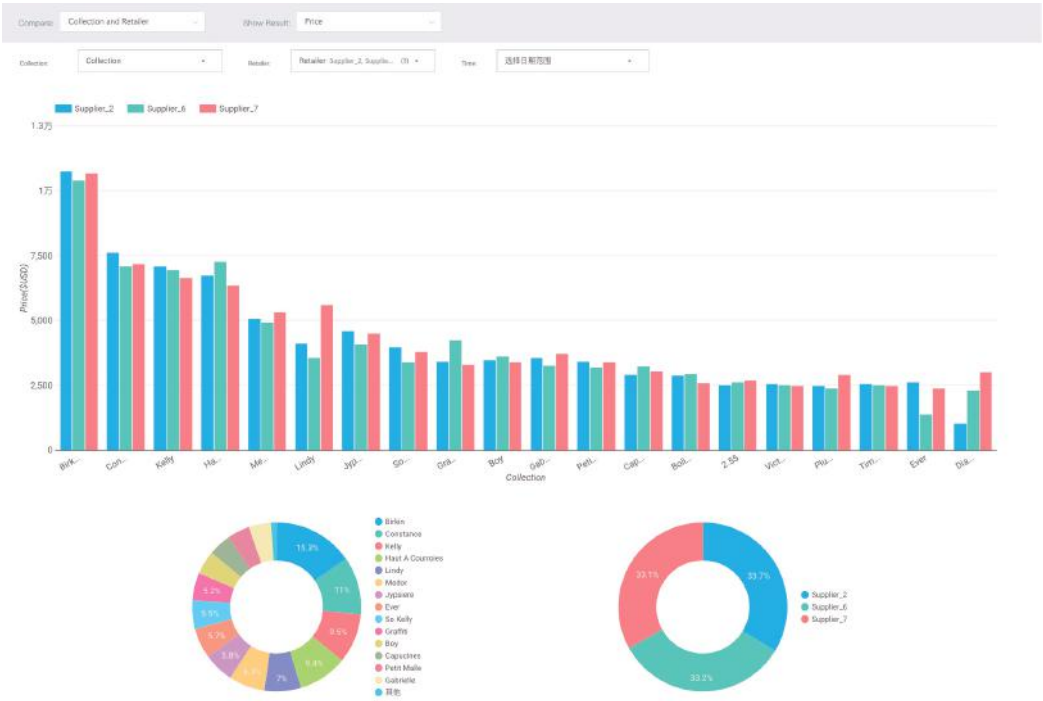
Digital Assets are created during the verification process that combines verifiers (luxury authentication experts) and advanced authentication technology. Mechanisms to cross-check verifications provide multi-point factor checkpoints to reduce a single point of authentication error. LUXCHAIN's verification solution focuses on providing high transparency and quality information for verified products. This increases trust for sellers and buyers who make informed decisions when dealing with expensive luxury assets.

3.2 Global Luxury Index

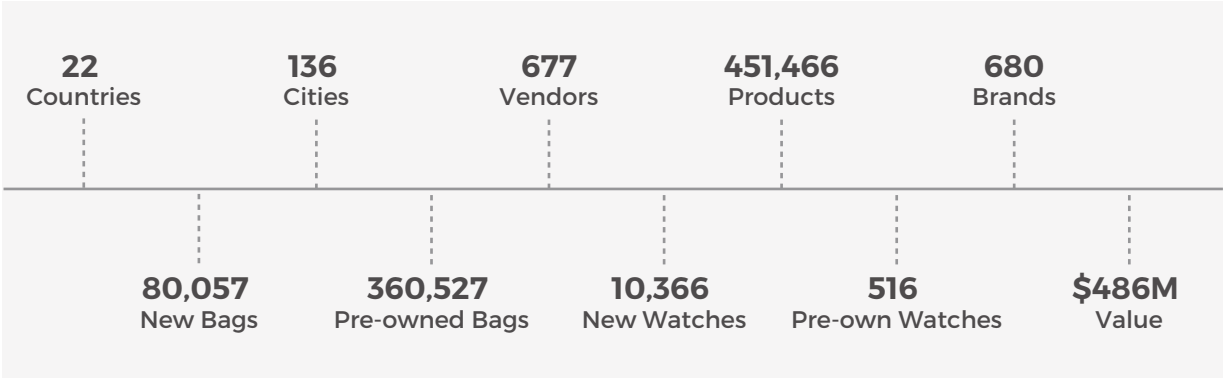
The company behind LUXCHAIN (LUXSENS) has developed the world's first Global Luxury Index (GLI) powered by artificial intelligence (AI). The GLI automatically collects, cleanses, classifies, and indexes millions of unstructured data from over 600 trusted merchants (online and offline across 22 countries). It collects data from four trusted types of sources for enhanced predictive analysis of global prices on over 450,000 SKU.



LUXCHAIN incorporates this technology to provide users with a comprehensive price benchmarking technology. GLI helps luxury sellers and buyer to be informed of the most accurate market price for products. Users will know the benchmarked pricing for a specific product, solving the problem of not knowing how much the product is worth across global markets. The analytics-driven technology also predicts market trends and demands for a deeper understanding of the luxury market.



