

The RepuX protocol

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RepuX Vision

Our vision is to create a protocol which facilitates the monetization of data through efficient transfers between collectors, developers and users that will also allow the evaluation of data reliability and reputation over time. Through our RepuX Protocol, data collectors could transfer data to data users or to application developers in exchange for RepuX Tokens. Developers could build upon the RepuX Protocol, and use data transferred by collectors to generate products and services which could then be transferred to end users in various industries, in exchange for RepuX Tokens. With the RepuX Protocol, we hope to bring additional value to data.

RepuX Goals and Objectives

We anticipate that data monetization will become a major source of revenue for individuals and entities in the future. It is estimated that the world will create 180 zettabytes of data (or 180 trillion gigabytes) in 2025, up from less than 10 zettabytes in 2015.¹

Our goals and objectives for the RepuX Protocol are as follows:

- To develop a high throughput system whereby data can be monetized directly between collectors, developers and users;
- To build a secure reputation infrastructure within RepuX Token transactions that allows users to apply a semi-permanent record in a mutual transaction;
- To develop easy-to-use application programming interfaces (or APIs) that enable third-party developers to build upon our RepuX Protocol to create a variety of different applications;
- To maintain scalability and speed as high priorities during RepuX Protocol design and development; and
- To integrate the RepuX Protocol with existing blockchain technology while building custom solutions in certain cases.

In summary, our ultimate goal is to build a secure, reliable, high-performance data transfer protocol that can be integrated with a wide variety of different applications developed by third parties for use by a number of different industries.

[1] 6 Predictions for the 203 Billion Big Data Analytics Market

What is RepuX?

“

RepuX will allow for data sharing and value creation opportunities among data collectors, application developers and data users which do not exist in the current marketplace

RepuX is a protocol level framework (the “RepuX Protocol”) on which various types of immutable data can be commoditized and exchanged among different corporate and individual collectors, developers and users. The RepuX Protocol combines multiple decentralized technologies such as InterPlanetary File System (or IPFS)², Sia³, Ethereum⁴, EOS⁵, and offers the potential to upgrade to a custom high-throughput blockchain. By facilitating the transfer of data and value between peers, the RepuX Protocol creates data sharing possibilities among data collectors, application developers and data users which do not exist in the current marketplace. The RepuX Protocol provides the opportunity to data producers to create value in their data through facilitating the provision of this data to users in multiple industries, while eliminating the need for intermediaries in this process.

With the development of the RepuX Protocol, RepuX is well poised to take advantage of the reliance of machine learning, big data and artificial intelligence on large-scale aggregate data and to drive innovation in these respective fields. By evaluating the reliability of each entity and each transaction with respect to the data, and with verification by an Oracle system, we can ensure integrity within the RepuX Protocol and provide data users with greater confidence in the content and quality of the data they are purchasing.

[2] See <https://github.com/ipfs/ipfs>

[3] See <https://www.sia.tech/whitepaper.pdf>

[4] See <https://github.com/ethereum/wiki/wiki/White-Paper>

[5] See [https://github.com/EOSIO/Documentation/blob/master/ TechnicalWhitePaper.md](https://github.com/EOSIO/Documentation/blob/master/TechnicalWhitePaper.md)

Pre-Sale and RepuX Token Sale

RepuX Limited is creating 500 million RepuX tokens (the “RepuX Tokens”). RepuX is conducting a pre-sale of rights to receive RepuX Tokens upon occurrence of the public launch, which is being made available solely to accredited investors through a Simple Agreement for Future Tokens (the “Pre-Sale”), followed by a more broadly available offering of RepuX Tokens that will occur once the RepuX Protocol is operational (the “Token Sale”).

The RepuX Token is an ERC20 token which will represent the only method to pay for data services in connection with the RepuX Protocol. RepuX Tokens can be purchased by qualified purchasers during the Token Sale by transferring Ether (“ETH”).

Each participant in the Pre-Sale will be required to provide information concerning their status as an “accredited investor” (or similar concept) under applicable securities laws. Each Pre-Sale participant, as well as each purchaser of RepuX Tokens in the Token Sale, will be required to provide “know your client” (or KYC) information. RepuX will carry out certain checks to ensure that we are adhering to our anti-money laundering (or AML) requirements and procedures.

Artificial Intelligence and Machine Learning

Data creation is taking place continuously and at an ever-increasing pace. That data has value. Currently, the collection, use and distribution of this data is dominated by certain large corporate entities.

At the same time, investment in artificial intelligence (or AI) is growing at a very rapid rate. It is estimated that the AI development market more than doubles every 2 years. AI has the potential to significantly change many aspects of the economy. Within the AI field, machine learning capability has increased enormously in the past few years. This machine learning capability combined with decentralized access to data has enabled the industrialization of decentralized data-based applications. Since machine learning builds knowledge upon past data, the models that are created are only as good as the data that is fed into the models.

The RepuX Protocol has the potential to eliminate the “digital divide” between those who have easy access to machine learning datasets and those who don’t.

Machine learning is a branch of artificial intelligence that allows computer systems to learn directly from examples of data.

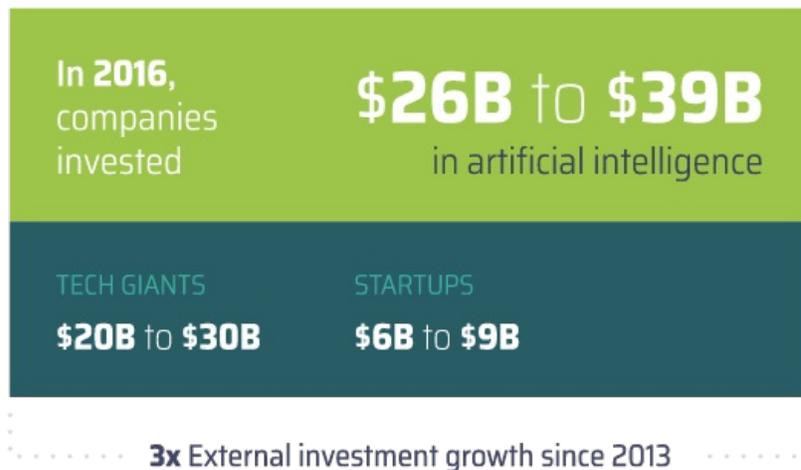


FIGURE 1: MCKINSEY & COMPANY 2017 DISCUSSION PAPER ⁶

[6] See <https://royalsociety.org/~media/policy/projects/machine-learning/publications/machine-learning-report.pdf>

Big Data

Big data entails large datasets that are usually collected by a business or organization as a by-product of day-to-day operations. Such a dataset could be, for instance, a medical database of illness diagnoses, along with time and location. Unfortunately, because many Big Data datasets are often not directly related to the immediate operations of a business or organization, they are frequently dismissed and discarded. These datasets could be easily monetized and used by other companies that could potentially benefit from such data. For instance, a list of successful product deliveries within a supermarket chain could be useful to a new supplier looking to enter a specific region. What is missing is:

- an immutable and transparent data market;
- with reputable and useful data;
- allowing for the monetization of data by both individuals and entities;
- marketed and made available to those who really need it; and
- with pricing and value determined by the marketplace.

An example of a basic data market is the Brave browser which recently held a sale of their basic attention tokens (or BAT). In the Brave browser, users can optionally “sell” (on an anonymous basis) their browsing data, or their attention data, to marketers who then purchase this data and pay in BAT.⁷

[7] See <https://basicattentiontoken.org/>

Trust and Transparency

One of the major challenges to the sharing of datasets is the lack of trust between different parties in a data transaction. It is difficult for a person to determine if a specific dataset is well organized, precise and insightful without first accessing the dataset to evaluate it. In addition, there may be issues related to the lack of a common platform where parties can meet in a data transaction.

If this issue of trust can be resolved adequately, fraud rates may significantly decrease while, at the same time, a whole host of other potential data transactions across various industries may be enabled, such as data transactions in insurance, international trade and micro loans.

By design, blockchains are inherently resistant to the modification of the data involved. A blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a hash pointer as a link to a previous block, a timestamp and transaction data. A blockchain can serve as an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires collusion of the network majority. Blockchain technology allows for the reduction of fraud rates thereby enabling a whole host of potential applications.

This makes blockchains ideal for use as the foundation for the ReputX Protocol where security and transactional integrity are paramount.

RepuX Technology

Overview

The technology of the RepuX Protocol can be broken down into 4 separate layers.

