# METHODS FOR VALUE ADDED SUSTAINABILITY

solution to monetize scarcity in luxury goods

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#### SUMMARY

Luxury brand authenticity, sustainability, digital currency and blockchain technology intersect in this white paper, which introduces a solution to monetize scarcity in luxury goods. The biggest problem facing luxury fashion brands is the rise of dupes. Recently in the midst of a trade war China has unleashed a social media ad campaign marketing replicas as authentic. Sowing the seeds of doubt threatens to permanently tarnish luxury brands. Validir has a solution to serialize and authenticate luxury products and offer protections against tariffs and currency manipulation.

Molenje and Chung propose a framework that combines blockchain's ability to track and

verify luxury items with a new digital currency, Validir, to create a transparent and sustainable market for luxury goods resistant to currency fluctuations. This approach addresses the issues of counterfeiting, environmental impact, and fluctuating values in the luxury market. By leveraging blockchain and digital currency, the white paper suggests a way to add value to luxury goods while promoting sustainability and authenticity.

### Introduction

Finbarr Livesey provides a framework for High Value Manufacturing. "When thinking about value it is easy to assume it is the same as profit or revenue. However, a firm's value goes beyond its financial performance and includes social impact and strategic importance to the regional and national economy. Each type of value will be considered important in varying degrees by companies, individuals and countries."

Livesey is decoupling value from sales volumes and revenue projections. Most people understand the commercial appeal of luxurious brands. Only connoisseurs with discerning taste, can appreciate the craftsmanship required to make artisanal quality goods that last longer, look better and are more sustainable.

Preserving the true value of consumer purchases is the only path to a sustainable future. Nina Shariati said, "the most sustainable product is the one that is never made, the second is the one you already own and third is one that is already made." Ms Shariati is shining a light on the inconvenient truth that mass production itself is not a sustainable model. In order to align incentives for producers and consumers, luxury goods manufacturers have to be able to profit from more durable products and lower sales volume in the highest end product lines. Simultaneously, consumers have to see durable value in the products beyond the sales price.

The general strategies for cultivating exclusive artisanal premium lines have been borrowed from Hermès and will be familiar. This paper however, synthesizes multiple disparate concepts to form a basis of understanding for luxury product valuations. 1) Foreign exchange markets and the balance of trade. 2) The role of digital currencies as a ballast against fiat currency depreciation. 3) Limitations in blockchain consensus that make it inefficient by design and limit its utility to unproductive wealth storage. 4) Luxury through craftsmanship, sustainability and scarcity. 5) A mechanism to provide a digital verification of physical assets recorded on a blockchain.

### Foreign exchange markets and the balance of trade

Up until 1973 the underlying asset for the U.S. dollar which was the international reserve currency was gold. The gold standard fixed set the value of one dollar at 25.8 grains of 90% pure gold, which was about \$20.67 per troy ounce. In 1973 the gold standard was abandoned and currencies were allowed to float against each other. The value of each currency is measured in terms of the foreign exchange rate. The rates are determined on a commodified market for currencies known as the global foreign exchange market. The foreign exchange market is a retail over-the-counter (OTC) marketplace that determines the exchange rate for global currencies.

Foreign currency valuations are relative. Foreign exchange trades always have a counterparty to establish the unit of measurement. Therefore, currencies are always ratios traded in pairs. For example, 100 of Currency A is worth 75 of Currency B. A:B = 100:75.

An international contract for goods and services can be denominated in either currency. Since the currencies are free-floating the value of the currency can change independently of the contract. The denominated currency determines the real balance of the trade for both parties. Let's look at a contract for someone in country B to deliver 100 handbags to someone in country A.

For one handbag is worth 75B and the contract is in Bs. If the value of Bs should increase (relative to A) to A:B = 100:65 the seller still receives 75B per handbag which is now 115A. 7500B is the balance of payment while 6500B is the balance of trade. The same exchange with the contract denominated in As. The seller would receive 100A which is worth 115As in units of Bs. The balance of payment is 10000A and the balance of trade is 6500B.

Theorically, in a perfectly transparent foreign exchange market the gap between the trade value of the currency and the real value should be a zero sum gain. The reason for this is

when a contract is denominated in B, in order for a customer with As to pay the bill they have to purchase Bs on the foreign exchange market. The increase in the value of Bs makes products in country A less expensive. Until the gap closed, country A could sell the product back to country B for a profit.

