Portion: Decentralized Auction House for Luxury Goods
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0. Abstract

Portion is a global auction house for the digital age. Crowdsourcing an Initial Coin Offering for the Porti Token will be done through Regulation A+ compliancy[0]. **Built on the Ethereum Blockchain, Portion offers a transparent, scalable solution for luxury goods and rare collectibles. All transactions are facilitated by cryptocurrency[1].**

Note: Portion is currently in the live testing phase of development. Regular research is ongoing and updated versions of this whitepaper may be released at http://portion.io.

1. Executive Summary

1.1 Background

Auctions have been around since 500 BCE[2]; and, like many forms of commerce they have evolved as the societal, economic, and technological landscape have matured. More specifically, the large-scale, luxury auction house came to prominence in 1744 with incumbent firms such as Sotheby's and Christie's leading the way. These traditional auction houses were primarily live, in person, and only available to wealthy and connected individuals. Simply put, luxury auction houses are founded on the principle of elitism and exclusivity.

The luxury goods industry is comprised of: cars ($533B), personal goods ($303B), wines and spirits ($80B), fine art ($47B), furniture ($40B), and yachts ($9B), for a total value of $1T[3].

The value of the cryptocurrency market has increased to well over $500B. With cryptocurrencies in the spotlight, a new class of wealthy individuals has formed. These individuals have limited means to purchase high-value luxury goods and rare collectibles with cryptocurrency. Simultaneously, luxury good owners have a desire to sell in exchange for cryptocurrencies.

Portion's mission is simple: provide a transparent and trusted means to auction certifiably authentic, high-value goods in exchange for cryptocurrency.

1.2 An Industry Ready For Change

Over time, as technology progressed, online auctions democratized the traditional auction house, increasing accessibility to consumers. However, the industry remains plagued with fundamental issues due to

technological limitations. **The issues with luxury auction houses are categorized as follows: transparency, payment, bidding, and goods.**

Transparency:
Traditional auction houses face numerous issues due to a lack of transparency into bidders, bids, and goods. While bidding, the bidder is often pseudo-anonymous, creating uncertainty into whether or not the individual can afford the item for which they are bidding. Furthermore, the general public is unaware of the final sale price inclusive of fees and ancillary terms. The lack of transparency causes uncertainty as to the true value of goods sold. Furthermore, opaque visibility into the origin of provenance and authenticity of goods creates trust issues between parties.

Payment:
Bidders at in-person auction houses are generally put through exhaustive processes to ensure the individual has sufficient funds to bid on high-value goods. Traditional auction houses will occasionally mandate earnest money during an auction. Earnest money is a deposit to demonstrate the bidder's commitment and binds them to a contract[4]. When auctions take place online, payments are generally dependent on credit cards or third party payment processors. These systems have inherent flaws and can be easily manipulated. Additionally, auction houses and online systems have been slow to adopt cryptocurrency, the emerging form of digital transactions. These issues have created problems validating proof of funds, streamlining payments securely, and enabling refunds.

Bidding:
Auction houses are inherently vulnerable to collusion and shill bidding[5]. The ascending auction format, specifically when hosted online, is vulnerable to these practices. Shill bidding occurs when individuals associated with a seller artificially increase the price or desirability of a good being auctioned. Auctioneers have been found colluding with bidders to artificially raise the price. These practices create an unfair environment in which the very principle of an auction house is undermined. The goal of an auction house is to create an equitable form of exchange where goods are sold to the highest bidder, creating a balance between supply and demand.

Goods:
Auction fraud has remained a top 20 complaint on the Federal Trade Commission's consumer list, with over 30,000 complaints[6]. Current processes rely on trusting the auction house or a seller's online review and history. While online auction houses have worked to rectify this concern, fraudulent and misrepresented goods remain a primary issue. Furthermore, auction houses that take a centralized approach by pre-approving every good, regardless of the value, hinder their ability

to scale. The operational cost of inspecting lower valued goods impedes an auction house's ability to maintain ideal margins.

1.3 A Revolutionary Approach

Portion is uniquely positioned to address the above issues by combining blockchain technology with innovative processes and operations.

Transparency:
Blockchain functionality on a decentralized network removes the concern of a lack of transparency. To begin, Portion ensures only real goods and real people will enter the auction house. This validation is possible by leveraging KYC/AML and proof of funds . Portion goes through an extensive process to ensure items are authentic and properly represented. Furthermore, the provenance of goods are tracked with Portion's *Blockchain Certificate of Authenticity* (BCOA). All transactions will be facilitated by blockchain, thereby creating transparency into ownership and final prices paid for all goods. This data not only creates a more secure and transparent auction house but also democratizes beneficial data for our network of appraisers and other individuals utilizing the information.

