

Whitepaper

Technical Whitepaper

Decentralized Social Marketplace

Jukka Hilmola, Sami Suosalo

WHITEPAPER V.5

Abstract

Soma stands for the Social market. Soma is a blockchain- based social marketplace that supports the Soma community by implementing a rewarding system that utilizes Soma Community Token (SCT), which is a cryptocurrency designed to incentivize community members to perform actions that create social wealth within the community. Soma enables its users to interact socially with various features implemented on the platform and users get rewarded for doing so. Soma includes generally known concepts from traditional social media platforms (i.e. liking and sharing) and utilizes the blockchain technology to incentivize its users to leverage social capital.

Soma is a marketplace where users can securely and reliably trade with each other in a decentralized environment. The platform encourages users to engage in beneficial cooperation to provide members of the Soma Community a comfort of secure and fast platform to trade with their desired items. The Soma Rewarding System guarantees that every user who contributes to the creation of the social value is rewarded by Soma Community Token (SCT). SCT is an ERC20 token which is utilized inside the community for rewarding and hence it facilitates the organic growth of the Soma community throughout the world.

Introduction

From the early days of history, trading has been a social phenomenon. Historically, people have assembled into the marketplaces and bazaars in order to exchange pleasantries and trade with items that were imported from the different parts of the world. Today, the situation has changed remarkably.

The majority of the C2C-trade happens in internet platforms, such as eBay, which offers its users a "one-stop-shop" platform to list items for trading and bartering. However, the contemporary platforms have deviated from the historical standpoint of trading as the people are usually hidden behind the anonymous usernames. Thus, the current platforms merely offer a forum for trading without any features that would facilitate social interaction. The lack of social interaction between the users removes an important element, something which has been a natural part of trading and exchange since the beginning of the economic activity between human beings. This does not reflect the current market trends and based on our research, there is a huge demand for a platform that will unite trading and social interaction between the users.

2.1 Payment options

Soma stands for the Social market. Soma is a blockchain- based social marketplace that supports the Soma community by implementing a rewarding system that utilizes Soma Community Token (SCT), which is a cryptocurrency designed to incentivize community members to perform actions that create social wealth within the community. Soma enables its users to interact socially with various features implemented on the platform and users get rewarded for doing so. Soma includes generally known concepts from traditional social media platforms (i.e. liking and sharing) and utilizes the blockchain technology to incentivize its users to leverage social capital.

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2.2 Soma community token (SCT)

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2.3 Deposits, payments & withdraw

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2.4 Soma secure payment

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Interactive Item card

3.1 THE CONCEPT OF INTERACTIVE ITEM CARD (PATENT-PENDING)

One of the principal innovations in Soma is the Interactive Item Card (IIC), which allows users to increase the value of their published IIC's by gaining social acceptance for them inside the platform. Through the social interactions known from the traditional social media platforms such as likes and followings, the "social value" of the IIC is increased. Thus, users are incentivized to create high-quality content on the platform as they get rewarded for doing so.

IIC contains information inserted by the users in a chronological chain about the particular physical item, such as ownership data and the condition rating. IIC transforms information of the item on a transaction-by-transaction basis. IIC will facilitate the information flow between the users, promote transparency and increase the overall trust of the community.

Soma utilizes the Ethereum blockchain and smart contract system in the item card verification to safeguard that the item card cannot be duplicated and the information is transferred securely. Interactive Item Card is a patent-pending innovation. Patent attorneys and the relevant authorities have conducted a thorough preliminary research and found nothing which could prevent the patent application to succeed.

For a more detailed description of the IIC process, please see the "IIC Process" document from our website <https://soma.co>

3.2 PROMOTION OF THE INTERACTIVE ITEM CARDS

Users may earn SCT by promoting Interactive Item Cards. For example, if a user believes their following audience would likely to be interested in a particular item, it may choose to promote the item card published by some other user. In exchange for promotion, the original publisher of the IIC may reward the promoter with SCT in return for such service.

Promotion can be done internally within the community, for example in groups which ts well for a promotion of that particular IIC. Alternatively, IIC can be shared outside the platform, for example on Facebook, Twitter or Instagram.