In reality sellers (country B) with weaker currency benefit from lower relative prices. In the example above an increase in the currency exchange rate from 75B to 65B made the price go up for their customer (country A) by 15%. To counter this country B can lower its exchange rate by buying the currency of the counterparty (country A). At a micro level you can see this in retail tourism where customers travel to foreign countries to buy products at a discount. At a macro level a country that wants to maintain its exchange rate advantage to continue export-led growth, will recycle their currency. For governments this usually means buying foreign currency and holding it in reserve. For capitalists this means investing in financial markets or expensive purchases in the foreign currency like real estate that can be liquidated seamlessly.

Maintaining competitive exchange rates through exchange price targets has become a staple for countries with a policy of export-led growth. China is the model for export-led growth that is the envy of the developing world. According to the World Bank, since China began opening its economy and implementing reforms in the late 1970s, nearly 800 million people have lifted themselves out of poverty. These results are miraculous. That is why much of the world including the first world have sought to replicate their success.

Export-led growth is a near universal policy prescription. This paper is not to challenge the wisdom or mechanics of the policy. For the solution (revealed later) it is important to understand export-led growth and the critical role of currency valuations in its implementation. It is also important to understand that commodities have a peer relationship to currencies. In addition to the foreign exchange market there is a commodities exchange market where currency futures are traded.

### The role of digital currencies as a ballast against fiat currency depreciation

A digital currency is a virtual commodity. At the moment regulators are trying to determine whether digital currencies should be treated as securities or commodities or some other hybrid asset category. I do not want to go too deep into the arguments for either, for the purpose of this paper I am taking the position that NFTs and cryptocurrencies behave as commodities.

Blockchain cryptocurrencies are only one form of digital currency. Some cryptocurrencies have a limit on the total supply, this has the effect of creating artificial scarcity. Government issued currencies are commodities whose supply is regulated by the government of issuance. Cryptocurrencies like all currencies differ from other commodities in that their value is as a medium of exchange. A fully transparent commodities market could operate without an intermediary currency as a barter exchange. In fact on a commodities exchange market currencies are considered both commodities and derivatives of commodities. Derivatives are financial instruments whose value is based on an underlying asset.

The practical benefit of cryptocurrencies is that the holders can make the rough equivalent of a cash transaction over the internet. Since the transactions are processed via a large peer-to-peer network there is not an overseeing third-party that can vet or constrain transactions.

Cryptocurrencies offer a degree of anonymity, however all crypto transactions are visible on a public ledger. It is in many ways easier to track crypto transactions and eventually tie them to the owner when they convert their cryptocurrency into fiat currency. An emergent benefit of cryptocurrencies is due to programmatically enforced artificial scarcity, they can potentially hold their value relative to other commodities whose supply can fluctuate.

Electronic currencies have become synonymous with blockchains. Blockchain payment resolution is deliberately inefficient and designed not to scale. There is bridge technology built to augment the weakness of the blockchain consensus process. In the absence of transaction volume the demand for cryptocurrencies are purely speculative as a hedge against inflation. Their value is in being a ballast against currency deflation and corresponding inflation.

# Limitations in blockchain consensus that make it inefficient by design and limit its utility to unproductive wealth storage.

The drawbacks to cryptocurrencies versus other types of digital currencies are significant. Cryptocurrencies are seldom used in commercial transactions. Even Bitcoin's most ardent evangelists acknowledge that bitcoins will never be a transactional exchange currency for retail purchases. Due to the blocksize constraint, there is a maximum of approximate 400k transactions that can be processed in 24 hours. Bitcoin is mainly seen as a vehicle to store wealth because of large scale adoption and artificial scarcity. Without the ability to transact in the currency it is questionable how to measure its true liquidity. In fact most bitcoin transactions are conducted off-chain by third parties that use more traditional ledgers to track credit and debits then publish the totals to the blockchain. This looks more like a standard payment processor (layer 2) or brokerage account (layer 3) than the vaunted peer-to-peer cryptographic exchange.