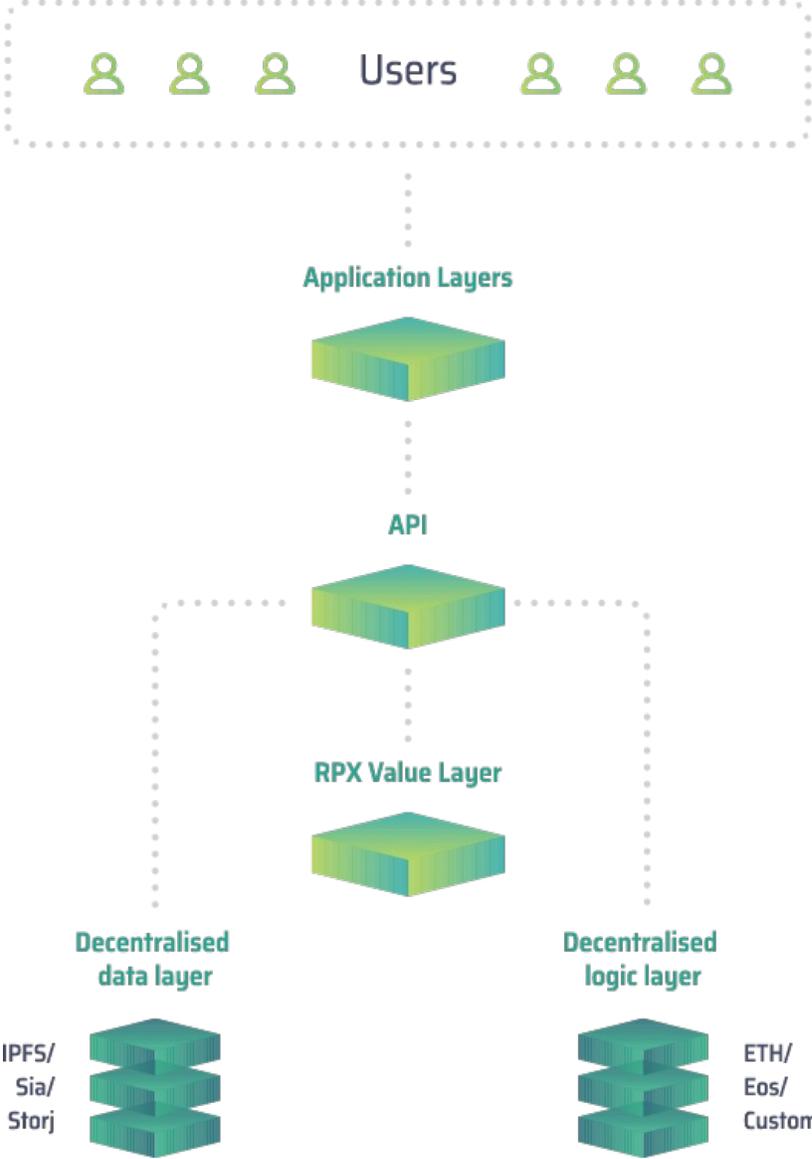


FIGURE 2: BREAKDOWN OF THE REPUX PROTOCOL

The application layer is at the top of the RepuX Protocol. This front-facing layer consists of various decentralized applications, or Dapps, that third-party application developers can build on top of the existing RepuX API infrastructure. An example of this could be a service that allows individuals or entities to sell social media usage data in exchange for accessing a website.

The next layer of the RepuX Protocol is the data layer. This layer consists of all the data that can be purchased and sold within RepuX. By storing the data layer within a decentralized infrastructure such as IPFS, StorJ8 or Sia, we not only ensure the existence of the data, but also ensure that the data is stored in a decentralized fashion. Data ownership, sharing, security and privacy preferences can be actualized using multi-signature cryptographic primitives native to the blockchain, to ensure data be redundantly secured on chain and also seen and utilized only by preferred parties.

In order to handle transactions occurring on the data layer, we employ a decentralized logic layer. This layer could be built on top of the existing Ethereum infrastructure; however, we are also exploring the use of EOS, or a custom blockchain infrastructure that could potentially scale to millions of transactions.

At the base of the RepuX Protocol, we build a value layer, which powers the layers above and ensures that people are compensated appropriately for what they do within the RepuX Protocol. We have created the RepuX Token as part of this value layer to allow parties to send value payments between one another for purchases and sales of data and other goods and/or services. Value of the tokens can be proportional to their demand for their use in data sharing contractual services, whereby different tiers of token holding quantities can enable more advanced and larger scale data sharing capabilities. This acts as a mechanism for fairly distributing available blockchain-based data storage and serves as a demand vehicle for tokens that enables fair data usage.

Application Layers and APIs

Blockchain leverages a peer-to-peer network to govern transactions and interactions across a distributed community, and manages this governance through a decentralized ledger that benefits from having a distributed computing infrastructure and a common protocol, making it very difficult to create a fraudulent transaction. With blockchain and decentralization, every entity is incorporated within the process and no one single entity has control over all of the process.

We designed RepuX, from the beginning, to create an application programming interface (or API) where any application developer can work on the RepuX Protocol. This malleable protocol means that RepuX is not designed for one specific purpose, but rather to permit developers to build upon it for the potential benefit of many different industries.

API Structure

We intend to use easy-to-use Web3.js + Metamask APIs that will allow third parties to easily access and rapidly build external applications upon the RepuX infrastructure. In addition to easy-to-use JS APIs, we can also enable more application-based APIs that third parties can use to develop upon.

Data Layer

In order to ensure user data is stored in a decentralized fashion, we will use a number of different technologies. In this White Paper, we describe an IPFS1 based infrastructure utilizing IPFS hashes. With the RepuX Protocol, we use IPFS in order to maintain the database of data referenced by hashes in our logic layer and APIs. By using IPFS, we not only ensure the decentralized nature of our data but also ensure that the data is permanent through IPFS hashes.

What is IPFS?

InterPlanetary File System (or IPFS) is a protocol designed to create a permanent and decentralized method of storing and sharing files. It is a content-addressable, peer-to-peer hypermedia distribution protocol. Nodes in the IPFS network form a distributed file system. IPFS addresses pieces of content by a unique “hash”. IPFS enables the creation of fully decentralized technologies that can connect all computing devices within the same file system. IPFS is similar to how a bit torrent swarm exchanges information, in a decentralized yet organized way.

Key Features of IPFS

IPFS has the following features:

- It defines a content-addressing file system;
- It coordinates content delivery;
- It has file systems and mounting;
- It can be accessed through common protocols such as HTTP;
- It guarantees integrity through the hash-addressed content system;
- Connection can occur through many network protocols;
- There is no central point of failure; and
- It enables additional functionality through systems such as Filecoin.

However, as the infrastructure is still maturing at a rapid pace, we will continue to explore additional data infrastructure options, such as Storj and Sia.

Logic

As our RepuX Protocol incorporates reputation evaluation and data purchases and sales, we need to develop an algorithm that handles the transactions on our network. In this White Paper, we present a way to utilize the smart contract capability of Ethereum to handle the logic in a decentralized and transparent manner. Due to the long-term speed of Ethereum, we will actively experiment with State channels, EOS, Sharding, and even a custom block chain infrastructure.

Ethereum and Smart Contracts

Bitcoin introduced the idea of a blockchain, which enabled people to transact without a single organization in control. Building upon this, Ethereum developed the idea of a distributed computer.

Ethereum is an open-source, public, blockchain-based distributed computing platform featuring smart contract (scripting) functionality. It provides a decentralized Turing-complete virtual machine, the Ethereum Virtual Machine, which can execute scripts using an international network of public nodes. Ethereum also provides a cryptocurrency token called „ether” (or ETH), which can be transferred between accounts and used to compensate participant nodes for computations performed.

In essence, Ethereum is a decentralized world computer that enables decentralized applications (or Dapps) to be executed within a globally-synchronized state. Since Ethereum enables the transfer of both value and information, we can develop a demo smart program that enables the basic functionality of the RepuX Protocol.

Smart contracts are programs that run on an Ethereum blockchain and are triggered by transactions or other smart contracts. Smart contracts eliminate the friction associated with traditional payment systems, and ensure that all parties involved in a transaction are paid instantly, with irrefutable proof of the transaction.

Data

As can be seen below in the demonstration, we store the IPFS data hash within a private data array inside the Ethereum smart contract. This can later be accessed by sending a pre-specified amount of RepuX Tokens to this smart contract.

```
pragma solidity ^0.4.8;
contract Registry is Ownable {
    using SafeMath for uint256;
    address public tokenAddress;
    address[] public dataProducts;
    mapping (address => address[]) public dataCreated; mapping (address =>
address[]) public dataPurchased; mapping (address => bool) public isDataPro
duct;

    event CreateDataProduct(address dataProduct, string ipfsHash);
    event PurchaseDataProduct(address dataProduct, address buyer);
    function Registry(address _tokenAddress) {
        owner = msg.sender;
        tokenAddress = _tokenAddress;
    }

    function deleteDataProduct(address addr) public onlyOwner returns(bool)
{
        bool deleted = false;
        uint256 deletedIndex = 0;

        for (; deletedIndex<dataProducts.length; deletedIndex++) {
            if (addr == dataProducts[deletedIndex]) {
                deleted = true;
                break;
            }
        }

        if (deleted) {
            isDataProduct[addr] = false;
            dataProducts[deletedIndex] = dataProducts[dataProducts.length.sub(1
)]; delete dataProducts[dataProducts.length.sub(1)];
            dataProducts.length = dataProducts.length.sub(1);
            isDataProduct[addr] = false;
        }
        return deleted;
    }

    function createDataProduct(string _name, string _description,
```

```

string ipfsHash, string category, uint256 _price, uint256 size
) public returns(address){
address newDataProduct = new DataProduct(msg.sender, tokenAddress,
_name,
_description, ipfsHash, category, _price, size);
dataProducts.push(newDataProduct);
dataCreated[msg.sender].push(newDataProduct);
isDataProduct[newDataProduct] = true;
CreateDataProduct(newDataProduct, ipfsHash);
return newDataProduct;
}

function registerUserPurchase(address user) public {
require(isDataProduct[msg.sender]);
dataPurchased[user].push(msg.sender);
PurchaseDataProduct(msg.sender, user);
}

function getDataProducts() public constant returns (address[]){
return dataProducts;
}

function getDataCreatedFor(address addr) public constant returns (address[]) {
return dataCreated[addr];
}

function getDataCreated() public constant returns (address[]) {
return getDataCreatedFor(msg.sender);
}

function getDataPurchasedFor(address addr) public constant returns (address[]) {
return dataPurchased[addr];
}

function getDataPurchased() public constant returns (address[]) {
return getDataPurchasedFor(msg.sender);
}
}

```

RepuX Feedback and Reputation

The world economy is built on top of a system of trust. While this has enabled globalized cross-country trade to flourish, it has increasingly made it difficult for smaller businesses and individuals to establish a reputation among bigger entities. This has resulted in an increasingly centralized distribution of power, hurting the smaller businesses.