3.3 RESELLING THE ITEMS

Sellers may leverage IIC feature to offer resellers the chance to sell their items for a commission. This allows drop-shipping of goods and services while offering provable sales through the decentralized marketplace. The seller who created the IIC controls it and can add a discount level on a per entry basis for each reseller. Reselling feature is specially designed for users who want to utilize the power of the community to maximize their sales. For example, it is a very feasible feature for persons who are selling their artworks, such as handcrafts or art, as well as for companies that want to create an efficient sales network in a decentralized community.

REWARDING SYSTEM

Soma utilizes the Ethereum blockchain to create a comprehensive trading platform that leverages social capital and creates a community that aids social interaction between users. In the Soma, the contribution to the social capital in terms of value creation is materialized through User Rewarding System (URS).

URS is based on Soma Community Token (SCT), which is an ERC20 Token that is allocated inside the platform in relation to a user's contribution individually, thus making Soma a "perfect meritocracy" – a model which excludes the need for third parties and provides the most efficient distribution of wealth.

The rewarding system in Soma is by nature two-fold. First, it must be recognized that every time user adds value to the community it should be rewarded for its actions. Second, the compensation must be attributed in the proportion of the value created. In Soma, this becomes reality by providing an environment that enables the exchange of social capital to SCT in the course of a bargaining at the free markets. Thus, Soma provides the ability and incentive for its users to engage in such conduct and the market mechanism ensures perfect pricing in the community.

SCT will be designed to satisfy both of these underlying "Community Principles".

THE PROBLEM OF TRADING

Trading is not free. States and interest groups have an impact on prices of products and commodities. A classic example is the daily consumption of oil, the price of which is determined by the OPEC. OPEC manipulates oil price by imposing import volumes, since their target is to keep the price on a specific level. There are also several beneficiary organizations for most of the raw materials and commodities. Even on a small scale, prices are determined incorrectly.

The institutions can underprice a certain commodity for marketing purposes, and conversely, overprice it for profit purposes. An actor who acts as a broker or an intermediary may not add any substantial value in the value chain of a particular product. For example, a carpet which is made as a handcraft in a certain country may have accumulated excess in its price which does not necessarily reflect its value because of an inefficient chain of distribution.

The biggest problem is seen on the small scale production of developing countries. Craftsmen, farmers and raw material producers will only get a minority stake on the finished product. Attribution of value to the beginning of the chain has not been possible without the intermediaries. It is also possible that trade in goods at the state level is blocked by custom duties or embargoes. This multi-tiered arrangement has been necessary before the development of technology. Now technology allows to establish a free trade community, but the implementation must be done. The winners of fixed prices are large organizations and dealerships dominating the sales interests.

Currently, there are a lot of areas in the developing countries where people do not have access to basic banking services, thus increasing their chances to be left out from a just proportion of profits.

SCT will ensure that Soma is a perfect solution also in the developing countries.

SCT will provide a rewarding mechanism that can be accessed from every part of the world with internet access.

The vision of the Soma community is to provide a platform that sets up a true freedom of trade, without any redundant actors that do not increase any value in the chain of transactions. Soma is the solution that drops out all of the unnecessary middlemen from the trading and starts a new era of free trade. Soma community will cut out the middlemen from the transaction process and provide liquidity for the community members around the globe. Currently the profits are not attributed correctly in the global trade and multinational corporations have been the largest beneficiaries from that. Profits should be aligned with the value creation in the production chain, thus eliminating any mismatching of profits between the actors.

THE TEAM

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SUMMARY & ONE PAGER

Soma (<https://soma.co/>) began as a project since we wanted to create a unique and revolutionary platform for the second-hand commerce as a response to the market situation where the old platforms are leaking vast amount of users to localized Facebook Groups. The emergence of localized Facebook groups for trade is a global phenomenon and this trend seems to continue.

We concluded that this phenomenon happens for a reason, which seems to be the demand for a platform that facilitates social interaction and promotes efficient trading experience. Soma is a solution for this niche. In addition to Soma's unique features, Soma implements traditional concepts from well-known social media platforms, which aids the mass adoption of the platform by the late majorities.