Payment:
By leveraging blockchain and solely accepting cryptocurrency, Portion will be able to validate proof of funds in real time. Users will only be able to bid on items when they have sufficient funds. When an auction is complete, funds will be held in a smart contract until the winner receives possession of the good. Proof of funds will provide a level of quality assurance amongst all parties while streamlining the bidding process.

Bidding:
The majority of Portion auctions will be available online and will follow a Vickrey auction format[7]. The Vickrey auction is a 'sealed-bid' format where participants blindly submit their bid. The Vickrey auction awards the highest bidder the good at the second highest bid price. This format mitigates means of collusion and reduces incidents of shill bidding. This trusted auction format has been used throughout history to create the fairest bidding structure in which unethical actions are eliminated while also helping the seller receive the best price for their good.

Portion Partner Network: Portion builds a global network of carefully vetted, reputable appraisers and authenticators for a variety of goods. In each region, sellers will have access to local partners where their item can be authenticated, appraised, and a BCOA distributed. All members of the Portion Partner Network will be interviewed, provide references,

and demonstrate credibility. Portion will continually track the accuracy and validity of BCOAs distributed by the network to ensure ethical and high-quality practices. Furthermore, Portion will have contracts with each partner of the network mitigating fradulent goods and liability for all parties. The Portion Partner Network allows Portion to maintain a level of decentralization and scale. Ultimately, this practice will help build trust and convenience for Portion's user base while also reducing overhead for the organization.

Goods:
Portion has created a three-step process to ensure goods over $5,000 are authentic and appropriately represented. First, the Portion Partner Network provides authentication for high-value goods. Upon authentication, the partner will distribute a BCOA via Portion's administrative dashboard. Second, the owner of the good will apply to have their good sold on Portion. Finally, Portion will validate, create a description, and list the good.

For goods valued under $5,000, the owner will leverage the Portion Partner Network to validate its authenticity. Upon receiving the BCOA, the seller can list their good on Portion, bypassing any centralized inspection.

Financing:
Portion will offer traditional financing services with cryptocurrency. Buyers will be able to leverage Portion to make large-scale purchases without liquidating their funds immediately. Portion's exposure when financing a sale is limited due to visibility into a buyer's proof of funds. Users who accept financing from Portion will be charged a convenience fee and a low monthly interest rate.

Insurance:
Portion's blockchain infrastructure enables insurance on the high-value goods purchased through the auction house. Portion plans to partner with insurance agencies leveraging pre-existing BCOAs issued to users.

1.4 Go To Market Strategy

Target Market: Traditional auction houses have been slow to cater to those holding cryptocurrency. These firms lack blockchain infrastructure to scale and meet the demands of this customer segment. As a first mover, Portion's decentralized auction house will address and drive value to this audience.

Portion will focus on an array of high value, luxury collectibles including: personal goods, automobiles, yachts, fine wines, art, and furniture.

User Acquisition: Portion is taking a strategic approach to build the foundational technology which will help with user acquisition and acquisition of goods.

The Portion Partner Network and distribution of BCOAs provides the first means of user and goods acquisition. By offering hyper-local authentication services, Portion has been acquiring a supply of goods and users since 2017.

To start, Portion will list high-value goods weekly, strategically targeting specific types of buyers. Each week Portion will host a theme, announced and marketed to build awareness globally. The ongoing marketing of Portion's themed auctions will take place across multiple channels both online and offline. To maintain continued growth with an effort to become the global leader in auctions, Portion will host live events in new markets and offer incentive-based referral programs.

2.0 Portion Auction House

2.1 Authentication
The Portion Partner Network will follow the authentication methodology outlined in section 1.3.

2.2 Listings

Following the authentication of a good, the seller will set the reserve price, and provide additional details relevant to the listing. If the reserve price is higher than $5,000, Portion will then catalog the item, create a final description, and host the item for auction. At the time of listing, the BCOA of the good being auctioned will be transferred from the seller to Portion. The item will remain listed as an upcoming auction for a period of time to maximize its awareness.

For items with a reserve price less than $5,000, the bidder will list their good following the receipt of a BCOA. Users can seamlessly set the reserve price and list the good within the mobile or web application. These listing will replicate a Peer-to-Peer listing approach allowing listings to take place on a rolling basis.