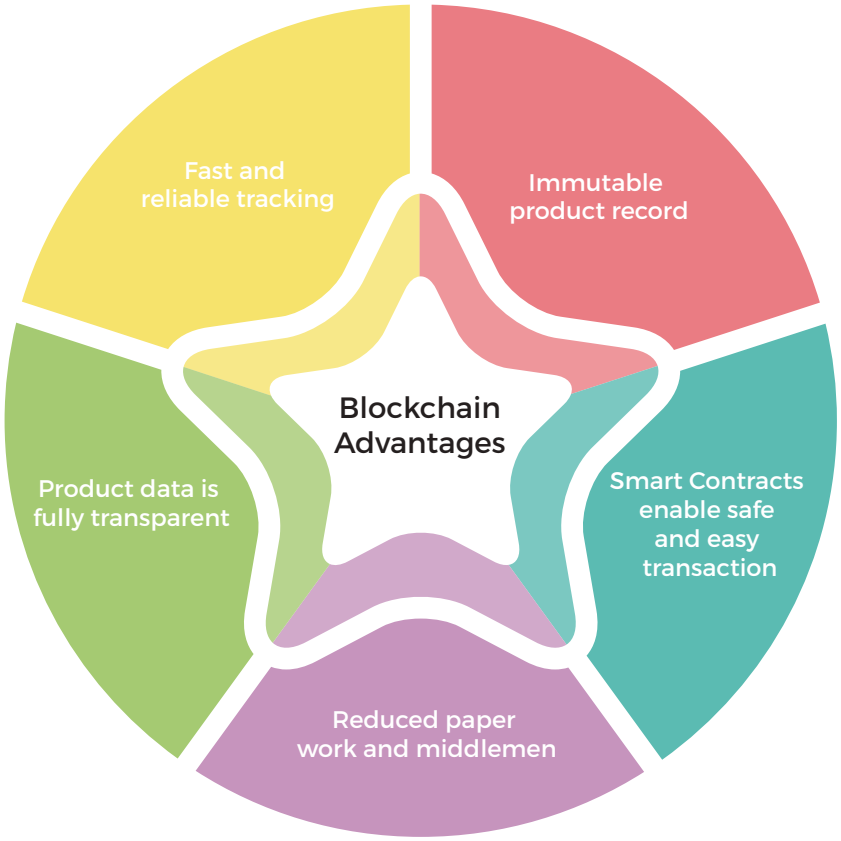
The GLI also offers information on the optimal sales channel. Users will know which platform offers the best prices, or which shop has the best conversion rate to resell. Where can the buyer find the best deal for a Louis Vuitton handbag? How can a seller earn the highest profit for a Gucci handbag? The GLI offers answers to these questions, saving time and headache for users.



3.3 Blockchain in the Personal Luxury Market

Digital Asset and Digital ID solutions leverage many important advantages of blockchain technology.

- All transactions are accessible and secured by cryptography ensuring high industry standards.
- Product information is digitized as Digital Assets to prevent data manipulation (and eliminate physical paperwork).
- No one can cheat the system since all validated information is tamper-evident. If recorded information is found to be inaccurate, the responsible verifier can be traced and held accountable. This allows for data immutability supporting the transparency and integrity of blockchain-secured data.
- Supply chains can rely on complete product tracking with detailed logistics. This means that when an issue arises, suppliers can effectively find the source of problem in minutes rather than days or weeks. As data is kept decentralized, involved parties can rely on the distributed database for proof rather than relying on centralized databases prone to error and manipulation.



4. User Roles

The LUXCHAIN ecosystem has four main types of users: Product Owner (seller), Buyer, Verifier, and Arbiter. Each type of user creates a Digital ID which is a secure user profile.

4.1 Product Owner (Seller)

A Product Owner (Seller) is one who intends to verify his or her product via LUXCHAIN. An owner can be an individual or a business represented as an entity. Sellers verify their personal luxury item which can be new or secondhand. A Seller pays the Verifier the verification fee in LXR tokens to streamline transactions.

When a Seller verifies his or her product, the Seller becomes the first owner of the Digital Asset. The Seller's Digital ID is linked to the corresponding Digital Asset as the product owner. If a product is stolen, then the rightful product owner is easily identified by viewing the product's Digital Asset. The Seller also becomes the owner of the product's Digital Asset Card (DAC).

The Seller transfers their ownership to a buyer when the product is sold.

4.2 Buyer

A Buyer is a consumer or entity interested in purchasing a verified product. A Buyer views the product's Digital Asset information and history by scanning the product's Digital Asset Card (DAC).

When a Buyer is interested in purchasing a verified product, the Buyer can choose to receive payment with LXR tokens. A Buyer may also request to confirm the product's Fingerprint match to ensure the Buyer physically receives the verified product from the Seller. If desired, the Buyer may also request additional cross-check verification.

4.3 Verifier

A verifier is a luxury authentication expert who verifies and creates a Digital Asset. A Verifier carefully assesses and verifies product information. This includes product specifications such as the brand, color, material, and condition. It also includes product images, videos, and documentation supporting the product's authenticity. The Verifier examines the physical product to determine if it is authentic or not. Advanced technology such as the Fingerprint technology aides the Verifier in capturing the product's unique Fingerprint data.

Verifiers receive earnings in the form of verification fees paid by the Seller in LXR tokens. A fraction of their earnings are allocated the LUXCHAIN ecosystem to support the reward system.

A Verifier also receives rewards for contributing to the verification of Digital Assets. Digital Assets contain valuable data that can help enhance the ecosystem via LUXCHAIN's Business Intelligence. The data contributes to the Business Intelligence that provides analytics and value-driven data for luxury merchants. The revenue made from this system enables the Verifier, who plays a key role in providing the data, to receive rewards for their supportive service.

Two important metrics are associated with every Verifier:

1. Stake

Every Verifier stakes LXR tokens for each product that he or she verifies. Staking is similar to a security deposit to encourage good behavior for verifiers. Verifiers are encouraged to perform honest and quality verification. A Verifier who tries to cheat the Seller or Buyer by not properly verifying a product will lose their staked LXR tokens. This works to discourage malicious acts for the Verifier since he or she is held accountable for the products verified.

2. Reputation

A Verifier builds reputation and verification records that is secured by his or her Digital ID. Reputations include factors such as the number of verifications completed and community feedback.