Similarly, data without a certain authority backing it is often considered unusable. This means that fewer and fewer people and businesses are able to sell their data without first going through a middleman. To address this issue, we have enabled the attachment of a rating and reputation behind each trade in the RepuX Protocol. As can be seen below in the demonstration, we store the IPFS data hash within a private data array inside the Ethereum smart contract. This can later be accessed by sending a pre-specified amount of RepuX Tokens to this smart contract.

Oracle

The issues of integrity and trust are central issues for online semi-anonymous marketplaces. Integrity and trust promote efficiency in trade. The main idea behind companies such as PayPal, Alibaba and eBay is to address the issue of trust in trade.

NOTE 1: TRUST IN A CENTRALIZED SYSTEM

In a centralized system, trust is relatively easy to establish through the creation of a rating system, along with a central authority that assigns that rating to each transaction.

In the case of a dispute or a suspicious transaction, each party simply submits evidence to the central authority which then decides on the outcome of the transaction. This rating can be manipulated and artificially boosted, even with the central authority in control.⁹

In a decentralized system, such a rating mechanism would need to be conducted without this central authority. A cutting-edge solution to this is the Oracle system.

With the Oracle system, every transaction, or unusually high or suspicious ratings will need to be pass through the Oracle before the rating is applied to the buyer and the seller's RepuX address.

[9] See <https://pages.ebay.com/help/policies/feedback-manipulation.html>

Demonstration of RepuX Oracle smart contract:

```
contract OracleChallenge {
    using SafeMath for uint;
    address public tokenAddress;
    RepuX public RPX;
    uint public initThreshold;
    uint public blockThreshold;
    address public challenged;
    string public descriptionHash;
    address public initiator;
    boolean public initiated;
    boolean public success;
    boolean public ended;
    address[] public voters;
    mapping (address => uint) voterStakes;
    mapping (address => boolean) voterChoices;
    mapping (address => string) evidenceHashes;
    mapping (boolean => uint) stakeTally;
    boolean public leading;
    uint public lastChangeBlock;
    boolean public result;
    boolean public rewardDistributed;
    event Vote(address voter, uint stake, boolean supports);
    event Result(boolean success);

    modifier onlyInitiator() {
        if (msg.sender != initiator) throw;
        _;
    }

    modifier beforeEnd() {
        if (ended) throw;
        _;
    }

    modifier afterEnd() {
        if (!ended) throw;
        _;
    }

    modifier afterInit() {
        if (!initiated) throw;
        _;
    }
}
```

```

sh) {
    function OracleChallenge(address _challenged, string _descriptionHash) {
        //Constructor function
        challenged = _challenged;
        descriptionHash = _descriptionHash;
        initiator = msg.sender;
    }

    function updateDescription(string newHash) public onlyInitiator beforeEnd {
        descriptionHash = newHash;
    }

    function initiate(uint amount) public onlyInitiator {
        if (amount < initThreshold) throw;
        if (initiated) throw;
        initiated = true;
        voters.push(msg.sender);
        voterStakes[msg.sender] = voterStakes[msg.sender].add(amount);
        voterChoices[msg.sender] = true;
        stakeTally[true] = stakeTally[true].add(amount);
        leading = true;
        lastChangeBlock = block.number;
        RPX.transferFrom(msg.sender, this, amount);
    }

    function vote(boolean support, uint amount, string evidenceHash) public
    public beforeEnd afterInit { tally();
        if (ended) throw;
        if (voted(msg.sender) && support != voterChoices[msg.sender]) throw;

        if (amount == 0) throw;
        RPX.transferFrom(msg.sender, this, amount);
        if (!voted(msg.sender)){
            voters.push(msg.sender);
        }
        voterStakes[msg.sender] = voterStakes[msg.sender].add(amount);
        stakeTally[support] = stakeTally[support].add(amount);
        if (evidenceHash != ""){
            evidenceHashes[msg.sender] = evidenceHash;
        }
        Vote(msg.sender, amount, support);
        tally();
    }

    function tally() public beforeEnd afterInit {
        boolean currentLead;

```

```

    if (stakeTally[true] > stakeTally[false]) {
        currentLead = true;
    } else if (stakeTally[true] > stakeTally[false]) {
        currentLead = false;
    } else {
        currentLead = leading;
    }

    if (currentLead != leading) {
        lastChangeBlock = block.number;
    } else {
        if (block.number.sub(lastChangeBlock) >= blockThreshold) {
result = leading;
            ended = true;
            Result(result);
            distributeRewards();
        }
    }
}

function distributeRewards() public afterEnd {
    if (rewardDistributed) {
        Throw;
    }
    rewardDistributed = true;
    for (uint i=0; i < voters.length; i++) {
        address v = voters[i];
        uint r = reward(v);
        if (r > 0) {
            RPX.transfer(v, r.add(voterStakes[v]));
        }
    }
}

function reward(address addr) constant private afterEnd returns
(uint amount) {
    if (voterChoices[addr] != result) {
        return 0;
    }
    return voterStakes[addr].mul(stakeTally[!result]).div(stake
Tally[result]);
}

function voted(address addr) constant public returns (boolean)
{
    return (voterStakes[addr] > 0);
}

```

```

        function getChoice(address addr) constant public returns (boolean) {
            return voterChoices[addr];
        }

        function getStake(address addr) constant public returns (uint) {
            return voterStakes[addr];
        }

        function getTally(boolean choice) constant public returns (uint) {
            return stakeTally[choice];
        }
    }
}

```

With the integration of the Oracle system into the RepuX Protocol, we are establishing a method whereby potential fraud, which is common with online market systems, can be reduced.

Alternative Blockchains

The blockchain environment is changing constantly, with innovations occurring every day. As a result, RepuX remains open to exploring the incorporation of more effective, efficient and scalable blockchains that may be developed in the future. The current sample logic contracts are built using Ethereum's solidity programming language. However, Ethereum is still under development. We have considered many different solutions and currently believe a Proof of Authority (or POA) custom blockchain will most likely be the fastest, most secure method of blockchain in the longer term. However, it offers less decentralization than Proof of Stake (or POS) and Proof of work (or POW).¹⁰ Ultimately, we will need to strike a balance between speed and security, on the one hand, and decentralization, on the other hand, in selecting among different logic systems in the final RepuX Protocol.

[10] See <https://github.com/paritytech/parity/wiki/Proof-of-Authority-Chains>

Examples of Potential Opportunities for RepuX Protocol

While RepuX was designed to be a protocol-level infrastructure with multiple different potential applications, we have provided below a few examples of the potential opportunities for the use of the RepuX Protocol. Please note these are examples of situations in which RepuX Protocol could be used and built upon by third-party application developers, and should not be confused with the proposed features of the RepuX Protocol itself.

The examples set forth below are not an exhaustive description of the potential uses of the RepuX Protocol.

Archival Databases

One potential opportunity for the use of the RepuX Protocol is in connection with data stored in various archival databases. For example, the Smithsonian museum has a large database of archival materials that it has collected over decades. This database contains numerous image data, text data, time data and other potentially useful aggregate meta data information.

Unfortunately, the Smithsonian finds it difficult to find buyers for this data. The Smithsonian could license this data to individual companies that specialize in museums; however, access to a broader market would better monetize this data for the Smithsonian. Currently, there isn't a dominant interface or platform for the Smithsonian to employ in accessing a broader market for the data.

RepuX could potentially provide a platform to give the Smithsonian access to a broader market for the Smithsonian data. By uploading their aggregated and anonymous data into the storage layer (IPFS) of the RepuX Protocol, the Smithsonian could access a much greater range of potential clients for its data. Both individuals and entities that are looking for aggregate historical data in order to perform research or other types of data analysis could easily pay the museum through the RepuX Protocol. By checking the reputation of the seller, potential buyers have assurance that the data is legitimate. Since the payments are sent in RepuX Tokens on the blockchain, the seller has assurance that they will be paid appropriately and decentrally.

Big Data

Machine learning based analysis is projected to grow by over US\$200 billion over the next few years.¹¹ It is big business rooted in the availability of big data.

We will look at Artiq as an example. Artiq is a natural language based machine learning company with a number of neural deep learning¹² models ranging from sentiment analysis to text recognition. Artiq uses these trained models in order to cut operating costs for their clients. Unfortunately, Artiq spends almost 80% of its revenue gathering and preparing primary data itself, often sending individuals into the field to scan pictures of documents in order to train Artiq's machine learning algorithms.

The RepuX Protocol could potentially assist companies such as Artiq in matching data purchasers, such as Artiq, with data collectors, thereby saving such companies significant time and cost. There are many companies, such as Evernote, that collect huge databases of hand written text. After anonymizing this data and offering it for sale on RepuX, Artiq, and other similar machine learning companies, could purchase this data from reputable data collectors in their industries or elds and use it to train machine learning algorithms, thereby significantly reducing operating costs.