Soma builds a social trading platform that has a strong digital asset and unique innovations like the Interactive Item Card (IIC). IIC is revolutionary for its ability to archive ownership history, authenticity and social value. A physical product is more prosperous if the IIC connected to it has a lot of reputation and likers. The IIC will leverage social capital and encourage users to create quality content to the Soma platform. The social value of the IIC increases as it gathers different social interactions in the platform and it may be reflected in the value of the physical item. Thus, Soma monetizes the social wealth created by its users and the value of the social contribution is determined by the Soma Community Token.

The Soma Community Token enables the Interactive Item Card to recover payment information and realization of the social capital. For the first time in history, this reveals the genuine data on trading trends and simultaneously monetizes the social contributions of the users. Since information is stored in this way, the community benefits from the perfectly accurate prices on a free market. A price that is not determined by institutional pricing or manipulated by intermediary commissions. Just a genuine price.

SCT complements a good business model with patent-pending features and it is inevitable fact that the crypto currencies will play a major role in the future of C2C-platforms
The value may rise when the C2C marketplace becomes mainstreamed
The Soma Rewarding System ensures that marketing and other promotions are rewarded by SCT

The largest adoption for the SCT emerges from its introduction to a mass market for ordinary consumers

Compared to other cryptographic tokens, Soma has already a working application and well-founded strategy to acquire a large number of customers to raise SCT market size.

The more ETH the Soma community collects in the ICO - the faster it expands and spreads.

Soma community is established as the change is inevitable and the future is in our hands. Soma is already developed to an advanced stage as the application is in closed Alpha (Test ight version). The implementation of the blockchain based features, such as the IIC, will be the revolutionary part of the Soma. Soma provides a solution for the identi ed problem and the business model is highly scalable.

Decentralized Social Marketplace

Jukka Hilmola, Sami Suosalo

TECHNICAL WHITEPAPER V0.9.2

The purpose of this document is to present some technical aspects of our Soma blockchain-based platform. The first version is designed to give the Soma community the possibility to evaluate and give feedback for the selected implementation details. Please note that they can still change. We are going to work with this document further and evaluate new technical possibilities that might come during the fourth quarter of 2017.

SOMA PLATFORM BACKGROUND

The Soma Marketplace is a platform that will unite safe trading and social interaction between users. The business functionalities that are required here will make the difference in trading sector demand secure and reliable technology. The goal is to utilize the Ethereum open-source blockchain-based platform and its smart contract functionality to implement a patent-pending interactive item card, secure payments and Soma social rewarding system. More information about Soma Marketplace concerning those crucial functionalities of the platform from the business perspective (and ICO details) can be found in the Soma Whitepaper accessible at <https://soma.co>.

