SOMA
The Social Market

Decentralized Social Marketplace

Jukka Hilmola, Sami Suosalo

ABSTRACT

Soma—social market—is a blockchain-based ecosystem combining the functionality of a disintermediated marketplace with that of a social media platform. The Soma Community Token (SCT) in addition to providing internal liquidity and security, acts as a reward system to incentivize behaviors that promote the vibrancy and wealth of the entire system.

Soma allows users to securely and reliably trade with each other in a decentralized environment. The Soma Rewarding System guarantees that every user who contributes to the creation of social value within the Soma platform is rewarded by Soma Community Token (SCT).

INTRODUCTION

Since human prehistory, trading has been a social phenomenon. Historically, people assembled in marketplaces and bazaars to exchange pleasantries and trade items from different parts of the world. Today, much has changed—the venues of transaction—even while much remains the same (human nature).

Much of contemporary trade occurs via internet platforms, such as eBay, which offer users a "one-stop-shop" for trade and barter. Anonymous usernames and depersonalized storefronts, however, strip interactions on these platforms of an important element. The lack of social interaction between users removes what has been a natural part of trading and exchange since the beginning of human economic activity. Based on our research, there is a huge demand for a platform that will unite trading and social interaction between users.

SOMA COMMUNITY TOKEN (SCT)

As Soma's native cryptocurrency, SCT—an ERC20 token—facilitates the organic growth of the community. Soma uses SCT for the following ends:
• To secure the system via an immutable, decentralized transaction ledger
• To provide internal liquidity within the Soma marketplace
• To incentivize members to behave in socially beneficial ways

INTERACTIVE ITEM CARD

THE CONCEPT OF INTERACTIVE ITEM CARD

(PATENT-PENDING)

One of Soma's principal innovations 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 a particular item of merchandise, such as ownership data and a rating corresponding (in the case of physical goods) to the condition of the item. IIC updates information of the item on a transaction-by-transaction basis. IIC will facilitate the information flow between the users, promote transparency and increase overall trust within the community.

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

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

PROMOTION OF THE INTERACTIVE ITEM CARDS

Users can earn SCT by promoting Interactive Item Cards. For example, if a user believes their audience (or followers, if you will) would be interested in a particular item, that user may choose to promote an 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 said promotion.

Promotion can be done internally within the community, for example in groups of particular relevancy to a given IIC. Alternatively, the IIC can be shared outside the platform—for example on Facebook, Twitter or Instagram.

RESELLING THE ITEMS

Sellers may leverage IIC features to offer resellers the chance to sell items for a commission. This allows drop-shipping of goods and services while verifying 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. The reselling feature is specifically designed for users who want to utilize the power of the community to maximize their sales. On one extreme of the seller spectrum, it could serve individual artisans and artists. On the other end of the spectrum, the reselling power of the IIC would prove ideal for the corporation seeking create an efficient, easily-auditable sales network.

REWARDING SYSTEM

Soma leverages social capital through its User Rewarding System (URS), which uses the Soma Community Token (SCT) to incentivize good behavior. URS is based on a user's individual contribution to the Soma network. Soma approaches cooperative rewards with two key factors in mind.

Firstly, every value-add action should be rewarded. Secondly, not all user actions have equal benefit to the community; compensation must be proportional to the value created. Soma facilitates both principles by providing an environment that enables the exchange of social capital to SCT in a free-market dynamic. Soma provides the mechanism and structure for users to engage in specific 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: INEFFICIENT MARKETS

Commerce does not occur in a perfectly free market. States and interest groups impact prices of products and commodities. For example, OPEC manipulates oil prices by imposing import volumes to achieve its own price targets. Institutions can underprice a commodity for marketing purposes (loss-leading, for example), or overprice for enlarged profits.

Furthermore, the value chain becomes bloated with intermediaries. Multinational corporations tend to be the largest beneficiaries of value-chain bloat. Corporate 'middlemen' soak up much of the value, disproportionally to the level of utility they contribute. For example, a handcrafted carpet from one region of the world may have accumulated extreme price increase—excessive of transport costs, duties, and other actual expenses—in price by the time it reaches another market. In the process, the item will probably have passed through several brokers or intermediaries, each of whom will have made a profit on the transaction. In short, inefficiencies in the chain of distribution, combined with lack of transparency, siphon off much of the value from the two parties who should be receiving it: the buyer and seller.

This siphoning of value tends to be most severe in so-called developing countries. Those at the beginning of the value chain—those whom we might call value creators: craftsmen, farmers and raw material producers—often garner a pittance of the price a finished product. Attribution of value to the beginning of the chain has proven difficult at best and has required the dubious assistance of various intermediaries. To exacerbate the plight of the value creators, trade in goods is often blocked by custom duties or embargoes. Absent a technological solution, the presence of intermediaries and the lack of transparency have been a necessary evil. With the advent of blockchain and its associated technologies, however, peer-to-peer commerce and full transparency down the value chain are possible.

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The Soma community will grant true freedom of trade, without any redundant actors, thereby removing glut from the value chain, while providing liquidity and free-market profitability to value creators.

THE TEAM

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Karol

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Michael

ADVISOR

Tim

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Tommi

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SUMMARY & ONE PAGER

Soma (https://soma.co/) is a peer-to-peer marketplace and social platform. Responding to problems inherent in centralized and opaque legacy platforms, we envisioned a social marketplace that allowed users to connect and trade in a validated, decentralized ecosystem. The demand for a social element in commerce revealed itself in the vast amount of Facebook users participating in localized Facebook groups for trade.