4.4 Arbiter

An Arbiter resolves disputes using Digital Assets as the base form of evidence. They are assigned to disputes based on their availability and ranking. An Arbiter with higher ratings and experience will be assigned to cases involving higher value items and vice versa. Arbiters with specific expertise will also be assigned to disputes involving their area of concentration. Arbiters are Verifiers who meet specified criteria such as achieving a certain level of reputation.

Arbiters objectively analyze the dispute by considering the disputed product's Digital Asset. After careful analysis of the product data and transaction history, the Arbiter issues an informed decision. The Arbiter records the final outcome and other relevant information on the disputed product's Digital Asset. The Arbiter's Digital ID is also linked to the disputed product's Digital Asset as the Arbiter responsible for the dispute.

5. LUXCHAIN: How it Works

5.1 Digital ID

Every user creates a Digital ID when they first join LUXCHAIN. A Digital ID is a globally unique user profile in LUXCHAIN that allows sellers, buyers, and verifiers to build reputation. An individual or business (acting as a single entity) can only create one valid Digital ID after security measures has been conducted. Know-Your-Customer (KYC) is one example of the security measure.

Digital IDs are linked to Digital Assets to increase trust and transparency in the LUXCHAIN ecosystem. Thus Digital IDs are designed to provide high quality user profiles that provides all users with relevant

public records. Digital IDs are represented by a username publically available on the blockchain protocol. Private information will not be kept on the public blockchain. Off-chain data storage solutions are utilized to secure private information such as KYC records.

Once Digital IDs are created, the owner of the Digital ID builds reputation and track history. Reputation and history is built by performing actions such as verification, purchases, and receiving rewards. All transactions are executed by smart contracts that eliminate a central middlemen. Thus Digital ID history is built on trustless transactions, which is then secured by the data integrity advantage of blockchain.

Once a Digital ID is created, it cannot be destroyed. Verified information and accurate history can only be appended to the existing Digital ID to foster transparency. After the Digital ID is created, users can create or verify Digital Assets.

5.2 Digital Asset

LUXCHAIN's core solution is built on Digital Assets that provides the foundation for many use cases. Digital Assets are created via offline or online verification.

For offline verification, product owners (sellers) bring their physical product to a verifier. Alternatively, the verifier can travel to the seller's choice of location (example is when the seller has many products to be verified). The verifier must obtain the product in person to avoid possible disputes that can occur if products are shipped.

Online verification does not require the seller to meet the verifier in person. Instead, the seller receives an authentication kit from a verifier which contains all of the necessary hardware to conduct an authentication scan. The kit guides the seller to follow intuitive steps for capturing images and magnified scans of the product. The images and scans are then analyzed by AI algorithms to detect counterfeits.

Both verification types uses advanced Fingerprinting technology. Fingerprint technology scans the outer surface of a product to capture its unique magnified image. Each magnified image is uniquely identifiable when run under AI algorithms. Products of the same SKU can be differentiated since the Fingerprint technology captures a distinct footprint for each product.

Fingerprint technology ensures that the verified product can always be matched to the corresponding Digital Asset Card (DAC) without altering the physical attributes of the product. LUXCHAIN believes in preserving the product's physical aesthetics as much as possible. This means that we wish to avoid inserting tags or creating permanent marks to a product. Since the aesthetics and original condition of a luxury product is a major factor affecting the product value, our Fingerprint technology provides an effective method to respect this matter.

5.3 Offline Verification

Step 1

The seller (product owner) requests offline verification. The most optimal verifier based on location, reputation, and availability is determined and notified to the seller. The seller meets the verifier in person by going to the verifier's location. Alternatively the verifier can go to the seller's location if agreed upon by both parties. LUXCHAIN automatically calculates the verification fee for the seller to pay the verifier in LXR.

Step 2

The verifier obtains the physical product from the seller. The verifier stakes LXR which is similar to putting down a security deposit for the product being verified. The stake is designed to encourage good behavior for the verifier, as bad behavior will hurt the verifier's reputation and result in forfeiting the stake.

a. Staking utilizes a mechanism to protect the LXR deposit from fluctuating in total value (as calculated in fiat equivalent). If $100 USD worth of equivalent LXR are staked, then the verifier will receive back the same $100 USD worth of LXR tokens. Solutions such as stablecoin integration are being considered for this protective mechanism.

b. The stake is returned to the verifier if one of the following conditions are met:

i. The product's Digital Asset is deactivated after the product is confirmed to be destroyed.

ii. One week passes after a buyer receives the product and the newest verifier's stake is still held in reserve. If a Digital Asset has 3 verifiers in record, then each verifier will receive his or her stake back after 1 week passes when the product is bought by new buyer. The buyer has a one week period to claim any disputes if necessary. Disputes are not allowed after the one week period.

iii. A new verifier cross-checks the previous verifier's results. The previous verifier's stake is returned, and the new verifier's stake is now held as the stake. The new verifier's stake is returned if any of the conditions above apply.

Step 3

The verifier authenticates the product by carefully examining the item. Product attributes such as the brand, color, material, and condition are recorded. Images and videos are also uploaded. The Fingerprint technology is also used to capture the product's unique fingerprint scan. If the product is determined to be a counterfeit, the product's fingerprint is still captured. This captured data helps detect the same counterfeit in the future. The verification process concludes, notifying the seller that the product is not authentic.

Step 4

After the first verifier confirms the authenticity of the product, the verification results are cross-checked by another verifier or via the authentication technology. The same Fingerprint technology can be used to also authenticate the product. Extra scans and images are taken by the technology, which is then analyzed to detect for signs of a counterfeit item. If the authentication feature does not support the specific product, another verifier will cross-check the first verifier's result. The same verification process that applies for the first verifier also applies to the second verifier.