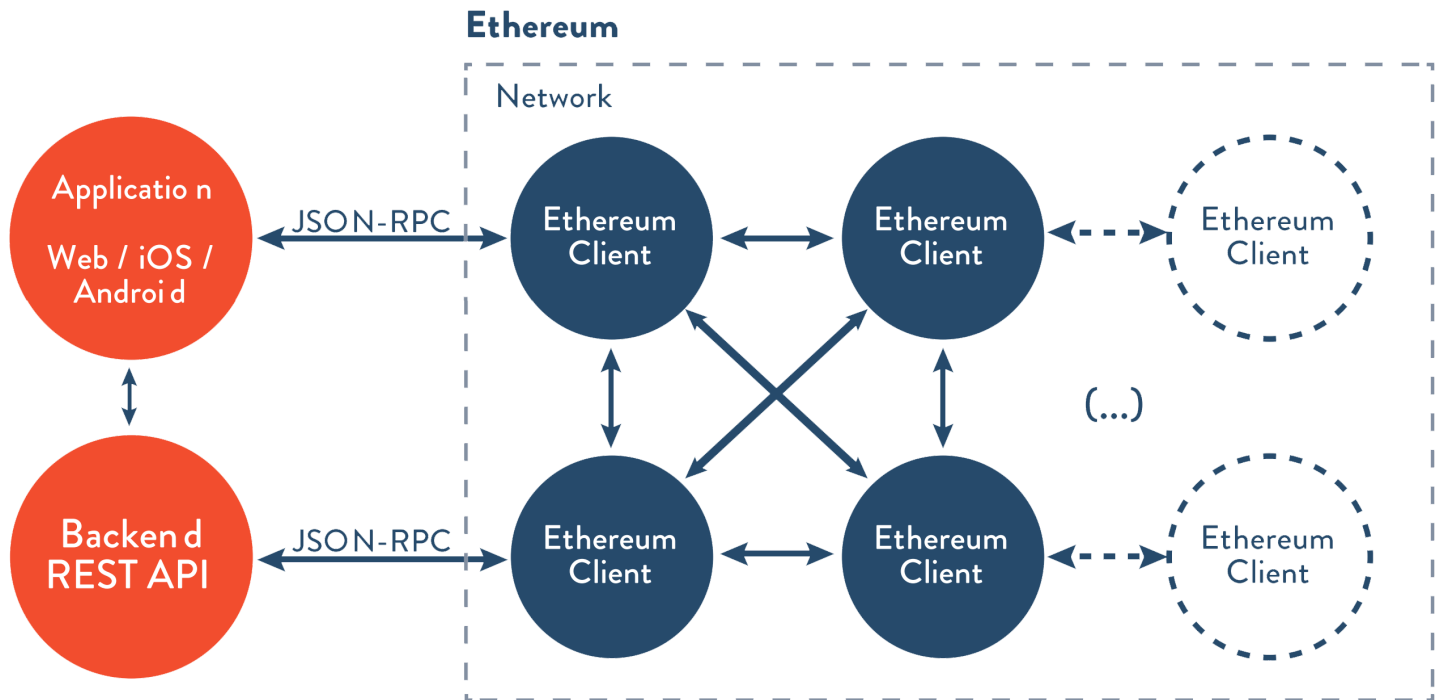
ARCHITECTURE DIAGRAM

There are many ways (some still in development or alpha version) of building an Ethereum node network. Two leading solutions are:

- installing full Ethereum nodes on users devices.
- using other, lighter programs/solutions that allows to sign transactions (like MetaMask 1) and running them against a hosted node cluster (like INFURA 2).

In order to let users run the application without requiring users to install their own full Ethereum node, we are going to use a hosted Ethereum node cluster. The blockchain architecture will be used to handle the Soma digital currency and to ensure durability and immutability of the product and its history.

Processing and storing data in Soma will be provided by Soma REST API. This solution allows access to data over the network, regardless of device type (through a web application or dedicated mobile app). Applications will communicate with Soma REST API over HTTPS (secure communication protocol), using JSON as message format.



SECURITY

BLOCKCHAIN LEVEL SECURITY

Decentralization through the use of blockchain technology has many security-related advantages, like:

- Immutability - blockchain keeps track of all the changes that have been made,
- Protection against data corruption - each computer has a copy of the database, therefore it would be necessary to simultaneously corrupt data on more than 51% of the participating computers.
- Reliability - it is highly unlikely to simultaneously stop all the computers participating in the Ethernet blockchain.

CONTRACT LEVEL SECURITY

What can be done on developer-side is to write secure Ethereum contracts, following the Best Practices 3 for smart contracts which describe particular security techniques and tips. For the same reason, we are planning to build contracts using the OpenZeppelin 4 library which greatly aids in writing secure smart contracts on Ethereum. This open source library provides tested and community-audited code that can be implemented and extended by developers so that they can write their own secure contracts. Before implementation, each piece of code will need to pass a code review and tests (read more in Tests chapter). In order to increase trust and maximize security, code audits are also planned.

SOMA COMMUNITY TOKEN

Soma Community Token, called SCT, is an internal digital currency, which will be used in Soma Decentralized Social Marketplace. It is planned that all transactions will eventually be paid in digital currency.

All users of the Soma platform will be able to gain SCT in various ways:

By buying them for Ether during the ICO (read the ICO Specs Whitepaper for details).

Exchanging Ether to SCT using Soma Exchange (read more in Buying SCT chapter).

As a payment after a successful purchase transaction.

As a reward or compensation after promoting a product (read more in Promoting item using SCT chapter).

Implementation of SCT

SCT is an ERC20 Token implemented as a contract in the Ethereum blockchain app platform. The Ethereum Contract for Soma Community Token and all other contracts will be written in Solidity (programming language), as it is “currently the flagship language of Ethereum and the most popular”
5 . All Decentralized Social Marketplace users will collect their SCT in Ethereum Wallet.