[11] See <https://www.forbes.com/sites/gilpress/2017/01/20/6-predictions-for-the-203-billion-big-data-analytics-market/#b96256e20838>

[12] See <http://ieeexplore.ieee.org/document/6817512/>

Advertising and Online Content

The freemium model, whereby a basic digital product or service is provided free of charge, but money is charged for richer functionality, is fast becoming the de-facto model for consumer software products. Users may access the basic product or service at no cost; however, value is generated for the entity offering the product or service in the form of the data that is collected about the user. Advertisers will generally pay well for this kind of behavioral data.

We provide the following fictional example. Paul is a graphic designer and uses his computer quite frequently. With the use of the RepuX Protocol, third party application developers can create programs that Paul can voluntarily install onto his computer to record his anonymized computer user data. Paul doesn't mind sharing this anonymized data with other businesses.

Paul can instantly make this data available to potential purchasers using the RepuX Protocol, thereby generating some additional revenue from data sales on the side. If Paul continuously provides legitimate, accurate and well-formatted data, his reputation rises on the RepuX Protocol, likely resulting in additional sales of his data. Advertisers will appreciate the reliability and availability of Paul's data and Paul is compensated fairly for his data.

Ecommerce and International Trade

HongShan is a fictional E-commerce business located in Shenzhen. HongShan manufactures electronics for companies all over the world. One of HongShan's biggest concerns is that of trust, speed and reliability in the settlement of the international transactions. International financial settlements often take numerous steps and over three days to receive payments. Delayed shipping and orders also mean that HongShan cannot reliably know whether the customer will pay on time or not. HongShan could use a middleman, such as Alibaba; however, these middlemen often charge significant fees on each sale, as well as an annual membership fee.¹³

[13] See <https://revenuesandprofits.com/alibaba-makes-money-2016-update/>

The RepuX Protocol can address this uncertainty and delay. Building upon the infrastructure of the reputation based system that is already in place, RepuX can add a certain trust and review system behind each transaction. This reputation element of the RepuX Protocol, built on the reviews of companies such as HongShan and other similar manufacturers over time, will allow HongShan to selectively determine which clients are more likely to pay them on time. Similarly, clients of companies such as HongShan will benefit from the reputation element of the RepuX Protocol when choosing an international manufacturer.

RepuX can develop an optional escrow system within the reputation element of the RepuX Protocol built on the Oracle system whereby trades can be placed into a hold period to help ensure proper settlement. If fraud occurs, each party to the transaction will have to submit accessible evidence to the Oracle system, and after a voting period if the majority determines that the transaction is fraudulent, then the transaction will be reversed.

Credit Scoring

Credit scoring is based upon determining the financial reputation of an individual over a long period of time. The RepuX Protocol can assist with this. With the built-in reputation history developed over time through the RepuX Protocol, third parties can assess the trustworthiness of an individual directly from the transactions that this individual has made. Generally, individuals want to build a strong credit history, which will incentivize such individuals to use the RepuX Protocol in daily transactions.

Electronic Point of Sale (or EPOS)

EPOS devices represent another place where the RepuX Protocol could be implemented advantageously. Each sale conducted through an EPOS using the RepuX Protocol would:

1. be recorded within the blockchain;
2. be publicly visible; and
3. act as an immutable accounting registry, thereby eliminating fraud.

Micro Loans

The micro loans industry is worth over US\$40 billion and is projected to grow 20-30% per year.

With the credit history that can be established within the RepuX Protocol, third party developers could build an application resembling a micro loans institution using the RepuX Protocol. Such a micro loans institution would have all of the credit evaluation within the reputation element of the RepuX Protocol available to it, fraud-free and publicly auditable on the blockchain.

Using the RepuX Protocol, micro loans could be easily funded between creditors and borrowers. Creditors could, for example, easily purchase a large bundle of RepuX reputation-certified loans and have assurance that there is a certain quality of reputation behind the borrowers.

Medical Records

PhenoPh is a fictional drug manufacturing and development company. PhenoPh has a wide range of products that are frequently used by hospitals. PhenoPh also has many competitors for the drugs that PhenoPh sells. In order to compete effectively with those competitors, PhenoPh must carry out significant market research.

The RepuX Protocol could potentially provide valuable assistance in this market research for such drug companies. Hospitals collect a lot of data related to the drugs they sell, as well as patient incidents and treatments. This data is often not useful to individual hospitals; however, when such data is anonymized and aggregated by companies such as PhenoPh, it can become highly valuable for market research purposes.

By accessing this data, PhenoPh would not only get a better understanding of the market for its products as well as those of its competitors, but may also have the potential to predict trends in medical information that it would not have been able to do previously, thereby greatly increasing its competitive advantage.

RepuX Token Uses

Data Sales and Purchases

RepuX will allow RepuX Token holders to purchase data from sellers on the RepuX Protocol. The RepuX Protocol will also allow data sellers to receive payment in RepuX Tokens from the individuals or entities that purchase their data. Raw data from data collectors and/or various value-added content developed by third party application developers may be bought and sold using RepuX Tokens either via marketplaces or in bilateral transactions and data collectors will develop methods for valuing their data.

Apply Reputation

Each transaction, whether it is data related or otherwise, allows users of the RepuX Protocol to give each other a "reputation". This is a key feature of the RepuX Protocol, as it enables users to evaluate and determine who is a trustworthy counterparty and who is not, and will facilitate the filtering out of spam and other faulty datasets being offered on the RepuX Protocol.

In cases where transactions between parties are disputed or the reputation is claimed to be incorrect, users of the RepuX Protocol would be required to submit evidence onto the Oracle system for further verification.

Run the Oracle Network

In cases where transactions or reputation ratings would need to be approved by the Oracles, RepuX Token holders could voluntarily put up RepuX Tokens and vote in the Oracle system. If the RepuX Token holder votes on the correct judgments, then they would be awarded a nominal fee of, for instance, 0.5%, payable in RepuX Tokens. This decentralized judgment system would not only provide a reward for RepuX Token holders, but also help the RepuX Protocol eliminate fraudulent transactions and reputation boosting which might otherwise harm the overall reputation and use of the RepuX Protocol.

Build on Top of the Network

Having RepuX Tokens will enable a holder to develop third party applications on top of the RepuX Protocol. For instance, third party developers could create an application that allows users to sell their behavioral data and be paid in RepuX Tokens. By having more RepuX Tokens, this application would be able to aggregate a larger volume of data for business, research or otherwise.

RepuX Token Sale

Pre-Sale and Token Sale

RepuX Tokens are an integral part of the function of the RepuX Protocol.

RepuX will have a pre-sale of rights to receive RepuX Tokens at a future date which is being made available solely to “accredited investors” through a Simple Agreement for Future Tokens (the “Pre-Sale”). The pre-sale will go on through December at a 50% discount to the base rate of \$0.20 (the “Base Rate”). Any interested accredited investors can learn more by contacting RepuX directly at support@repux.io and download the blank SAFT at repux.io/saft.html.

RepuX is scheduled to launch the Pre-Sale in December, 2017 and the Token Sale in March, 2018 once the RepuX Protocol is operational. The Pre-Sale will be open until the Token Sale commences in March, 2018. The Token Sale will be offered in 5 tranches, with the first at a 30% discount to the Base Rate, the second at a 25% discount to the Base Rate, the third at a 20% discount to the Base Rate, the fourth at a 15% discount to the Base Rate and the final at a 10% discount to the Base Rate. We will be launching RepuX Tokens with a supply of 500 million tokens to be allocated as set forth below in Table 2 under the heading “RepuX Token Rates and Allocation”. The market exchange rate between RepuX Tokens and Ether for the Token Sale will be based on an equivalence of one RepuX Token being equal to \$0.20.

In order to engage in data transactions on the RepuX Protocol, a data collector, data purchaser or third-party developer must acquire RepuX Tokens.

Token Standard

The ERC20 standard provides a common interface for digital assets on the Ethereum blockchain. The RepuX Token adheres to the ERC20 token standard, which means that RepuX Token holders can easily manage and transfer their RepuX Tokens using existing Ethereum wallet applications (e.g. Parity, Mist, MyEtherWallet, etc.).

RepuX Token Rates and Allocation

As the goal of the RepuX Protocol is to have users be as in control of their data as possible, RepuX has designed the Token Sale in a decentralized fashion. This allocation is subject to change depending on the amount of RepuX Tokens sold in the Pre-Sale and will be finalized at the conclusion of the Pre-Sale.

Table 1: RepuX Token Rates

Days	Discount	Tokens	Price
Pre-Sale	50%	100 000 000	\$0.10
1-7	30%	75 000 000	\$0.14
8-13	25%	15 000 000	\$0.15
14-19	20%	15 000 000	\$0.16
20-25	15%	15 000 000	\$0.17
26-31	10%	30 000 000	\$0.18

Table 2: Planned Allocation of RepuX Tokens

Event	Allocation
Pre-Sale	20%
Sold during Token Sale*	30%
Rewards Pool	10%
Sold on the Platform	23%
Founding team, 3 years vesting period	12%
Ambassadors	3%
Token Sale bounties	2%

*Unsold tokens will be burnt.

Use of Proceeds

RepuX expects that a substantial amount of the proceeds of the Pre-Sale will be used to progress the development of the RepuX Protocol and the RepuX Token ecosystem.