Taking a closer look at the bitcoin network. There are estimates that there are less than 10k active miners. Although, anyone with an internet connection can potentially start mining. The barriers to entry have gone up. To be a successful bitcoin miner you must have an enormous amount of computational resources. Additionally, those dedicated to bitcoin mining have invested in Application-Specific Integrated Circuits (ASICS), to improve the processing time and reduce the cost of solving the proof-of-work equations required to commit changes to the blockchain and collect the bitcoin rewards. The net result is that the system is still notionally decentralized but has in fact become highly consolidated.

Additionally, the coin exchanges are the primary way that most consumers interact with the blockchain, which are consolidated by definition. The market value of bitcoin and other cryptocurrencies is tied to trade volatility on crypto exchanges not forex exchanges. It has been seen in several cases that these trade volumes are easily manipulated by crypto brokerage firms.

An alternative model for digital currency is m-pesa. "The service allows users to deposit money into an account stored on their cell phones, to send balances using PIN-secured SMS text messages to other users, including sellers of goods and services, and to redeem deposits for regular money. Users are charged a fee for sending and withdrawing money using the service." M-pesa started as a way to transfer mobile phone minutes. The minutes became their own currency organically because they had value. A blockchain could have been used to transfer the minutes but it would have only slowed transaction processing. Compare that to the experience of Argentina which formally adopted bitcoin as an official currency. The practical impediments of using bitcoin as a transactional currency has meant that it has not been widely used.

The value of the underlying token and the ability to handle a high volume of transactions are more relevant to digital currency adoption as a medium of exchange than the distributed nature of the platform. Although, it is true that blockchains are not reliant on centrally controlled entities, which means blockchain transactions cannot be sanctioned or blocked by authorities. There are also privacy concerns associated with all transactions being broadcast to the world. Even though the accounts are numbered it is not impossible to determine one or both parties in a transaction. The anonymity which is a feature of the blockchain is illusory.

### Luxury through craftsmanship, sustainability and scarcity.

Luxury brands have different price constraints than most retail products, in fact it is the opposite. Luxury fashion products are considered Veblen goods. The economist Thorstein Veblen coined the phrase "conspicuous consumption" for a class of products for which demand increases when the price goes up. There is a corollary that states for Veblen goods in a mature market scarcity increases the demand. In other words, since the demand curve is inverted, scarcity not only increases the price it also increases demand. Although Velben goods are the opposite of commodities; they share these properties. The price makes it difficult to acquire, it is the rarity that makes it valuable.

Luxury goods are not commodities but they behave as commodities in the market, albeit without the transparency of an exchange. Supply and demand equilibrium is the point at which the quantity of a good or service that consumers want to buy is equal to the quantity that producers have to sell. This price is also known as the market-clearing price. Stasis in a transparent market is impossible due to market volatility on either side of the equation. If the demand increases and the supply is static the price will increase and vice versa. As demand increases and prices rise commodity output goes up to profit from the arbitrary gap until the gap closes. Speculators can profit from the gap identifying the velocity of demand and predicting the effect on the price in a trading practice known as arbitrage.

The net effect of volatility in markets is that suppliers always lag the market. Since commodity pricing tends to be very elastic the price is dictated by the demand side. However, the arbitrary nature of the market-clearing price means that if a single supplier is able to close the gap between supply and demand that supplier can effectively set the price.

By contrast, Veblen goods are either positive price elastic or counter-elastic. Veblen goods function as commodities that operate on inverted supply curves. It is not that when the price goes up the demand increases, it is when the exclusivity goes up the demand increases. The price makes it difficult to acquire, it is the rarity that makes it valuable.

The fashion industry has trended towards "fast fashion." These are cheap imitations of the luxury fashion brands. What fast fashion lacks in durability and craftsmanship it makes up for in price and availability. The appeal is strongest among young people who otherwise cannot keep up with style trends broadcast over social media. The luxury fashion houses are the standard bearers. Any attempt to compete with fast fashion on their terms is misguided and can only compromise the brand's value.

Even street wear lines with luxury co-brands should have a strategy to protect their exclusivity through artificial scarcity.

As a principal, products should be separated into two tiers. Tier 1 are considered timeless reflections of a period in fashion history, made with a craftsman's attention to detail versus a disposable mass produced parody of luxury. To be clear every product brought to market reflects the brand and demands the highest craftsmanship in the industry mass produced or not.