Buying SCT

Soma Community Tokens can be acquired (in exchange for Ether) during the ICO. After the completion of the ICO, purchasing SCT for Ether will be available via the Soma platform. The price of SCT will be set according to its current price on the stock exchanges.

Soma will provide a "liquidity reserve" of SCT, which will only be utilized in a theoretical situation, for instance, if after the ICO the SCT is not liquid enough to support the functioning of the Soma platform.

SOMA INTERACTIVE ITEM CARD

Soma Interactive Item Card (IIC) is a digital representation of the physical item. It includes information about the ownership data, the condition of the physical item, the genuineness of the item and the price history. Once created, IIC can be modified or can change its owner (be bought), but every state and every change will remain in its history.

To achieve what is promised above, IIC data will be stored in two areas:

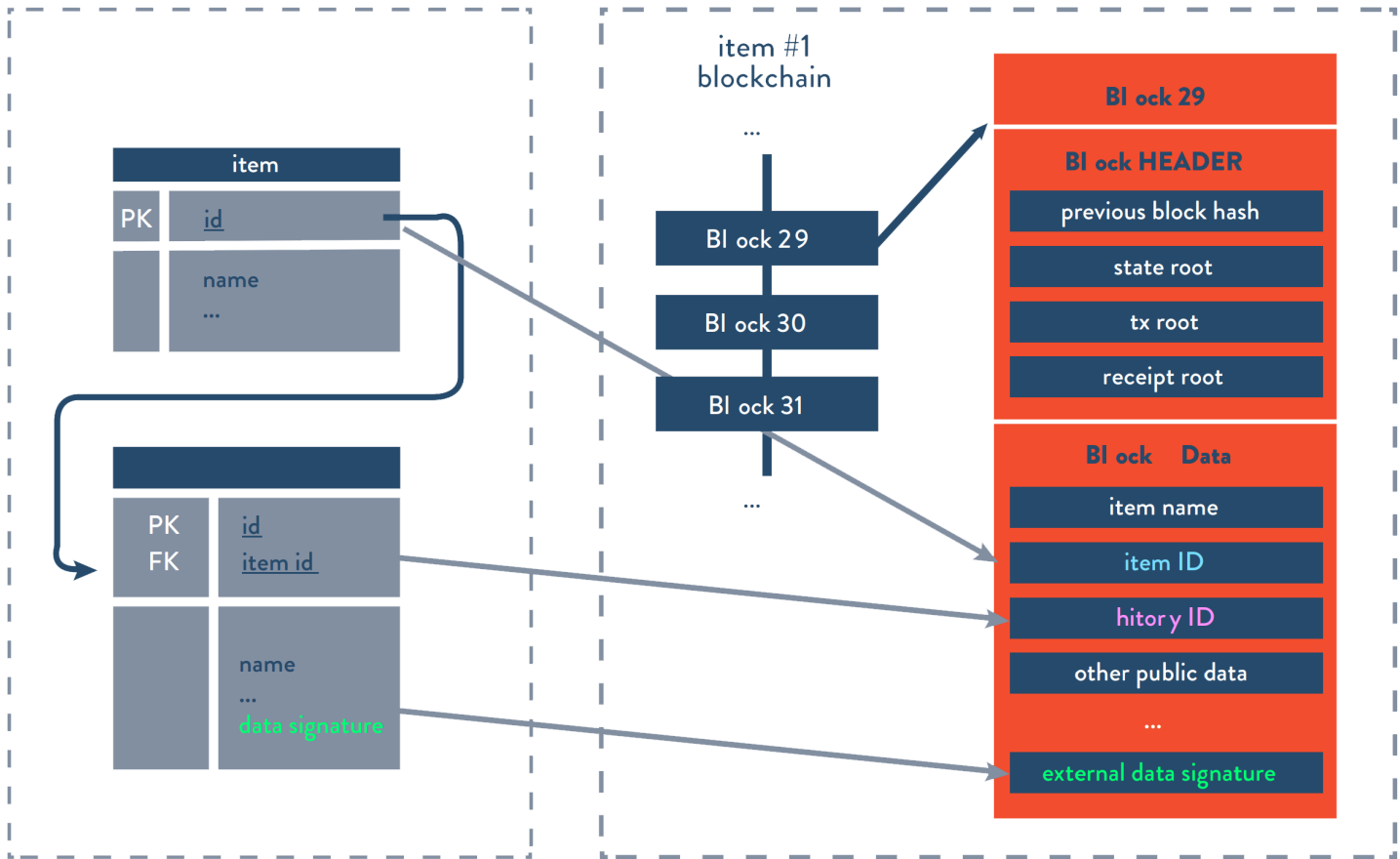
all data (and history) will be stored in database (eg. with use of Event Sourcing) and server space
(eg. to keep photos)

item key information, link to database data and data signature will be kept in the blockchain.