All outstanding RepuX Tokens will be managed by the RepuX Foundation. The RepuX Foundation is a Panama non-profit organization established in October 2017 with offices in New Horizon Building, Ground Floor, 3½ Miles Philip S.W. Goldson Highway, Belize City, Belize. The RepuX Foundation was formed to safeguard the RepuX Tokens and funds raised through the Pre-Sale and the Token Sale on behalf of RepuX. RepuX is committed to community engagement and sponsoring user participation within a world of decentralized data. The RepuX Token and associated network and marketplace all use trade secrets and intellectual property either created, owned or licensed by the RepuX Foundation.

RepuX APP Mockup

Below is a sample interface where users can interact with the RepuX Protocol.

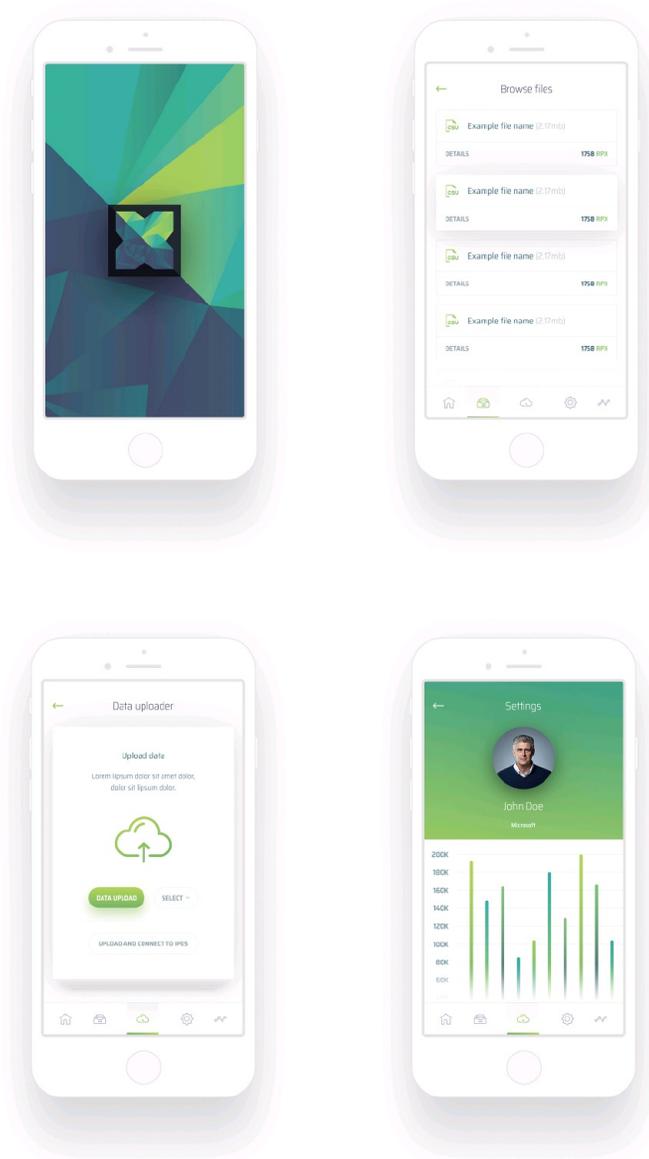


FIGURE 3: MOCK UP INTERFACE FOR THE REPUX PROTOCOL

Code Analysis

Below, we demonstrate a draft version of the smart contract we use to demonstrate our functionality on the Ethereum network. Note that this is a sample implementation and final implementation may change (and may be a custom blockchain implementation).

The contract below defines a standard interface for data transactions on the RepuX Protocol. Data owners could manage their data through this interface. Data owners could also set and update the pricing of their data (in terms of RepuX Tokens). Data owners could also update their data, while the version history will be permanently recorded by the contract.

```
contract DataProduct is Ownable {
    using SafeMath for uint256;
    address public registryAddress;
    Registry public registry;
    address public tokenAddress;
    ERC20 private token;
    string public name;
    string public description;
    string public ipfsHash;
    string public category;
    uint256 public price;
    uint256 public size;
    uint256 public createTimeStamp;
    mapping (address => bool) public ownership;
    mapping (address => bool) public rated; mapping (address => bool) public
ratings;
    uint256 public purchaseCount;
    uint8 public minScore = 0;
    uint8 public maxScore = 5;
    mapping (uint8 => uint256) public scoreCount;
    mapping (address => uint8) private userRatings;
    mapping (address => bool) private userRated;
    uint256 public rateCount;
    uint256 private ownerDeposit;
    event Purchase(address purchaser, address recipient);
    event DataUpdate(string originalHash, string newHash);
    event PriceUpdate(uint256 originalPrice, uint256 newPrice);
    modifier onlyRegistry() {
        require(msg.sender == registryAddress);
        _;
    }

    function DataProduct(address _owner, address _tokenAddress, string _name,
string _description, string _ipfsHash, string _category, uint256 _price, u
```

```

uint256 _size) public {
    registryAddress = msg.sender;

    registry = Registry(registryAddress);
    owner = _owner;
    ownership[owner] = true;
    tokenAddress = _tokenAddress;
    token = ERC20(tokenAddress);
    name = _name;
    description = _description;
    ipfsHash = _ipfsHash;
    category = _category;
    price = _price;
    size = _size;
    creationTimeStamp = block.timestamp;
}

function ownerWithdraw(uint256 amount) public onlyOwner { require(amt
t <= ownerDeposit);
    ownerDeposit = ownerDeposit.sub(amount); assert(token.transfer(owner, a
mount));
}

function ownerWithdrawAll() public onlyOwner {
    require(ownerDeposit > 0);
    uint256 amount = ownerDeposit; ownerDeposit = 0;
    assert(token.transfer(owner, amount));
}

function ownerWithdrawAll() public onlyOwner {
    require(ownerDeposit > 0);
    uint256 amount = ownerDeposit; ownerDeposit = 0;
    assert(token.transfer(owner, amount));
}

function getOwnerDeposit() public constant onlyOwner returns(uint256) {
    return ownerDeposit;
}

function setPrice(uint256 newPrice) public onlyOwner {
    PriceUpdate(price, newPrice);
    price = newPrice;
}

function setSize(uint256 newSize) public onlyOwner {
    size = newSize;
}

function setName(string newName) public onlyOwner {

```

```

    require(keccak256(newName) != keccak256(,""));
    name = newName;
}

function setDescription(string newDescription) public onlyOwner {
    description = newDescription;
}

function setCategory(string newCategory) public onlyOwner {
    category = newCategory;
}

function purchaseFor(address recipient) public {
    require(!getOwnership(recipient));
    ownership[recipient] = true;
    assert(token.transferFrom(msg.sender, this, price));
    ownerDeposit = ownerDeposit.add(price);
    purchaseCount = purchaseCount.add(1);
    Purchase(msg.sender, recipient);
    registry.registerUserPurchase(recipient);
}

function purchase() public {
    purchaseFor(msg.sender);
}

function rate(uint8 score) public {
    require(getOwnership(msg.sender));
    require(score >= minScore && score <= maxScore);
    if (userRated[msg.sender]) {
        uint8 originalScore = userRatings[msg.sender];
        require(score != originalScore);
        scoreCount[originalScore] = scoreCount[originalScore].sub(1);
    } else {
        rateCount = rateCount.add(1);
        userRated[msg.sender] = true;
    }
    scoreCount[score] = scoreCount[score].add(1);
    userRatings[msg.sender] = score;
}

function cancelRating() public {
    require(userRated[msg.sender]);
    userRated[msg.sender] = false;
    uint8 score = userRatings[msg.sender];
    scoreCount[score] = scoreCount[score].sub(1);
    userRatings[msg.sender] = 0;
}

```

```

    rateCount = rateCount.sub(1);
}

function setData(string _ipfsHash) public onlyOwner {
    require(keccak256(_ipfsHash) != keccak256(""));
    DataUpdate(ipfsHash, _ipfsHash);
    ipfsHash = _ipfsHash;
}

function getOwnership(address addr) public constant returns(bool) {
    return ownership[addr];
}

function getTotalRating() public constant returns(uint256) {
    uint256 total = 0;
    for (uint8 score=minScore; score<=maxScore; score++) {
        total = total.add(scoreCount[score].mul(score));
    }
    return total;
}

function getDataProductFor(address addr) public constant returns (
    //address _this,
    address _owner,
    string _name,
    string _description, string _ipfsHash,
    string _category, uint256 _price,
    uint256 _size,
    uint256 _totalRating,
    uint256 _rateCount,
    uint256 _purchaseCount,
    bool _ownership
){
    //_this = this;
    _owner = owner;
    _name = name;
    _description = description; _ipfsHash = ipfsHash;
    _category = category;
    _size = size;
    _price = price;
    _totalRating = getTotalRating();
    _rateCount = rateCount;
    _purchaseCount = purchaseCount;
    _ownership = getOwnership(addr);
}

```

```

function getDataProduct() public constant returns (
    //address _this,
    address _owner,
    string _name,
    string _description,

    string _ipfsHash,
    string _category,
    uint256 _price,
    uint256 _size,
    uint256 _totalRating,
    uint256 _rateCount,
    uint256 _purchaseCount,
    bool _ownership
){
    return getDataProductFor(msg.sender);
}
}

```

Buyers can purchase the data on the decentralized platform using RepuX Tokens. The smart contract will also allow those who already purchased the data to rate it, thereby enhancing the reputation element of the RepuX Protocol. Since the rating system runs on blockchain, it will be completely open and transparent.