Step 5

After the cross-checked verification agrees with the first verifier's authentication results, the Digital Asset for the product is created. The verification fee includes the LXR required to create the Digital Asset. The benchmarked value of the product is suggested by the Global Luxury Index.

Step 6

After the Digital Asset is created, the seller who is the owner of the Digital Asset, is rewarded LXR. Verifiers responsible for the Digital Asset's creation is also rewarded LXR. The reward is for contributing valuable verified data included in the Digital Asset to LUXCHAIN. The LUXCHAIN Business Intelligence analyzes this data to create value-driven insights that generate funds to fuel the reward system.

Step 7

Once Digital Assets are created, LXR is used to secure the product information and history on decentralized networks. This ensures that Digital Assets are protected against hacks and data loss.

Step 8

A Digital Asset Card (DAC) is created for the verified product. The DAC contains a unique and copy-proof QR code identifier that links to the Digital Asset data when scanned. The DAC is associated to the physical product and the Digital Asset by recording the Fingerprint data onto the Digital Asset. The DAC's QR code is also associated to the Digital Asset, providing a permanent and secure link. LXR is used to create this special DAC for each verified product.

Step 9

Buyers scan the DAC to view Digital Asset information and history on demand. Enterprise businesses can directly access the Digital Asset data along with analytics through the B2C portal.

5.4 Online Verification

Go to the next page

1. Seller requests online product verification.

2. Seller uploads product information (attributes, photos, videos, documents etc) .

3. Luxchain intelligence suggests the product value and condition.

Sellers pay verification fee with LXR.

4. The authentication kit is sent to the seller. The seller uses the kit to upload authentication scans.

Luxchain as a verifier stakes LXR.

5. Professional and community verifiers verify uploaded product information. Verified result is determined by a majority consensus system.

LXR is used to create Digital Asset.

6. The product's Digital Asset is created after the authentication kit is returned.

LXR is used to reward for data contribution.

7. The seller is rewarded LXR for contributing data via the Digital Asset. Verifiers receive LXR for accurately verifying uploaded product information.

LXR used to secure Digital Asset information.

8. Digital Asset information and history is secured via decentralized networks.

LXR is used to create the Digital Asset Card (DAC).

9. The DAC containing a unique copy-proof QR code is created.

LXR is used to unlock premium content.

10. Buyers scan the DAC to view Digital Asset information and history. Enterprise solutions can access detailed luxury analytics and data via the Business Intelligence.

Step 1

The seller (product owner) requests online verification.

Step 2

Product information including attributes, images, videos, documentation, etc are uploaded by the product owner.

Step 3

The LUXCHAIN Intelligence suggests the benchmarked value of the product. The product condition is also calculated by AI algorithms from the uploaded high quality images and videos. The seller also pays the verification fee in LXR.

Step 4

The authentication kit is sent to the seller. The seller uses the authentication kit to upload magnified scans of the product's material for enhanced AI analysis. The authentication kit also includes technology to capture the product's Fingerprint. Luxchain as a verifier stakes LXR to represent the authentication kit.

Step 5

After the product data is uploaded and the verification fee has been paid, community and professional verifiers validate the data. Professional verifiers are defined as "verifiers" as described throughout this document. Community verifiers are defined as any LUXCHAIN user who contributes to validating the uploaded data. Community verifiers have different levels of validating product data. They can level up as they accumulate more experience in accurately validating uploaded product data. This mechanism allows the LUXCHAIN community and professional verifiers to collectively verify product data that is uploaded online. Majority consensus mechanisms allow for product data to be accurately verified in a decentralized manner while preventing collusion.

Step 6

The period for community and professional verifiers to verify the uploaded product data ends after the authentication kit is sent back by the seller. If both the product data is determined accurate by the majority consensus mechanism and the authentication scans return a verified result, the product's Digital Asset is created. LXR is used to create the Digital Asset.

Step 7

Similar to offline verification, LXR is used to reward sellers, community verifiers, and professional verifiers for contributing verified Digital Asset data.

Step 8

Once Digital Assets are created, LXR is used to secure the product information and history on decentralized networks. This ensures that Digital Assets are protected against hacks and data loss.

Step 9

A Digital Asset Card (DAC) is created for the verified product, just as in offline verification. LXR is used to create this special DAC for each verified product.

Step 10

Buyers scan the DAC to view Digital Asset information and history on demand. Enterprise businesses can directly access the Digital Asset data along with analytics through the Business Intelligence Portal

5.5 Arbitration

LUXCHAIN is designed to provide a framework for resolving verification disputes. Arbiters, who are verifiers that meet additional criteria, help resolve disputes using Digital Assets as a base form of evidence.

Verifier Claims a Dispute
Arbitration may occur between different verifiers who disagree on the verification result for the same product. If a previous verifier authenticates a product but the most recent verifier declares it to be counterfeit, then the previous verifier has a chance to arbitrate the claim.

Arbitration uses a staking mechanism put forth by the verifiers. Arbitration involves three main parties: a party initiating the dispute, the other party involved in the dispute, and the arbiter. Both parties (in this case the previous and most recent verifier) already have their stakes held in the ecosystem. These stakes can be returned or lost depending on the outcome. The verifier who wins the dispute as determined by the arbiter will have their stake returned. The verifier who loses will have their stake sent to the arbiter as arbitration fee. The arbiter pays a nominal fee to the LUXCHAIN ecosystem once they receive arbitration fees (in the form of the losing party's stake).

Buyer Claims a Dispute
When a buyer claims a dispute, the buyer is the user initiating the arbitration. The verifier who will take part in the arbitration is the most recent verifier for that product. For example, if a product had three different verifiers in record, the most recent verifier will be called for arbitration. The other two verifiers are not involved.