2.3 Auction Process

Portion will offer both online auctions via the web, mobile application, and in-person. In-person auctions will be live streamed to include online bidders.

Portion will follow a Vickrey auction format. Portion's online auctions, by default, will last for 7 days and have customer service available for bidders of goods.

Upon completion of the auction, the winner will be awarded the good. At this point, a smart contract will execute between the seller, the buyer, and Portion. This process is achievable through proof of funds, described in 3.2. As custody of the physical good is transferred the BCOA will be transferred as well. Once the item is received and the transaction is complete, funds will be released via the smart contract.

For higher value goods (greater than $5,000), Portion will manage shipping and logistics. For goods with a reserve price set less than $5,000, the shipment and logistics will be coordinated between the seller and buyer.

3.0 The Platform

The global market for unique and rare items has proven to be financially robust throughout the centuries. Auction houses have only recently been introduced to the online world. Thus, the luxury auction house can greatly benefit through the modern innovation of blockchain technology.

By using the smart contract functionality of Ethereum coupled with the distributed file storage of the IPFS network[8], Portion has built the first decentralized platform to innovate the auction house through capacities outlined below.

3.1 Physical Asset Tokenization - "Real Goods"

To verify the authenticity of high-value goods a *Blockchain Certificate of Authentication* (BCOA) will be represented as a unique Ethereum-based asset. Appraisers in the Portion Partner Network inspect the authenticity of goods before issuing BCOAs through a secure online portal utilizing a web3 technology stack[9]. A smart contract executes creating a unique Ethereum Request for Comments asset storing photos, serial IDs, ownership metadata, and any other relevant details for a particular good. If applicable, a Port (described in 3.1.2) can be irrefutably linked with a good providing an additional layer for proof of authenticity. Provenance

becomes transparent on the public ledger as the good is transferred from entity to entity reducing the need for future authentication.

3.1.1 Provenance

The BCOA is passed from entity to entity on the network as the good is transferred physically. All luxury items that have been properly authenticated live virtually and immutably on the Ethereum Blockchain.

3.1.2 Ports™

Further linkage from the physical good to the BCOA can be achieved through fraud-resistant holographic tags called Ports. The application of Ports allows data to be obtained directly by scanning. Retrievable information includes:

(a) Owner's Public Key
(b) Sale History
(c) Provenance
(d) Photos
(e) Additional Data

If desired, Ports provide an extra dimension of decentralized data that can now be ascribed directly to a physical good via the usage of the unique tag. A mesh of high-value goods with 100% governance and authenticity becomes globally accessible and transparent.

3.2 Secured Identity - "Real People"

Privacy and anonymity are ensured as identification is cryptographically linked via Ethereum keys that are stored on the mobile application. Through multi-factor identification, an Ethereum address is generated which represents the entity on the Portion network. Verification data is compounded together, hashed, and used for secure client-side encryption. Proof of funds may be designated by storing the required amount of Ether on the Ethereum key. KYC/AML compliance is met while keeping user data private.

3.2.1 Decentralized Verification

By augmenting the metadata of a user, irrefutably valid data is cryptographically tied together in order to accurately verify a user. The login process to Portion becomes seamless, passwordless, and with advanced security precautions.

3.2.2 Client-Side Procedure

Upon registration, an Ethereum keystore is hosted client side on the user's mobile device. The following data is collected:
  (a) User data
      o First name
      o Last name
      o Username
      o Security Q1 (from choices)
      o Security Q2 (from choices)
      o Security Q3 (chosen by user)
  (b) Birthday
  (c) Email address username
  (d) Email address domain
  (e) Sha256 (secret 50 character string)

The information detailed in letters a - e undergo a Sha256 hash resulting a sequence of characters as exemplified below: *"c8d5c928bdc0a43a5f735c3958743cfa3a70c48f7a7e6d5f5381b3c582c b516f"*.

This hash is used to encrypt the user's keystore containing a public and private key pair. During the process of account restoration, a user verifies access to email, inputs letters a - d, and the keystore is regenerated on the mobile phone.

3.2.3 Passwordless Login

During the sign in process, the following occurs:
- (a) Seamless data cumulation from client-side storage of:
    - First Name, Last Name, Username
    - Security Q1, Security Q2, Security Q3
    - Birthday, Email Address
- (b) Portion servers send over two pieces of information
    - Sha256(secret 50 character string):
    - Latest Ethereum block hash
        - (1) Ex:

          *"0xe2f1fc56da1de975756ad72ce705b8fdea9df62
          8b818dac39d572c369e76c254"*
- (c) Decentralized, passwordless login is granted by verifying the signature received from signing a message consisting of the latest Ethereum block hash.
- (d) The mobile application receives the latest Ethereum block hash, verifies the signature from the user, and calculates the corresponding public key.
- (e) Login is granted to the user with the calculated public key, which irrefutably represents their valid identity.