Market transparency works in favor of both the producer and consumer. The value of rarity can only be captured as something that resembles an auction. Manufacturers should set supply to establish the equilibrium price that will retain most of its value in the secondary market. As with commodities the scarcity in transparent markets triggers a bidding war for marginal supply.

### **Market Manipulation versus Market Interventions**

A market shock happens when supply increases to meet increased market demand or match a target price, then demand decreases sharply and the producer is left with excess inventory. Because production lags demand, even after slashing production producers may be stuck with excess inventory for a long business cycle. In international commodities markets it is not uncommon for a producer with a particularly large inventory or under pressure from loans taken to increase output during boom times to slash prices and dump their product. Depending on how much of the market they supply this can trigger a reverse bidding war where all producers are competing on price in a downward spiral. Dumping commodities is an international trade violation.

In commodified markets that consist of raw materials used to create goods or services, and are either unprocessed or minimally processed like steel dumping is hotly contested. By comparison Africa has become a dumping ground for fashion industry waste. There are over 92 million tons of fashion waste every year. What was once seen as an act of generosity, donating clothes, has transformed into hostile imposition. Khofi Anan's niece Dallasie Aning reported the problem in Ghana had gotten so bad that she no longer enjoyed spending time at the beach; it was so oversaturated with discarded clothes.

The disposable, fast fashion, waste problem is the result of unsold inventory in low value brands like H&M, Zare and Shein. Conversely, UK luxury label Burberry received backlash for reportedly destroying finished products worth 28.6 million pounds. "LVMH and Kering, the parent companies behind brands like Louis Vuitton, Gucci, and Saint Laurent, saw their unsold inventory more than double between 2014 and 2023, according to La Conceria's summary of Business of Fashion analysis." (Leslie Sattler) In 2023 the two luxury conglomerates had \$5.1b in unsold inventory. In the past luxury brands would destroy their inventory rather than reduce price, this practice is now illegal in France. An unscrupulous approach to absorbing a market shock is for the producer(s) to have subsidiaries or affiliates purchase excess inventory. This gets the depreciated asset off of their balance sheet while also increasing market volatility. While demand is low these affiliates can artificially generate transactions that simulate market activity thereby propping up prices until demand recovers.

This is similar to a cartel controlling the distribution of a product and setting the price, but is duplicitous, fraudulent and illegal. It is typical for there to be a graveyard firm that accumulates bad debt used to fuel the simulated market activity. After the liquidity is injected into the market the bad loans go to the graveyard to die and that firm declares bankruptcy. In the best case the market value of the assets recover and the graveyard returns to solvency.

The examples mentioned show the relationship between commodities and currencies, especially how increasing the demand for a commodity relative to a currency can be achieved by either artificially limiting supply or generating demand. Importantly the examples differentiate our proposed solution from illegal market manipulation.

## **Open Market Solution**

The solution is three fold. The first is to validate the authenticity of luxury goods to control the supply and eliminate alternatives. Elasticity of demand is largely determined by the availability of suitable alternatives. Secondly, establishing a transparent exchange for validated luxury products. Finally, introduce a reserve currency (Validir) on the market issued by luxury manufacturers used as the standard. The currency is allowed to free-float, any intervention is done using transparent open-market operation. Open-market operations means buying or selling either Validirs or tier 1 luxury products to regulate the value of the currency and indirectly the underlying tokenized assets.

For reference a Reserve Bank issues currency directly to banks. The treasury sells tokens to the highest bidder in the form of interest bearing treasury bonds. The Federal Reserve is prohibited from purchasing bonds from the treasury directly however they can purchase bonds on the open market with currency they issued. Bonds are subject to the same laws of supply and demand as other products on the open market. The bond value is measured by the interest yield rates. The reserve can set the supply of money but can only influence bond yields.

Diamonds are a commodity that have been able to preserve their value even though they are not particularly rare. Producers withhold portions of their inventory from the market. Similar to other luxury goods, diamonds are non-perishable. Demand is not driven by consumers continuously replenishing their supply as with oil or wheat. A cut diamond could be reset and resold at the same price or greater. The diamond market is a good proxy for other luxury goods.