The buyer must stake a percentage of the product's market value in LXR. The most recent verifier for the product will have their stake ready which is already held in the ecosystem. The final decision is made by the arbiter after careful analysis of the situation and information recorded on the product's Digital Asset. If the arbiter determines the buyer to be winner, then their stake will be fully returned to the buyer. The verifier will lose his or her stake. On the other hand, if the arbiter decides the buyer as the loser, then the buyer will lose all of his or her stake. The verifier will then get his or her stake back. The arbitration result are then appended on the product's Digital Asset.

The staking mechanism for the buyer is designed to discourage potential cheaters. For example, if the buyer knows that he is claiming an item he bought to be counterfeit even though it is in fact authentic, the buyer will risk a very high chance of losing his stake. In either outcome, the arbiter will always receive either the buyer's or the verifier's stake as arbitration fees, but never both. The arbiter will then pay a nominal fee that is allocated to the LUXCHAIN ecosystem.

Staking encourages users to dispute cases that they believe to be truly a problem. Users who try to cheat the system by making false claims will run a high risk of losing their stake. Thus users will be discouraged from requesting spam disputes attempting to gain unfair advantages.

6. Use Case

Digital Assets and Digital IDs function as the foundation for many use cases. LUXCHAIN aims to leverage the power of Digital Asset and Digital ID solutions to enable services that focus on security, transparency, and accessibility of verified luxury product data.

6.1 Offline Retail

Offline retail shops can verify their existing product inventory into Digital Assets. Buyers can scan the product's Digital Asset Card displayed with the product in store for an interactive shopping experience. This allows the offline retailer to target buyers with powerful tools for providing product information that buyers demand on the spot.

6.2 Online Retail

Businesses can use Digital Assets for their inventory tracking, enabling a much more efficient way to track goods. Digital Assets provide verified product data that eCommerce sites can use to resell on their platform. Integrating Digital Assets on online channels provide consistent product data and history across all ecommerce platforms.

6.3 Data Contribution

By contributing data to the community and LUXCHAIN Business Intelligence, users receive LXR tokens as a reward. User data allows the LUXCHAIN Business Intelligence to create deep insights for luxury goods, trends, and behavior. It also improves the overall LUXCHAIN economy.

6.4 Image Labeling

Image Labeling allows any LUXCHAIN user to build luxury knowledge and be rewarded for correctly labeling images. High quality labeled images helps train LUXCHAIN's AI technology to improve the Global Luxury Index. For example, users label luxury product images by determining if the product shown is a "Hermes" or a "Celine" handbag.

Users level up and earn LXR by submitting the correct label. Label images anywhere at anytime while building luxury knowledge. Every user has the power to directly contribute to LUXCHAIN - creating an open network of decentralized contributors.

6.5 Luxury Marketplace

With Digital Assets and Digital IDs, sellers and buyers can directly interact with each other without entirely relying on a central intermediary. Sellers can prove that their products are genuine with accurate information. Buyers can view product data on demand for confidence.

6.6 Data Exchange

LUXCHAIN has the world's largest luxury product data that can be shared with the LUXCHAIN Business Intelligence Platform and Decentralized Data Exchanges. High quality data can be accessed by anyone while increasing security, transparency, and data integrity while lowering cost. We also reward users for providing data to LUXCHAIN.

7. Token Economy

7.1 LXR Token

The LXR token ("LXR") is used to simplify transactions involving value transfer in the LUXCHAIN ecosystem. Public and private key cryptographic hashing technology provides secure methods to transfer value from one Digital ID to another [4]. All transactions made with LXR are recorded on the public blockchain ledger for enabling transparency.

7.1.1 Payments

Payments between verifiers, buyers, and sellers are made with LXR tokens. Buyers and Sellers can make transactions with LXR for speed, security, and convenience. Payment is as simple as sending LXR to the user's Digital ID.

7.1.2 Verification

Sellers pay verification fees directly to the verifier in LXR. Part of the fee is earned by the verifier for the verification process. The fee also covers for other associated costs such as the fee to create a Digital Asset and Digital Asset Card.

7.1.3 Staking

Verifiers put down a stake, which is a security deposit, to encourage good behavior. Digital Assets are backed by the staked LXR if a dispute arises.

7.1.4 Rewards

The LUXCHAIN community receives LXR reward for completing tasks such as creating helpful reviews, achieving high verifier reputation, and completing bounties.

7.1.5 Data Exchange

LXR is used to buy, sell, or rent data from the Data Exchange. LXR is also used to securely transfer ownership rights of data between multiple parties.

7.1.6 Image Labeling

LUXCHAIN users earn LXR as a reward for labeling luxury product images. At the same time, users build luxury knowledge and level up to earn more LXR.