While this contract defines a standard interface, specific implementation could be altered to fit different use-cases, for data from or used by different industries. For instance, additional attributes could be added to the smart contract to reflect industry-specific information with respect to the data. The pricing and payment functions could also be altered to support different payment methods, such as a subscription model.

Roadmap



JULY 2017

\$400,000 Seed funding



SEPTEMBER 2017

On-board advisors from the industry



OCTOBER 2017

RepuX Foundation established



NOVEMBER 2017

Major distribution announcement via partners

Code audit

Speaking at Blockchain Expo



DECEMBER 2017

RepuX Protocol Live

Attending Blockshow Asia



MARCH 2018

Token sale



APRIL 2018

Token sale audit



MAY 2018

RepuX Protocol open for developers



JUNE 2018

RepuX Platform Allowing for Decentralised Enterprise Applications

We expect that we will be ramping up very quickly over the coming months. We have completed the specification of the RepuX Protocol level framework upon which various types of individual and entity data can be monetized and exchanged between different parties. We will be using our own Ethereum smart contracts and RepuX Token distribution web interface for our Token Sale planned for February of 2018.

In preparation for the Token Sale, we will be making a major distribution announcement in early December.

Once the Token Sale is completed, we will be able to provide infrastructure to our Enterprise Integration

partners for use in their token offerings and our immediate priority will be to hire a larger C-level executive team and complete our first Enterprise Integration with WorkHQ.

Our philosophy is to initially test the tools we have built internally and with our Enterprise Integration partners. We will then roll out our RepuX Protocol to the public when it has been thoroughly tested.

RepuX Team

Marcin Welner

20 years in IT in total. 12 years' background in programming. Lead departments of up to 100 people. Likes to build projects from scratch. Extensive business skills in warehousing, logistics, supply chain, e-commerce, inventory management, ERP, CRM systems.

Tomasz Tybon

10 years' experience in SaaS industry with marketing, sales and product development. 6 years' experience in e-commerce, building the country's biggest brand and expanded it to India & Turkey. Served as CMO, COO. Scaled Annual Recurring Revenues 30x.

Aleksandra Staszewska

Over 10 years of experience working as Business Analyst in projects for banking, public administration and telco sectors. Worked for national census data analyzing, processing and reporting. Big Data enthusiast having in-depth knowledge of Business intelligence and Data Warehouse systems.

Daniel Kmak

5 years of frontend experience and 1 year of consulting for USA company. Course author for Packt Publishing about React, Vue and Angular. Top 3% StackOverflow contributor with 12,000 reputation. HackerNoon author, HackHands expert, Ember teacher.

Przemysław Kocznur

10 years of experience as a Senior Software Engineer for companies like Procter&Gamble (Bruno Banani, Mexx, Tom Tailor, Puma Fragrances, Replay), Philips, Bigstar, Hipp, Always, Tchibo, Konica Minolta, Crunchips, Plus, Sygnity, Allegro.

Krzysztof Duralek

Senior User Interface Engineer with over 15 years of experience in Media and FinTech industries. Specializes in modern web technologies with focus on performance, user experience and code quality.

Dawid Rashid

Over 4 years of experience as Full Stack Engineer (JEE, PHP & JS). Contributed to number of projects including the biggest European digital currency exchange platform and Marketing Automation software.

Taras Bazyshyn

6 years of experience as a Senior Android Engineer in e-commerce industry. Worked with the usage of machine learning, image recognition, augmented reality, Bluetooth beacons & location solutions technologies for mobile app development.

Rafał Książek

13 years of experience as DevOps, Architect, Coach, Programmer, Leader - An unqualified advocate of agile delivery of high quality code. Many years practitioner of programming as per SOLID & TDD rules.

Damian Babula

Software Developer. An early entrant into the bitcoin/blockchain arena, contributed on numerous cryptography-related projects, many of which were open-source. Currently, he is specializing on decentralized applications, development based on smart-contracts and stand-alone blockchains.

Pierre Benezech

4 years of experience in the Blockchain world, working on the integration of different Blockchain technologies for projects within the TelCo, Retail, and Finance industries, and more recently in two ICO initiatives. Speaker at various conferences in the UK, Blockchain Practice Lead at Sytel Reply UK and leader of Blockchain training sessions for employees across Europe.

Partners and Advisors

Dr Jay Best

Dr Best is named Top Crypto Strategist UK 2017, seasoned C-level executive and board member, having pioneered deep learning on GPUs at MIT, now spending most time between London, Cambridge, Oxford and Edinburgh as a lecturer, advisor and investor.

Mateusz Mach

Forbes 30 Under 30. COO of the Opus Foundations - music streaming platform based on Ethereum and IPFS. Advisor to many blockchain based projects running his own Ethereum focused software development company.

Lee Hills

Lee has over a decades' experience in international corporate structuring and regulated businesses. Lee is especially adept at dealing with new sectors, obtaining regulatory approvals and sourcing/ designing banking solutions for sectors that are considered high risk. This has led Lee to widening his scope of technology expertise to the Blockchain sector, where he was the lead advisor to the first blockchain gambling license and is advising numerous ICOs on jurisdictional matters, AML/ CFT compliance and post ICO business structuring and growth.

Steven Ormond-Smith

Steven is a qualified Chartered Certified Accountant with over 20 years, offshore financial management and control experience. Steven has gained extensive experience in outsourcing projects for banks, law firms, fiduciary, property and trading companies. Prior to founding OrmCo, Steven worked for a Fund Administration company for four years, managing the finance function for several fully listed and AIM listed companies quoted on the London Stock Exchange. Steven has also gained valuable experience working for two of the 'Big Four' accounting firms.

WorkHQ

WorkHQ is a cloud based software as a sales platform for small & medium businesses. Its flagship product is its inventory management systems which connects with JD, Amazon and Taobao. WorkHQ plans to release its api to third party developers to develop on top of its platforms while continuing to develop crucial core modules such as accounting, hr and tax returns.

Troutman Sanders LLP

Founded in 1897, Troutman Sanders LLP is an international law firm with more than 650 attorneys practicing in 16 offices located throughout the United States and Asia. The firm's clients range from large multinational corporations to individual entrepreneurs and reflect virtually every sector and industry. The firm's heritage of extensive experience, exceptional responsiveness and an unwavering commitment to service has resulted in strong, long-standing relationships with clients across the globe. In recognition of the firm's strong service culture, Troutman Sanders has been on the BTI Client Service A-Team for 13 consecutive years.

Melrose PR

Melrose PR is a public relations and creative marketing agency located in the heart of Silicon Beach, CA. As millennials working in new media, we sit at the intersection of traditional PR channels and emerging engagement platforms, providing integrated marketing communication solutions for blockchain companies.

Risk Factors

Acquisition of RepuX Tokens involves a high degree of risk. You should consider carefully the risks described below, together with all of the other information contained in this White Paper before making a decision to acquire RepuX Tokens. The following risks entail circumstances under which, our business, financial condition, results of operations and prospects could suffer

Risks associated with the acquisition of RepuX Tokens

RepuX may not successfully develop, market and launch the RepuX Protocol.

Although the RepuX Protocol will be operational prior to the Token Sale, it has not yet been fully developed by RepuX and additional capital funding, as well as developer and management expertise, time and effort will be necessary in order to fully develop and successfully launch a version of the RepuX Protocol in which various types of individual and corporate data can be monetized and exchanged between sellers and purchasers as described above under the heading "Repux Goals and Objectives" (the "RepuX Protocol Launch"). RepuX may have to make changes to the specifications of the RepuX Protocol or RepuX Tokens for any number of legitimate reasons or RepuX may be unable to develop the RepuX Protocol in a way that realizes those specifications or any form of a functioning protocol. It is possible that there may never be operational RepuX Tokens or an operational RepuX Protocol. The RepuX

Protocol or RepuX Tokens, if successfully developed and maintained, may not meet expectations of holders of RepuX Tokens at the time of use. Furthermore, despite good faith efforts to develop and launch the RepuX Protocol and subsequently to develop and maintain the RepuX Protocol, it is still possible that the RepuX Protocol will experience malfunctions or otherwise fail to be adequately developed or maintained, which may negatively impact the RepuX Protocol and RepuX Tokens.

RepuX will use the proceeds of the Pre-Sale to make significant investments to develop an operational version of the RepuX Protocol and will subsequently continue to enhance the RepuX Protocol's utility and value, with the goal of achieving the RepuX Protocol Launch. However, RepuX may not have or may not be able to obtain the technical skills and expertise needed to successfully complete development of the RepuX Protocol and progress it to a successful RepuX Protocol Launch. While RepuX has sought to retain and continue to competitively recruit experts, there may be a shortage of management, technical, scientific, research and marketing personnel with appropriate training to develop and maintain the RepuX Protocol. If RepuX is not successful in its efforts to demonstrate to users the utility and value of the RepuX Protocol, RepuX may not be able to proceed with the RepuX Protocol Launch.

The acquisition of RepuX Token may involve a high degree of risk.

Financial and operating risks confronting startups are significant. The startup market in which RepuX competes is highly competitive and the percentage of companies that survive and prosper is small. Startups often experience unexpected problems in the areas of product development, marketing, financing, and general management, among others, which frequently cannot be solved. In addition, startups may require substantial amounts of financing, which may not be available through private placements, public markets or otherwise.

RepuX may be forced to cease operations or take actions that result in a Dissolution Event.