Diamond miners were able to effectively prop up the value of diamond even as new mines came online, through either tacit or explicit artificial scarcity. However, the market is in jeopardy today due to the proliferation of high quality counterfeit diamonds. In fact "counterfeit" may be a misnomer because lab grown diamonds are elementally carbon diamonds. It is more accurate to categorize lab-grown diamonds as replicas. By comparison it is more accurate to describe high-end luxury brand counterfeits as replicas. Anti-counterfeiting is the foundation of Validir's value proposition with enormous returns as a standalone proposition..

The Validir authentication method uses advanced encryption to create a pairing between a physical asset and a digital token on a ledger. Unlike traditional NFTs whose value is often intrinsic or tied to something ephemeral like concert tickets, Validir NFTs are bonded to a physical object. Unlike other crypto currencies, the currency used in the Validir exchange is the exchange currency for luxury goods. An analog is the petro-dollar of luxury products. Unlike traditional rewards programs, cryptocurrency can be exchanged between customers in the open market or bought and sold on the same exchange as the product.

According to the East Asian Forum, " digital goods and services are likely to make up most future trade growth, while digitalisation will facilitate future services trade growth." The demand-led growth model has to be reimagined under current geopolitical conditions. That means some rapidly expanding markets may flatten on contract as a result of trade barriers. In order to combat U.S. tariffs, China is likely to devalue their currency to protect its export market and increase the potency of retaliatory tariffs. The result will be lower purchasing power for foreign goods even those from countries without trade barriers erected.

The Chinese general public will be looking to protect their wealth from currency devaluation by purchasing appreciable assets. Due to well publicized concerns over the liquidity of major Chinese real estate developers and the pre-order agreements that finance new development, sales in the top 100 developers fell 38% since 2023. Although the Chinese real estate market is showing signs of recovery it is no longer seen as a safe asset class in China. With a depreciating yuan, Chinese real estate will not be attractive to foreign investors even at discounted prices. Even if internal market dynamics improve, any appreciation in a mandatorily domestic asset will be offset by the inflationary effect of the currency devaluation.

Similar to the United States where younger generations are financially excluded from the real estate market. Retail consumers/investors in China will look to alternate assets that both have utility and hold their wealth. Luxury goods could be that asset class but only if they can be viewed as collectible. For this model manufacturer's incentives are reversed. There is an incentive to produce less, thereby increasing the value of both the products and the currency, and being more sustainable. Attempts to drive down the currency can be countered in the open market through buy-backs. Typically buy-back are losses that lead to write-offs. In this case a buy-back will be offset by an increase in the value of the currency, thereby increasing the value of both the product and the underlying currency. Conceptually, this resembles a stock buy-back where the value of the stock rises and the balance sheet assets increase.

Products can be broken into two categories; tier 1 artisanal and tier 2 mass produced. The artisanal products can be one-of-ones but are better as an elite set. To make the buy-back program a loss leader, the artisanal products should be assembled using repurchased materials as much as possible. Since, both the original buy-back piece and artisanal pieces are verifiably authentic. The artisanal piece is an authentic collectible and the value of the original are effectively commodities since they serve as raw materials used to create goods or services, and are either unprocessed or minimally processed.

The Validir digital currency is used in lieu of fiat currency for the buy-back, thereby

establishing the exchange value of the currency as an intermediary. Unlike other floating currencies the *Validir* will not face the same restriction with taxes and customs that other cryptocurrencies face since the value can be transferred physically in the form of a product. It is not inconceivable that some products can be vaulted, similar to the way some art pieces reside in museums. Although this reduces the volatility in the verified asset market it will increase the value of the underlying asset and since the system does not rely on volatility in the underlying assets it will not affect the velocity of the *Validir*.

It is possible to have a distributed system that can process a high volume of transactions and secure each transaction with a cryptographic hash. That would satisfy the proponents of a distributed ledger as the only way to ensure the integrity of the currency. The solution involves a high-throughput message queuing platform such as Kafka or NAT.io. Both solutions allow for the expansion of nodes so that the network remains decentralized and nodes can be added or removed. There will be clusters supported and maintained by Validir making it a central enabler but this does not preclude others from adding processing capacity. Even if the Validir nodes were taken offline the transaction processing could continue uninterrupted.