7.1.7 Data Contribution

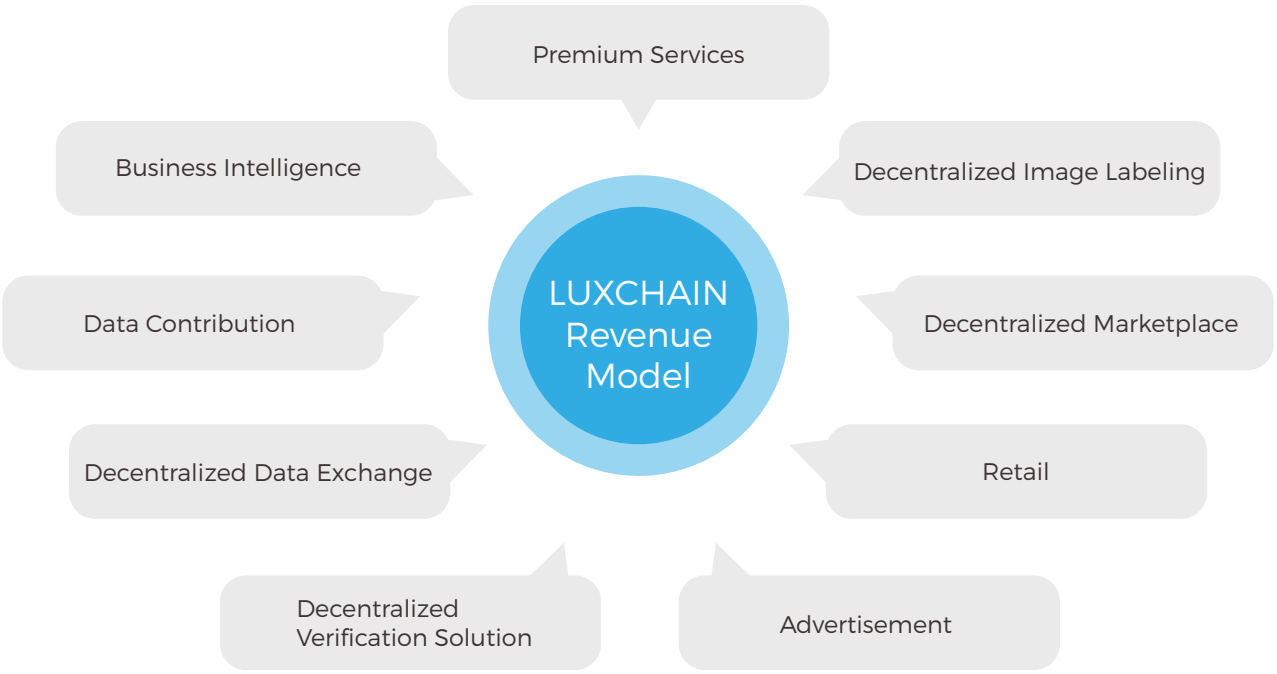
Users earn LXR for providing data that contributes to LUXCHAIN's Business Intelligence. This creates insights that improves the LUXCHAIN economy.

7.1.8 Business Insights

Enterprise solutions access LUXCHAIN's Business Intelligence using LXR for luxury insights and data. B2B solutions offer comprehensive business insights regarding market trends, market demands, predictive analysis, and more for the personal luxury market.

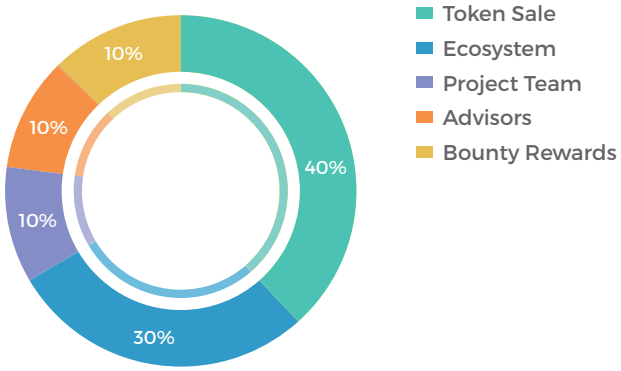
7.2 Revenue Model

LXR tokens circulate within the LUXCHAIN economy through various models and systems.



7.3 Token Allocation

Total Supply	800,000,000
Token Sale	40%
Ecosystem	30%
Project Team	10%
Advisors	10%
Bounty Rewards	10%



The total supply is capped at 800,000,000 tokens due to several reasons. LXR is designed to be used for microtransactions that require a higher precision of token units. Transactions such as fee payments, reward payments, and staking will be better reflected with a larger supply instead of using fractions of a token. For example, it is more convenient to pay 100 LXR (with a larger total supply) rather than 0.100 LXR (with a smaller total supply). Thus a larger supply will help make microtransactions simpler while allowing greater precision.

Second, the value of a single LXR token will more accurately reflect the fiat equivalent when it does not have to rely on decimal places. Relying on decimal places lead to rounding that can add up to cause noticeable differences in fiat equivalent value.

In addition, a large token supply will prevent a few individuals from being able to influence the LXR economy. A larger supply will help to prevent unstable fluctuations in value.

7.4 Token Sale

320,000,000 LXR tokens (40% of total supply) will be allocated for the token sale.

7.5 Raise Amount

The soft cap is $3,000,000 USD.

7.6 LXR Vesting

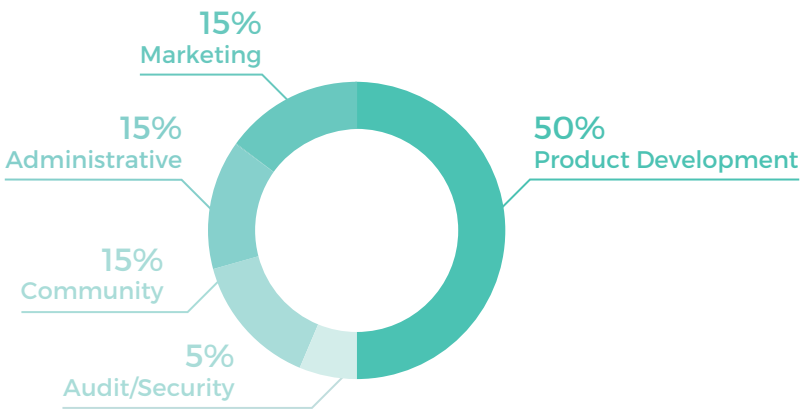
Tokens allocated for the project team and advisors are vested over 2 years. They will be released in 4 stages throughout the 2 years. A smart contract will automatically execute the releases.

7.7 Ecosystem Fund

The main purpose of the ecosystem fund is to collect, spend, and circulate LXR tokens that will support the LUXCHAIN services and community.

The ecosystem fund collects verification and arbitration fees. It also collects any stakes that are lost by verifiers or from arbitration. Temporary stakes are also stored in the ecosystem fund. In general, fees that are required for using LUXCHAIN's services and solutions will be stored as part of the ecosystem fund.