The SCT, IIC contracts will be written in the Solidity programming language.

BLOCKCHAIN

BLOCKCHAIN

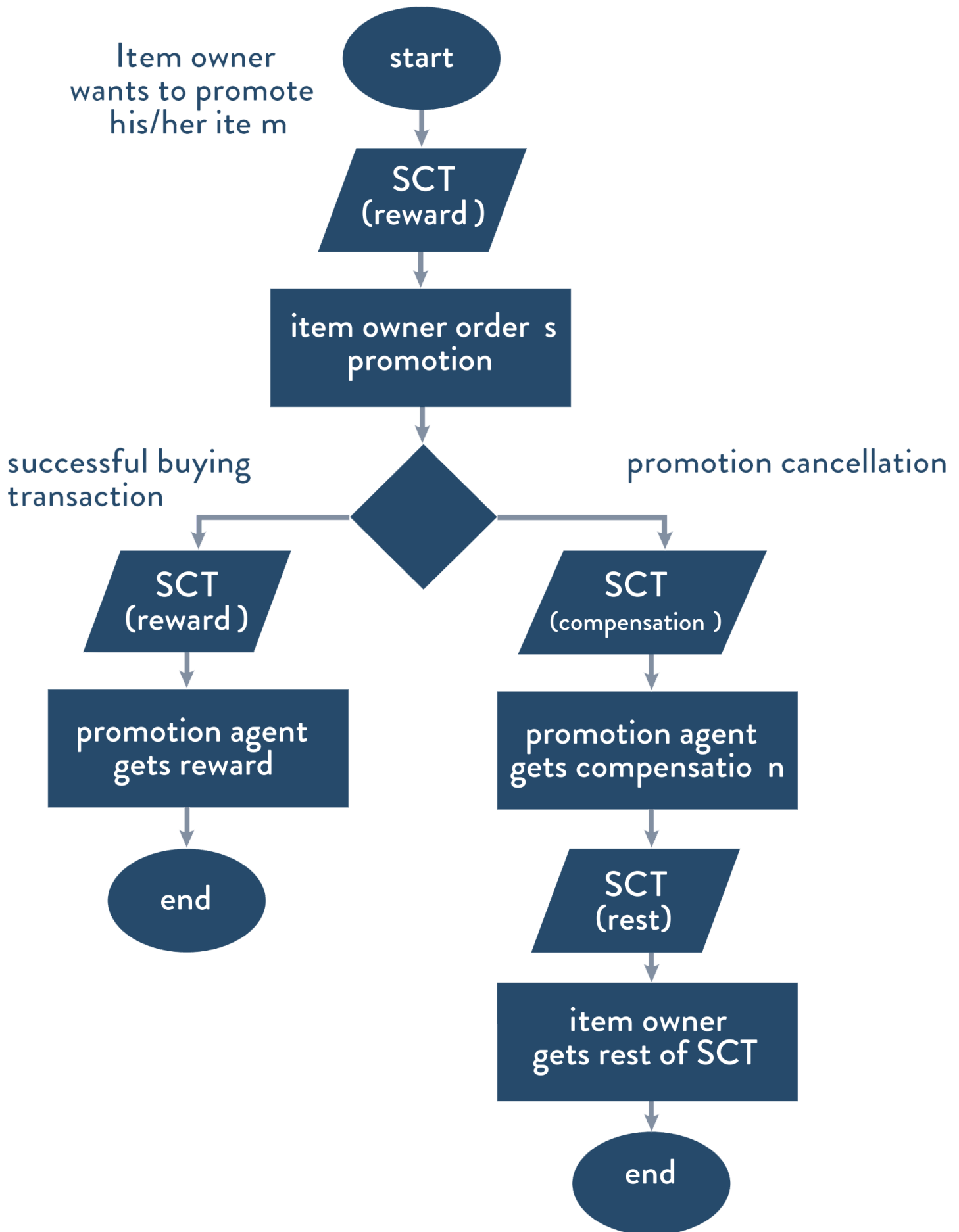


PROMOTING ITEMS USING SCT

An item owner will have the possibility to involve other community members in promoting their product and, consequently, increase interest and trust in it.