3.2.4 Reputation

The reputation of one's identity is updated through peer review on the network as transactions occur. Reputation, risk levels, financing, and insurance are areas of business expansion with this functionality in place.

3.3 Decentralized Auction House – "Transparent & Global"

After receiving a BCOA representing the authenticity of a particular good, sellers may submit to undergo either a physical or online based auction. Bidders around the world will participate for the purchase of the good via cryptocurrency. **The use of cryptocurrency for payment allows for multiple benefits including: network knowledge of sale price, faster settlements, global accessibility, privacy, and profit sharing.** All profit is immutably recorded, cash flow is transparent, and Portion is provably in possession of all declared assets. All profit from the

auction house is equally distributed to all outstanding token holders on a monthly basis.

3.4 Porti (pʊr-shee) Token - "Native Cryptocurrency"

Portion will exist as an ERC-20 asset on Ethereum. The Ethereum blockchain was chosen for its global redundancy and large community of active development.

3.4.1 Profit Distribution

Porti provides distributed profit sharing with all Portion investors. Through this scenario, token holders are awarded a share of profit equivalent to their percentage based ownership. Portion anticipates issuing 800M Porti tokens. In this case, if one purchases 8M Porti Tokens they will have a right to receive 1% of all proceeds generated through Portion's auctions.

3.4.2 Quick, Global Settlements

The purchase of auctioned goods may be done with the Porti token itself. In addition to Porti, Ether is accepted as another form of payment.

3.4.3 Reward for Authenticating Assets

Portion incentivizes individuals to utilize the Portion Partner Network to authenticate a high-value good. A reward is distributed in Porti tokens to the individual who receives the BCOA on Portion's mobile application.

3.4.4 Financing

Pre- and post-auction financing will be available through the intermediary of the Porti token. Terms will be negotiated on a case by case basis.

3.4.5 Minimum Price Guarantee

Portion may sometimes enter into agreements with sellers where the minimum price of a lot is guaranteed. Each arrangement will be individually negotiated with a very simple structure. If the lot sells for less than the minimum guarantee, then Portion will pay the difference with the Porti token. Portion takes a financial risk and will pay the seller the entire minimum guarantee, even if the lot is not sold. Because of this, an additional fee of 20% is charged for agreements of this kind.

3.5 Profit Sharing - "Evenly Distributed Dividends"

As noted in 3.4.1, Porti token holders will benefit financially on a monthly basis as payouts are made. Ten percent of every sale is exchanged into Ether before being distributed. For example, if a $1,000,000 piece of art is sold, token holders split $100,000 in profit. This democratized use of blockchain technology enables the general and unbanked population to economically benefit from high value, frequent transactions.

3.6 Mobile Application - "Ease of Use"

Portion has developed a mobile application for the secure storage of BCOAs, Porti, and Ether. At the time of writing, the application is in live testing on iOS devices. Through decentralized accounts, users can access a profile to review their BCOAs, which are representative of their auction purchases and personal inventory.

Users can scan Ports to preview provenance, sale information, and GPS data of their authentic goods. Thus, this represents the first secure, digital wallet in your pocket, proving valid ownership.

3.7 Roadmap - "Continued Innovation"

01.01.2017
  - Blockchain prototype completed to ascribe data to offline goods

05.01.2017
  - iOS beta application completed

06.01.2017
  - Portion web application to browse goods and track inventory

08.15.2017
- Ethereum *Blockchain Certificates of Authentication* (BCOAs) smart contract

10.01.2017
- Decentralized Identity for application login

12.01.2018
- Web tokenization platform for physical goods

03.15.2018
- iOS application completed to store and transfer tokenized goods

06.01.2018
- Auction platform beta

07.15.2018
- Scanning of physical good to preview provenance, appraisal, and detailed specification

09.01.2018
- Smart contract to issue profit sharing in Ether

11.15.2018
- Creation and distribution of Porti Token to investors

01.01.2019
- Live Network and profit sharing

4.0 The Team

4.1 Founders

Jason Rosenstein: Jason is a blockchain developer who identified the transformative and multifaceted capabilities of blockchain technology in 2011. He began building powerful machines to generate cryptocurrency and produced prototypes demonstrating the capabilities made possible by blockchain. Jason has extensive experience in blockchain development and complex distributed application design. In his previous startups, he served as founder and developer. Jason's area of expertise also include system architecture, project management, and financial systems.