7.8 Use of Proceeds



Product Development (50%)
Product Development covers the frontend and backend development for our products and services such as our verification solutions, mobile application, Image Labeling, and AI algorithms.

Product development also upgrades the Global Luxury Index by combining blockchain and AI algorithms. Improved machine learning capabilities and AI algorithms will strengthen our Business Intelligence.

Marketing (15%)
Marketing covers resources to create content for our community. Content includes mediums such as blogs, Luxury Wikipedia, social media posts, videos, graphics, and more. Marketing resources are also used to plan and execute events such as roadshows and social media campaigns.

Administrative (15%)
This will cover operations, legal, accounting, human resources and other associated administration expenses.

Community (15%)
To continually support our community, resources will be dedicated to enhancing the user experience across the LUXCHAIN ecosystem. Social media management is an example or providing community support for our users.

Audit/Security (5%)
This covers expenses to audit our product for industry grade security and quality. It helps our developers maintain proper product developments for public release.

8. Roadmap

2018 Q1

- Global Luxury Index (GLI)
- 600+ Vendors
- 22 Countries
- 680 Brands
- 450K+ Products
- 136 Cities

2018 Q2

- Non-technical whitepaper
- Explore use cases for Digital Asset
- Explore Global Luxury Index and Digital Asset Use Case
- Explore secure QR code technology for Digital Asset Card (DAC)
- Global Luxury Index integration into Business Intelligence

2018 Q3

- Digital Asset PoC category managed as luxury handbag
- Digital Asset Card (QR code) PoC
- Business Intelligence v2.0 (includes GLI)

2018 Q4

- ScanTrust QR Code Partnership
- Pilot DAC (QR code)
- Pilot Digital Asset PoC
- Fingerprint Technology Integration Digital ID PoC
- v2.0 Non-technical whitepaper
- Business Intelligence v2.1 (includes GLI)
- Onboard secondhand retailer for luxury handbags

2019 Q1

- PoC with secondhand retail shop for luxury handbags
- Offline Verification PoC
- QR code integration
- Mobile Application v1.0
- 1M Product SKU
- Onboard experienced verifiers

2019 Q2

- Business Intelligence v2.2 (GLI)
- Onboard online marketplace
- Image Labeling PoC
- Data Contribution Reward System Model
- Hong Kong as first market for offline verification pilot

2019 Q3

- Business Intelligence (GLI)
- Image Labeling Beta
- Offline Verification PoC
- Expand offline and online retailers in Asia

2019 Q4

- Mobile Application v2.0
- Data Exchange PoC
- Online Verification PoC
- Continue Expanding online retailers in Asia

2020

- 100,000 Users
- Product portfolio diversification
- Europe and US exploration

2021 & Beyond

- Luxury Marketplace
- 500,000 Users
- Product portfolio diversification

9. Core Team

KENNY AU
CMO and Co-Founder

- 16 years experience in e-commerce & technology
- Specialized in working with venture backed tech companies
- Previous Ecommerce manager and advisor to CEO and GM of Brand Off Tokyo, a 65 stores luxury goods consignment retailer
- CSUF (BA)

AIDAA WONG
CEO and Co-founder

- Innovative female leader in big data and AI sectors
- 11 years experience in luxury brands and fashion industries
- Former creative director & chief designer in fashion groups in Hong Kong
- Former fashion designer of MaxMara Fashion Group
- Former guest art director and stylist of West East, Bazaar and Cosmopolitan fashion magazines
- Visiting lecturer in universities in Hong Kong
- University of The Arts London: Central Saint Martins (BA)
- Royal College of Art (MA)

APIWIT THEERAPORN
Chief Operating Officer

- Project Manager at SCBS Securities Co. Ltd for four years in decision making application i.e. SCBS stock advisor (mobile app)/SCBS Smart news(web app) where he utilized scripts and algorithm to enhance decision making. During his tenure, he was an instructor for the banks' internal seminar courses for staffs training.

ALEX HUNG
Chief Technology Officer

- 24 years experience in technology
- Developer and business analyst for HSBC Asset Management, UBS Private Bank, HK Police Force and ADP
- Business intelligence and data-warehousing projects
- Medal of Honour from HK Govt for contribution in helping the promotion of ICT in HK
- HKU (MSc, MBA, BSc)

MARTIN LIU
Senior Engineer

- Developed Ecommerce infrastructures
- LUXSENS technology and infrastructure
- Full stack engineer for 7 years

ADAM LI
Data Scientist

- Deep domain experience in artificial intelligence
- In charge of managing team responsible for data analytics, image recognition, machine learning for LUXSENS core data science team

AAKASH GUPTA
Analyst

- Analyst strategist specializing in Managing Digital Innovation and Business Development Previous strategic consultant for
- PricewaterhouseCoopers (PwC), responsible for managing business strategies, research and analysis
- Involved with the United Nations on strategic global sustainable goals
- Studied Master of Management from University of Sydney, Australia and Chemical Engineering from Bharti Vidyapeeth University, India

RICHARD LI
Marketing

- Experience in blockchain marketing for 2 years with specialization in video and audio technologies, graphic designs and content creation
- China and international blockchain marketing
- Majored in Communication Arts, English Translation and Interpretation

HIKARU KASAI
Analyst

- Blockchain analyst integrating decentralized database technology into traditional business applications
- Developed websites for non-profit organizations
- University of California, Irvine, B.S. in Computer Engineering

10. Advisors and Investors

VIDYUTH SRINIVASAN

- CEO and Co-Founder, Entrupy, an AI based authentication provider for luxury products worldwide. Vidyuth is also the co-inventor of Entrupy's advanced patented technology that uses microscopy and machine learning. Entrupy captures microscopic images of physical objects to distinguish between genuine and counterfeit versions of the same product.
- Previous PR and Communications Manager, Intuit, a business and financial software company
- Previous Head of Business Relations at Raptor Entertainment Pvt. Ltd.