We will still use asymmetric encryption to digitally sign the transaction but we will also use it to secure the channel and close the network. The Validir app will connect to the network with an encrypted tunnel to query a persistent store of the ledger and locate the last entry from the private key holder. The user can check their balance, purchase more *Validirs* and add them to their wallet, transfer *Validirs* to another wallet or make a purchase through the platform. Before a transaction is committed to the stream a query is done to ensure no transactions were processed for the keyholder since the persistent store was last persisted. During the check on recent activity all activity from the keyholder is blocked until the transaction completes or a time window closes. These functions can be provided as API to allow retail payment processors to easily integrate with the platform.

Even the most strident blockchain evangelists acknowledge that a digital token needs a cryptocurrency, without stating the obvious corollary that a cryptocurrency needs a digital token. "A blockchain secured with a token could be used as a notary service, where contracts or documents are hashed onto a block of transactions, allowing any party to access the contract and be sure that the version displayed is the one that was hashed at

the time. Such a service will provide a market for scarce block space, but is unworkable with any blockchain without a currency." (The Bitcoin Standard, Ammous, pg 267) Stablecoins have been injected into the blockchain ecosystem to bridge the gap between substantiated and vaporous cryptocurrencies. Without challenging the veracity of some of their claims. Stablecoins act as intermediaries that can facilitate the exchange of fiat currencies into cryptocurrencies and vice versa . In many ways they are EFTs that use cryptocurrencies instead of shares, with recent changes to regulations many are marketed as such.

The Validir digital token (NFT) is agnostic of the currency used for its purchase. However, there is a separate ledger entry made by Validir when a verified product is traded using Validirs through the Validir platform. The Validir cryptographic ID of the product is transferred to the private key holder's wallet. In case of theft the currency can be restored to the registered holder's account through an insurance policy. The product can be marked as stolen and become unmovable in the black market. It cannot be reintroduced onto ledger and is therefore worthless in *Validirs* unless returned to its rightful owner. If scanned for authenticity it will be identified as stolen rather than valid.

To implement the process there needs to be clearly delineated tier 1 products. They should be something that has the ability to be maintained and collected. Hermès limits its production and distribution to around 120,000 units per year and between 12,000 and 50,000 of its flagship Birkin bag. The company uses a quota system to limit the number of bags a customer can buy to two per year. This strategy is intended to maintain the rarity and exclusivity of Hermès products. Tier 1 products should be purchased only in Valdidcoin. Purchases made in another currency should be converted into Validir first and the conversion should be shown on the receipt. After the purchase of a tier 1 product as a reward for participating in the digital currency experience customers will be rewarded with Validir in their crypto wallet. The coins can be used to purchase tier 2 and tier 3 products, sold or traded. One of the chief goals after adoption of the Validir standard is to get other online retailers and payment processors to accept Validir.

### **In Conclusion**

The Validir solution seeks to address problems with the current direction of sustainability goals, cryptocurrencies, currency stability and trade value maximization. The only viable long term sustainable solution, across industries, is to reduce production. Reuse of finished products in a meaningful way can both increase the value of existing products and incentivize decreased material consumption.

For reasons stated earlier blockchain cryptocurrencies are not designed to accommodate high transaction volumes. Additionally, the proof of work consensus process is **extremely** energy intensive which undermines the goal of sustainability to protect the environment.

Validir LLC has engineered a digital currency that is intended to be transactional from the beginning while still being decentralized. Since block chain cryptocurrencies do not have underlying physical tokens they are indistinguishable from ponzi schemes, as evidenced by the proliferation of memecoins. They are not currencies because they are scarcely used in consumer transactions nor can they be at scale. They are not securities because there is no business justification for the value other than increased investor confidence. The most accurate categorization is as a derivative, but without an underlying asset it is derived in absentia.

Limiting tier 1 purchases to being transacted using Validir creates demand for the currency. This is comparable to the petrodollar. Other tiers can be allowed to trade in Validir based on open market exchange rates. This could happen organically as with m-pesa but mass adoption it will have to be integrated into mainstream payment processing solutions.

Luxury goods manufacturers would be the issuers of Validir and the producers of the tokenized valid products. Manufacturers can use their rare physical product to anchor the currency without pinning to the currency. Controlling the expansion of the tokenized products, manufacturers expansion or contraction of the currency supply by buying or selling tokenized products. As articulated earlier the currency availability affects the value. Unlike fiat currencies where issuers often have an incentive to devalue the currency the Validir would have an incentive to keep the currency strong relative to everything with the notable exception of its own tokenized products.