It is possible that, due to any number of reasons, including, but not limited to, an unfavorable fluctuation in the value of cryptographic and fiat currencies, the inability by RepuX to establish the RepuX Tokens' utility, complete development of the RepuX Protocol and proceed with the RepuX Protocol Launch, the failure of commercial relationships, or intellectual property ownership challenges, RepuX may no longer be viable to operate and RepuX may dissolve or take actions that result in a dissolution event.

The tax treatment of the RepuX Token distribution is uncertain and there may be adverse tax consequences for holders upon certain future events.

The tax characterization of the RepuX Tokens is uncertain, and each investor must seek its own tax advice in connection with the acquisition of the RepuX Tokens. The acquisition of RepuX Tokens pursuant to the Token Sale may result in adverse tax consequences to investors, including withholding taxes, income taxes and tax reporting requirements. Each person acquiring RepuX Tokens should consult with and must rely upon the advice of its own professional tax advisors with respect to the United States and

non-U.S. tax treatment of an acquisition of the RepuX Tokens.

Risks associated with the RepuX Tokens and the RepuX Protocol

The RepuX Protocol may not be widely adopted and may have limited users.

It is possible that the RepuX Protocol will not be used by a large number of individuals, companies and other entities or that there will be limited public interest in the creation and development of distributed ecosystems (such as the RepuX Protocol) more generally or distributed applications to be used on the RepuX Protocol. Such a lack of use or interest could negatively impact the the RepuX Protocol and the utility of the RepuX Tokens.

Alternative protocols may be established that compete with or are more widely used than the RepuX Protocol.

It is possible that alternative protocols could be established that utilize the same or similar open source code and protocol underlying the RepuX Protocol and attempt to facilitate data monetizing services that are materially similar to the RepuX Protocol's services. The RepuX Protocol may compete with these alternative protocols, which could negatively impact the RepuX Protocol and the RepuX Tokens.

The open-source structure of the RepuX Protocol means that the RepuX Protocol may be susceptible to developments by users or contributors that could damage the RepuX Protocol and RepuX's reputation and could affect the utilization of the RepuX Protocol and the RepuX Tokens.

The RepuX Protocol will operate based on an open-source protocol maintained by RepuX and other contributors. As an open source project, the RepuX Protocol will not be represented, maintained or monitored by an official organization or authority. The open-source nature of the RepuX Protocol means that it may be difficult for RepuX or contributors to maintain or develop the RepuX Protocol and RepuX may not have adequate resources to address emerging issues or malicious programs that develop within the RepuX Protocol adequately or in a timely manner. Third parties not affiliated with RepuX may introduce weaknesses or bugs into the core infrastructure elements of the RepuX Protocol and open-source code which may negatively impact the RepuX Protocol. Such events may result in a loss of trust in the security and operation of the RepuX Protocol and a decline in user activity and could negatively impact the utility of the RepuX Tokens.

The RepuX Protocol may be the target of malicious cyberattacks or may contain exploitable flaws in its underlying code, which may result in security breaches and the loss or theft of RepuX Tokens. If the RepuX Protocol's security is compromised or if the RepuX Protocol is subjected to attacks that frustrate or thwart our users' ability to access the RepuX Protocol, their RepuX Tokens or the RepuX Protocol data monetization services, users may cut back on or stop using the RepuX Protocol altogether, which could seriously curtail the utilization of the RepuX Tokens.

The RepuX Protocol structural foundation, the open-source protocol, the software application and other interfaces or applications built upon the RepuX Protocol are still in an early development stage and are unproven, and there can be no assurances that the RepuX Protocol and the creating, transfer or storage of the RepuX Tokens will be uninterrupted or fully secure, which may result in a complete loss of users' RepuX Tokens or an unwillingness of users to access, adopt, utilize and build upon the RepuX Protocol. Further, the RepuX Protocol may also be the target of malicious attacks seeking to identify and exploit weaknesses in the software or the RepuX Protocol, which may result in the loss or theft of RepuX Tokens. For example, if RepuX and the RepuX Protocol are subject to unknown and known security attacks (such as double-spend attacks, 51% attacks, or other malicious attacks), this may materially and adversely affect the RepuX Protocol. In any such event, if the RepuX Protocol Launch does not occur or if the RepuX Protocol is not widely adopted, the RepuX Tokens would have no utility.

Risks related to blockchain technologies and digital assets

The regulatory regime governing the blockchain technologies, cryptocurrencies, tokens and token offerings such as RepuX Protocol and the RepuX Tokens is uncertain, and new regulations or policies may materially adversely affect the development of the RepuX Protocol and the utility of the RepuX Tokens.

Regulation of tokens (including the RepuX Tokens) and token offerings such as this, cryptocurrencies, blockchain technologies, and cryptocurrency exchanges currently is undeveloped and likely to rapidly evolve, varies significantly among international, federal, state and local jurisdictions and is subject to significant uncertainty. Various legislative and executive bodies in the United States and in other countries may in the future, adopt laws, regulations, guidance, or other actions, which may severely impact the development and growth of the RepuX Protocol and the adoption and utility of the RepuX Tokens. Failure by RepuX, the RepuX Foundation or certain users of the RepuX Protocol to comply with any laws, rules and regulations, some of which may not exist yet or are subject to interpretation and may be subject to change, could result in a variety of adverse consequences, including civil penalties and fines.

As blockchain networks and blockchain assets have grown in popularity and in market size, federal and state agencies have begun to take interest in, and in some cases, regulate, their use and operation. In the case of virtual currencies, U.S. state regulators like the New York Department of Financial Services have created new regulatory frameworks. Others, as in Texas, have published guidance on how their existing regulatory regimes apply to virtual currencies. Some U.S. states, like New Hampshire, North Carolina, and Washington, have amended their state's statutes to include virtual currencies into existing licensing regimes. Treatment of virtual currencies continues to evolve under U.S. federal law as well. The U.S. Department of the Treasury, Securities and Exchange Commission (SEC), and Commodity Futures Trading Commission (CFTC), for example, have published guidance on the treatment of virtual

currencies. The U.S. Internal Revenue Service released guidance treating virtual currency as property that is not currency for U.S. federal income tax purposes, although there is no indication yet whether other courts or U.S. federal or state regulators will follow this classification. Both U.S. federal and state agencies have instituted enforcement actions against those violating their interpretation of existing laws.

The regulation of non-currency use of blockchain assets is also uncertain. The CFTC has publicly taken the position that certain blockchain assets are commodities, and the SEC has issued a public report stating U.S. federal securities laws require treating some blockchain assets as securities. To the extent that a domestic government or quasi-governmental agency exerts regulatory authority over a blockchain network or asset, the RepuX Protocol and the RepuX Tokens may be materially and adversely affected.

Blockchain networks also face an uncertain regulatory landscape in many non-U.S. jurisdictions such as the European Union, China and Russia. Various non-U.S. jurisdictions may, in the near future, adopt laws, regulations or directives that affect the RepuX Protocol. Such laws, regulations or directives may conflict with those of the U.S. or may directly and negatively impact our business. The effect of any future regulatory change is impossible to predict, but such change could be substantial and materially adverse to the development and growth of the RepuX Protocol and the adoption and utility of the RepuX Tokens.

New or changing laws and regulations or interpretations of existing laws and regulations, in the U.S. and other jurisdictions, may materially and adversely impact the value of the ETH virtual currency used to acquire RepuX Tokens and otherwise materially and adversely affect the structure or RepuX Tokens and the rights of the holders of RepuX Tokens.

Issuance of RepuX Tokens May Constitute the Issuance of a “Security” Under U.S. Federal Securities Laws

The RepuX Token is a utility token that has a specific consumptive use – i.e., it allows participants in the RepuX Protocol to receive and pay value for data sharing by individuals and entities, and make data available, on a distributed network with significant advantages over current data sharing solutions. Due to the nature of the RepuX Tokens and the manner in which they are being offered, we do not think they should be considered “securities”, as that term is defined in the Securities Act of 1933, as amended (the “Securities Act”).

On July 25, 2017, the SEC issued a Report of Investigation (the “Report”) under Section 21(a) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), describing an SEC investigation of The DAO, a virtual organization, and its use of distributed ledger or blockchain technology to facilitate the offer and sale of DAO Tokens to raise capital. The SEC applied existing U.S. federal securities laws to this new paradigm and determined that DAO Tokens were securities. The SEC stressed that those who

offer and sell securities in the U.S. are required to comply with U.S. federal securities laws, regardless of whether those securities are purchased with virtual currencies or distributed with blockchain technology. The SEC's announcement, and the related Report, may be found here: <https://www.sec.gov/news/press-release/2017-131>.

On December 11, 2017, the SEC issued a Cease-and-Desist Order (the "Order") against Munchee Inc. ("Munchee") finding that the California-based company's initial coin offering of its tokens (the "Munchee Tokens") to raise capital for its blockchain-based food review service constituted an unlawful unregistered offering and sale of securities. The SEC noted in the Order that Munchee had described in its white paper and elsewhere: (1) the actions that it would take to increase the value of Munchee Tokens (including taking Munchee Tokens out of circulation by "burning" them), (2) that it would ensure the ability of holders of Munchee Token to trade them on secondary markets, and (3) how it would buy and sell Munchee Tokens, using its retained holdings, in order to ensure that there was a liquid secondary market in Munchee Tokens. The SEC further noted that, while Munchee told potential purchasers that they would be able to use Munchee Tokens to buy goods or services in its "ecosystem" in the future, as of the time of the offering, they were not able to do so because the ecosystem had not yet been constructed. The SEC also noted that Munchee had "primed purchasers' reasonable expectations of profit through statements on blogs, podcasts and Facebook that talked about profits." As a result of these and other factors, the SEC determined that the Munchee Tokens were "securities" and the offering and sale of the Munchee Tokens in its initial coin offering violated the Securities Act. After being contacted by the SEC on November 1, 2017, Munchees terminated its initial coin offering and refunded purchasers' funds. The Order can be found at: <https://www.sec.gov/litigation/admin/2017/33-10445.pdf>.