SUSAN ZHOU

- Co-Founder and COO of Qlink
- Former Partner of Rhodium Capital
- Business Development Director, Augentius
- Over 10 years experience in investment banking cross Asia
- University of Hong Kong, MBA
- London Business School, MBA

WILLIAM BAO BEAN

- General Partner at SOSV, a US $300m venture capital fund
- SingTel Innov8 Ventures Managing Director supporting China investments
- Partner at Softbank China & India Holdings, a venture capital firm backed by Softbank and Cisco
- 11 years as an equity research analyst with Deutsche Bank where he was top three Internet analyst in Asia

HAYK HAKOBYAN

- Business Development Manager APAC at Nexmo, The Vonage API Platform
- Expert in Residence in Chinaccelerator
- Previous Head of Business Development at Yellow Pages
- PHD in Nuclear Physics at University in Geneva
- MBA in University IFM

PHILIP MCMASTER

- Co-Director, China at World Sustainability Organization
- McMaster Institute for Sustainable
- Development in Commerce (Hong Kong)
- World Sustainability Project
- The Chinese University of Hong Kong, MBA
- Université de Montréal – HEC Montréal

CHERN LEE

- Founder & CEO of Iconic Industry (Digital Marketing and Affiliates Marketing Company)
- Generated over $500M USD in sales for their clients

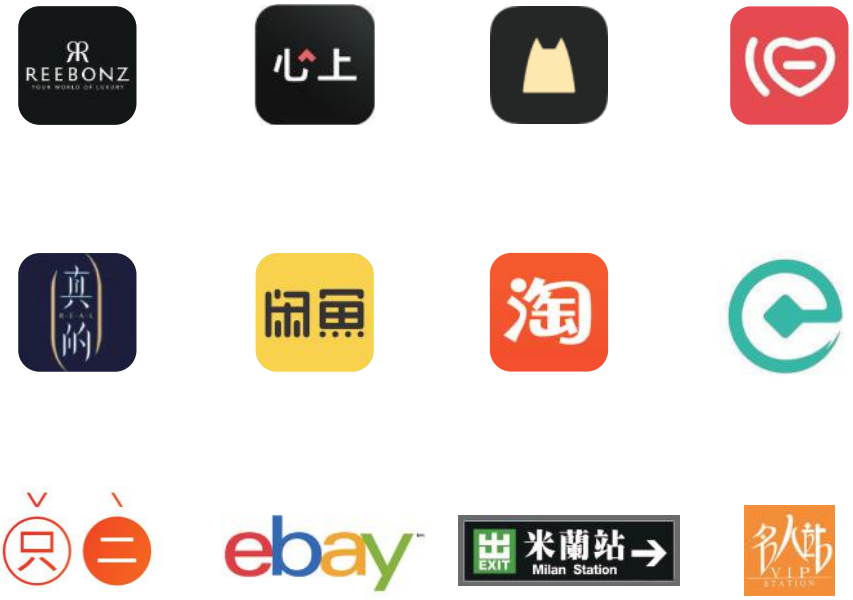
CAROLINE HSU

- Managing Director of Asia, Hoffman Agency (Tech PR Firm)
- Head of Communications at Google Hong Kong and Taiwan
- CMO of Appier

DRAPER DRAGON

SOSV
THE ACCELERATOR VC

11. Partners and Distributors



12. Legal

LUXCHAIN Foundation Ltd. is a Singapore based nonprofit entity.

13. Appendix

Digital Asset
A profile containing verified product information and history. A Digital Asset is a non-fungible, globally unique token that can be bought, sold, or traded between Luxchain Digital IDs.

Digital Asset Card (DAC)
Each Digital Asset is associated to a DAC that contains a copy-proof QR code. The DAC is scanned by buyers to view Digital Asset information and history.

Digital ID
A unique user profile in LUXCHAIN that allows sellers, buyers, and verifiers to build reputation. Digital ID's are linked to Digital Assets to increase trust and transparency in the LUXCHAIN ecosystem.

Fingerprint Technology
The fingerprint technology scans the outer surface of a product to capture its unique magnified image. Each magnified image is unique, and allows the fingerprinted product to be differentiated from all other products. Fingerprint technology ensures that the verified product can always be matched to the corresponding Digital Asset Card (DAC) without altering the physical attributes of the product.

Global Luxury Index
The Global Luxury Index (GLI) is the world's first global luxury price index built on artificial intelligence. It provides benchmarked pricing for sellers and buyers to understand the value of their products. The GLI also provides intelligence on the optimal sales channel to know where, when, and how to find the best deal.

LXR
The "Luxury Exchange Recycle" token used for payments, staking, verification fee, rewards, Data Exchange, and more. LXR is built on proven cryptography for secure and efficient transfer of value in LUXCHAIN.

Personal Luxury Good - Good such as handbags and watches, but not yachts or cars. These goods are typically carried, worn or used by an individual for personal use.

QR Code
A two dimensional barcode that can store encrypted data such as URLs. LUXCHAIN uses copy-proof QR codes to create a unique Digital Asset Card (DAC) for each verified product. The QR code is printed on the Digital Asset Card with advanced technology so that copied codes can be detected.

Smart Contract
A transaction that automatically executes once specified requirements are met. For example, when a buyer successfully sends LXR payment to a seller, the smart contract automatically transfers ownership on the product's Digital Asset. Smart Contracts eliminate a central middlemen and reduces human error.

Verifier
A luxury authentication expert who verifies personal luxury goods. Verifiers have specific expertise and areas of concentration for different categories. A verifier's Digital ID is linked to the Digital Asset that he or she verifies.

14. References

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LUXCHAIN