Users that were chosen by the item owner to engage in its promotion will, after a successful transaction, be rewarded with SCT by the seller. Please note that SCTs for prizes will come from the owner's wallet. This means that item owner will need to have SCT on his account to make his product promotable.

When a seller orders a promotion, his SCT will be transferred to the prize contract, and will remain there until a successful buying transaction occurs or when the promotion is cancelled. In case the promotion is cancelled, the SCT will return to the item owner's wallet, after paying compensation.



TESTING CONTRACTS

All contracts will be tested with one or more of the following methods:

- going through test scenarios in manual testing
- automated functional tests
- automated unit tests

It is planned that all contract functions will be tested with unit tests. Using solidity-coverage 6 to measure code coverage, we plan to have a full test suite, close to 100%. For test writing and their automation, we plan to use Truffle 7, which comes with an automated testing framework. Thanks to this, developers have the possibility to test contracts in two important ways:

- make advanced unit tests using Solidity language, so the whole test suite can be build,
- make contracts to be tested from the outside world. These tests needs to be written in JavaScript. Truffle integrates with Mocha 8 framework, that allows for running these tests asynchronously and serially.

In order to test contracts and transactions without additional costs (gas), tests in the development process will run on a test Ethereum network. For this purpose, we plan to use public testnet Ropsten. Before deploying, smoke tests will run on Mainnet (real-world Ethereum network).

GAS

When a contract is executed, as a result instruction is executed on every node of the network. This has a cost: gas is the name for the execution fee that senders of transactions need to pay for every operation made on an Ethereum blockchain. This fee is paid in Ether and will be covered by Soma in most of the transactions. Users Wallets will be topped up by a small amount of Ether - enough to be able to perform one transaction. After each transaction, the user's wallet will be refilled, so they can perform the next operation. It is also planned to implement solutions that reduce transaction costs, like The Raiden Network 9 or other. The main idea of The Raiden Network is to run some transactions off-chain, without involving the Ethereum blockchain for every transfer. Although running off-chain, the Raiden Network promises to ensure transfers with guarantees of validity, security, and

decentralization similar to those known from blockchains. Ethereum transactions are public, whereas Raiden transfers are private between the payer, the payee, and the nodes forwarding the transfer. When channels are settled, only the sum of transactions will become visible to the world

DEVELOPMENT PLAN

CLOSED ALPHA RELEASE

For the Alpha release planned for Q3 2017, the Soma platform with the most important functionalities is developed. In the same time UX/UI for iOS application is designed. The Soma - A application for iOS is accessible in TestFlight application in external testing mode. The application allows for:

- managing Item cards
- searching, listing and viewing Items
- give opportunity to real time chat in the context of selling and buying items
- provide social actions like giving product 'a like'.

SOMA MVP

The release of the minimum viable product is scheduled for the Q2 of 2018. The most important goal for the MVP is to integrate the Soma platform with the blockchain. The functionalities that are planned to be implemented :

- Extending Soma backend API
- Extending social functionalities in Soma backend
- Possibility to connect to Ethereum network.
- Ether transfer for gas payments.
- Make exchange Ether to SCT available.
- Provide the ability to pay for the product using SCT
- Web interface release

Extension of iOS application

Development of the infrastructure and the safety plan implementation will follow the MVP phase and will continue in parallel to platform growth. The plan is for the Soma platform to be available to the widest possible audience - for this purpose, solutions for a variety of devices are being considered.

SOMA PLATFORM Q2018 4

Soma Secure payment

Implement an interactive item card with smart contract

Provide product promoting (with SCT payment)

Android app release

SOMA PLATFORM 2019

Reselling items

Rewarding system

SOMA PLATFORM 2020

Modules prepared for Business accounts

Integration with Internet of Things

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