On the same day as it issued the Order, SEC Chairman Jay Clayton released a public statement addressing cryptocurrencies and initial coin offerings (the "Statement"). The Statement cautioned both market professionals and investors and reiterated the SEC's focus on the application of U.S. federal securities laws to blockchain-based offerings and products, including secondary trading. In the Statement, Chairman Clayton noted that, "Merely calling a token a 'utility' token or structuring it to provide some utility does not prevent the token from being a security... Tokens and offerings that incorporate features and marketing efforts that emphasize the potential for profits based on the entrepreneurial or managerial efforts of others continue to contain the hallmarks of a security under U.S. [federal securities] law." The Statement also noted the possibilities of legally compliant private placements of tokens, tokens that are not securities and avenues by which blockchain based investment and trading might be conducted lawfully, suggesting a goal of regulating rather than eliminating these growing digital markets. The Statement can be found at: <https://www.sec.gov/news/public-statement/statement-clayton-2017-12-11>

After reviewing the Report, the Order and the Statement, RepuX believes that RepuX Tokens and the

manner in which they are being offered are substantially different from the DAO Tokens and Munchee Tokens and their offering processes, and so RepuX Tokens should not be considered “securities” under U.S. federal securities laws. Nevertheless, as noted by the SEC in the Report, the issuance of tokens represents a new paradigm and the application of the federal securities laws to this new paradigm is very fact specific. If RepuX Tokens were deemed to be securities under U.S. federal securities laws, we may be required to terminate the Token Sale in the U.S. and refund funds received from U.S. purchasers of RepuX Tokens. Depending on the portion of the overall Token Sale participants who are U.S. persons, that could result in the RepuX Protocol becoming no longer viable and RepuX being forced to dissolve.

The rights to acquire RepuX Tokens in the Pre-Sale may be subject to registration under the Exchange Act if RepuX has assets above \$10 million and more than 2,000 persons participate in the Offering

Companies with total assets above \$10 million and more than 2,000 holders of record of its equity securities, or 500 holders of record of its equity securities who are not accredited investors, must register that class of equity securities with the SEC under the Exchange Act. With the capital raised from the Pre-Sale and the Token Sale, RepuX may surpass \$10 million in assets as it builds out the RepuX Protocol. Furthermore, the rights to purchase RepuX Tokens pursuant to the SAFTs are likely considered a security under U.S. securities law and because there is the possibility that the Pre-Sale and the Token Sale may surpass 2,000 investors, RepuX may have more than 2,000 holders of record of its equity securities following the Pre-Sale. However, it is possible that the right to acquire RepuX Tokens pursuant to a SAFT is not an “equity security” even if it is a “security”. If the total assets and equity security holders conditions are met, then RepuX would have to register the Pre-Sale and/or the Token Sale with the SEC, which would be a laborious and expensive process. If such registration takes place, much of the information regarding the Pre-Sale and the Token Sale will be available to the public. RepuX would have the ability to avoid registration in such a scenario if the rights to purchase RepuX Tokens pursuant to the SAFTs convert into the RepuX Tokens prior to the last day of RepuX’s fiscal year, but, due to the unpredictable nature of complex software development such as the RepuX Protocol, there is no guarantee that the RepuX Protocol will have launched by such a date.

Holders of RepuX Tokens will have no control and RepuX may only have limited control once the RepuX Protocol Launch occurs.

The RepuX Protocol is comprised of open-source technologies that depend on a network of computers to run certain software programs to process transactions. Because of this less centralized model, RepuX has limited control over the RepuX Tokens and the RepuX Protocol once launched. In addition, holders of RepuX Tokens are not and will not be entitled, to vote or receive dividends or be deemed the holder of capital stock of RepuX for any purpose, nor will anything be construed to confer on holders of RepuX Tokens any of the rights of a stockholder of RepuX or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action or to receive notice of meetings, or to receive subscription rights or

otherwise.

There may be occasions when certain individuals involved in the development and launch of the RepuX Protocol may encounter potential conflicts of interest in connection with the RepuX Protocol Launch, such that said party may avoid a loss, or even realize a gain, when other holders of RepuX Tokens are suffering losses.

There may be occasions when certain individuals involved in the development and launch of the RepuX Protocol or RepuX Tokens may encounter potential conflicts of interest in connection with the Token Sale and the RepuX Protocol Launch, such that said party may avoid a loss, or even realize a gain, when other holders of the RepuX Tokens are suffering losses. Holders of RepuX Tokens may also have conflicting tax, and other interests with respect to RepuX Tokens, which may arise from the terms of the RepuX Tokens, the RepuX Protocol code, the RepuX Protocol, the timing of the RepuX Protocol Launch or other RepuX Token offerings, or other factors. Decisions made by the key employees of RepuX on such matters may be more beneficial for some holders of RepuX Tokens than for others.

Holders of RepuX Tokens may lack information for monitoring their holdings.

A holder of RepuX Tokens may not be able to obtain all information it would want regarding RepuX, RepuX Tokens, or the RepuX Protocol, on a timely basis or at all. It is possible that a holder of RepuX Tokens may not be aware on a timely basis of material adverse changes that have occurred with respect to the RepuX Protocol. While RepuX has made efforts to use open-source development for the RepuX Tokens, this information may be highly technical by nature. As a result of these difficulties, as well as other uncertainties, a holder of RepuX Tokens may not have accurate or accessible information about the RepuX Protocol.

RepuX Tokens have no history.

The RepuX Token will be a newly formed token and have no history. Each RepuX Token should be evaluated on the basis that RepuX or any third party's assessment of the prospects of the RepuX Protocol may not prove accurate, and that RepuX will not achieve its business objective.

If the RepuX Protocol is unable to satisfy data protection, security, privacy, and other government-and industry-specific requirements, its growth could be harmed.

There are a number of data protection, security, privacy and other government- and industry-specific requirements, including those that require companies to notify individuals of data security incidents involving certain types of personal data. Security compromises could harm RepuX Protocol's reputation, erode user confidence in the effectiveness of its security measures, negatively impact its ability to attract new users, or cause existing users to stop using the RepuX Protocol.

The further development and acceptance of blockchain networks, including the RepuX Protocol, which are part of a new and rapidly

changing industry, are subject to a variety of factors that are difficult to evaluate. The slowing or stopping of the development or acceptance of blockchain networks and blockchain assets would have a material adverse effect on the successful development and adoption of the RepuX Protocol and the RepuX Tokens.

The growth of the blockchain industry in general, as well as the blockchain networks with which the RepuX Protocol will rely and interact, is subject to a high degree of uncertainty. The factors affecting the further development of the cryptocurrency industry, as well as blockchain networks, include, without limitation:

- Worldwide growth in the adoption and use of ETH, and other blockchain technologies;
- Government and quasi-government regulation of ETH, and other blockchain assets and their use, or restrictions on or regulation of access to and operation of blockchain networks or similar systems;
- The maintenance and development of the open-source software protocol of the ETH networks;
- Changes in consumer demographics and public tastes and preferences;
- The availability and popularity of other forms or methods of buying and selling goods and services, or trading assets including new means of using fiat currencies or existing networks; or
- General economic conditions and the regulatory environment relating to cryptocurrencies.

A decline in the popularity or acceptance of ETH or other blockchain-based tokens would adversely affect our results of operations.

The slowing or stopping of the development, general acceptance and adoption and usage of blockchain networks and blockchain assets may deter or delay the acceptance and adoption of the RepuX Protocol and the RepuX Tokens.

The prices of blockchain assets are extremely volatile. Fluctuations in the price of digital assets could materially and adversely affect our business.

The prices of blockchain assets such as ETH have historically been subject to dramatic fluctuations and are highly volatile. Several factors may influence the utility of the RepuX Tokens, including, but not limited to:

- Global blockchain asset supply;
- Global blockchain asset demand, which can be influenced by the growth of retail merchants' and commercial businesses' acceptance of blockchain assets like cryptocurrencies as payment for goods and services, the security of online blockchain asset exchanges and digital wallets that hold blockchain assets, the perception that the use and holding of blockchain assets is safe and secure, and the regulatory restrictions on their use;
- Holders' expectations with respect to the rate of inflation;

- Changes in the software, software requirements or hardware requirements underlying the RepuX Protocol;
- Changes in the rights, obligations, incentives, or rewards for the various participants in the RepuX Protocol;
- Interest rates;
- Currency exchange rates, including the rates at which digital assets may be exchanged for fiat currencies;
- Monetary policies of governments, trade restrictions, currency devaluations and revaluations;
- Regulatory measures, if any, that affect the use of blockchain assets such as the RepuX Tokens;
- The maintenance and development of the open-source software protocol of the RepuX Protocol; or
- Global or regional political, economic or financial events and situations.

A decrease in the price of a single blockchain assets may cause volatility in the entire blockchain asset industry and may affect other blockchain assets including the RepuX Tokens. For example, a security breach that affects RepuX Token holder or user confidence in ETH may affect the industry as a whole and may also cause the utility of the RepuX Tokens and other blockchain assets to be uncertain.

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