Jason has been successful in co-founding two companies where he oversaw and developed technology for efficient mining and internet of things capabilities. His step into the world of entrepreneurship began in 2011 where he discovered his passion for innovation and building new technologies.

Finishing his education at NYU in 2016, Jason received a degree in computer science. Already with the formation of two companies under his belt, he began Portion, a culmination of his experience to date.

Peter Engleman: Peter has over 10 years of business experience in both entrepreneurial and corporate environments. With vast experience, primarily in the high growth technology sector, Peter has helped scale firms along the business lifecycle. He successfully initiated, developed, and led new divisions, teams, and products. Furthermore, Peter's contributions have assisted in over $100M in venture funding and successful exits. These efforts drove expansion of product offerings, customer acquisition, and increased revenue.

Peter is active in the entrepreneurship community across the United States. His first entrepreneurial endeavor took place in 2007 leading to his passion for building and growing companies. Peter served as a mentor to a number of startups through his involvement with an accelerator and a non-profit organization.

Peter's has vast experience in: strategy, business development, project management, marketing, and sales. Peter holds his MBA from NYU Stern with specializations in: finance, business analytics, and management.

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Cautionary Note on Forward-Looking Statements

All statements contained in this whitepaper, statements made in press releases or in any place accessible by the public and oral statements that may be made by Portion or its directors, executive officers or employees acting on behalf of Portion, that are not statements of historical fact, constitute "forward looking statements". Some of these statements can be identified by forward-looking terms such as "aim", "anticipate", "believe", "continue", "could", "estimate", "expect", "if", "intend", "is/are likely to", "may", "plan", "possible", "potential", "predict", "probable", "project", "seek", "should", "target", "would", "will" or the negative of these terms, or other similar expressions intended to identify forward-looking statements.

However, these terms are not the exclusive means of identifying forward-looking statements. All statements regarding Portion's financial position, business strategies, plans and prospects and the future prospects of the industry which Portion is in are forward-looking statements.

Portion has based these forward-looking statements on its current expectations and projections about future events and financial trends that it believes may affect its financial condition, results of operations, business strategy, financial needs, or the results of a token event or the value or price stability of Porti tokens. In addition to statements relating to the matters set out here, this whitepaper contains forward-looking statements related to Portion's proposed operating model. The model speaks to its objectives only, and is not a forecast, projection or prediction of future results of operations. Forward-looking statements are based on certain assumptions and analysis made by Portion in light of its experience and perception of historical trends, current conditions and expected future developments and other factors it believes are appropriate, and are subject to risks and uncertainties. Although the forward-looking statements contained in this whitepaper are based upon what Portion believes are reasonable assumptions, these risks, uncertainties, assumptions, and other factors could cause Portion's actual results, performance, achievements, and experience to differ materially from its expectations expressed, implied, or perceived in forward-looking statements. These factors include, amongst others:

   i.   changes in political, social, economic and stock or cryptocurrency market conditions, and the regulatory environment in the countries in which Portion conducts its business and operations;
  ii.   the timing to consummate the proposed Porti token sale;
 iii.   the risk that the proposed sale of Porti tokens might otherwise not occur, whether as a result of current or future token sale regulatory limitations or otherwise;
  iv.   the risk that a regulatory approval that may be required for the proposed sale is not obtained or is obtained subject to conditions that are not anticipated;
   v.   changes in the preferences of Portion's customers or business partners;
  vi.   changes in the competitive conditions under which Portion operates, and the ability of Portion to compete under such conditions;
 vii.   changes in the future capital needs of Portion and the availability of financing and capital to fund such needs;
viii.   the ability of Portion's management team to successfully implement its business plan; and
  ix.   [the factors described in the section captioned "Risk Factors."]

All forward-looking statements made by or attributable to Portion or persons acting on behalf of Portion are expressly qualified in their entirety by such factors. Given that risks and uncertainties that may cause the actual future results, performance or achievements of Portion to be materially different from that expected, expressed or implied by the forward-looking statements in this whitepaper, prospective participants in the Porti token sale should not place undue reliance on these forward-looking statements.

Also, forward-looking statements represent Portion's estimates and assumptions only as of the date of this whitepaper. Further, Portion assumes no responsibility to update any of those forward-looking statements or publicly announce any revisions to those forward-looking statements to reflect future developments, events or circumstances, even if new information becomes available or other events occur in the future.

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