Observing this clustering of users into socially cohesive cyber-groups, we saw the need for a platform that facilitates social interaction and promotes an efficient trading experience. Soma offers both. It implements traditional concepts from well-known social media platforms—lowering the barrier to mass adoption by presenting a familiar format—while securing and validating the entire system with blockchain technology.

Soma offers a social trading platform driven by a native 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, and store the ongoing history of an item in an immutable, decentralized ledger. Social media functionality allows community members to interact with the IIC—which can be conceptualized as a sort of avatar for the real item it represents—using likes, comments, upvotes, and other forms of social validation. As an IIC accumulates social validation, its value can potentially increase. We say potentially—and this is important—because as a free market system, Soma merely provides the infrastructure; such complex sociological value interactions are not, nor cannot be engineered. Regardless, social validation exerts a powerful perceptual pull on the human psyche, regardless of the venue.

The IIC will leverage social capital and encourage users to create quality content on the Soma platform. The social value of the IIC increases as it gathers different social interactions, and these interactions 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 in a truly decentralized free-market ecosystem.

The Soma Community Token enables the Interactive Item Card to recover payment information the and realization of the social capital. For the first time in history, the IIC monetizes the social contributions of users in a geographically-diverse, disintermediated environment. With all IIC information stored immutably and accessible to all, the community benefits from perfectly efficient prices on a free market. An item's value will not be determined by institutional pricing or manipulated by intermediary commissions. It will be a genuine price, reflective of its actual value among the community participants and free of external, hidden, or duplicitous interference.

- • Given that tokenized assets—cryptocurrencies—will almost certainly play a major role in the future of C2C platforms, SCT places Soma at the forefront of the trend with patent-pending features to be revealed more fully when appropriate.
- • Given the scarce nature of SCT as a resource, the value of the token may rise as adoption of the platform increases (note that this is not a promise, nor an assurance of future gains, nor is it financial advice).
- • 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.

Soma is already developed to an advanced stage as the application is in closed Alpha (Test light version). The implementation of blockchain-based features, such as the IIC, provides a highly-scalable business model that addresses significant shortcomings found in legacy platforms.

Decentralized Social Marketplace

Jukka Hilmola, Sami Suosalo

The purpose of this document is to present some technical aspects of our Soma blockchain-based platform. The rst 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 di erence 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 agship 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 modi ed 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.
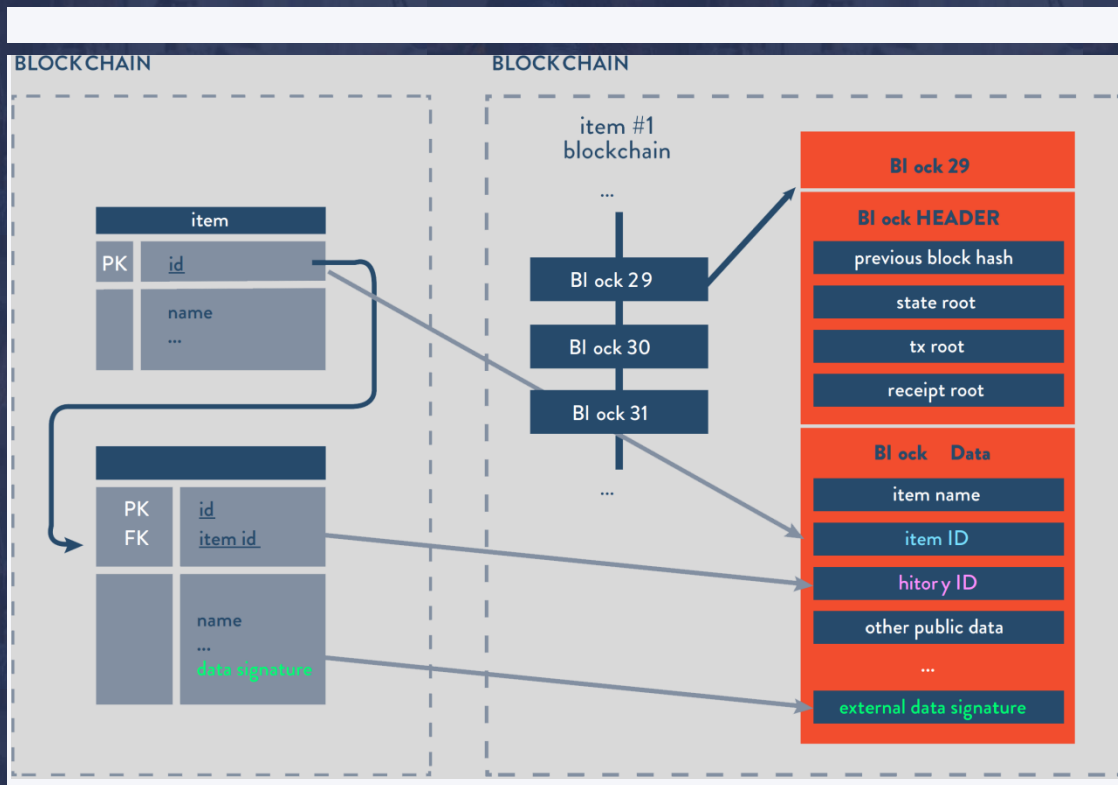
PROMOTING ITEMS USING SCT

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.
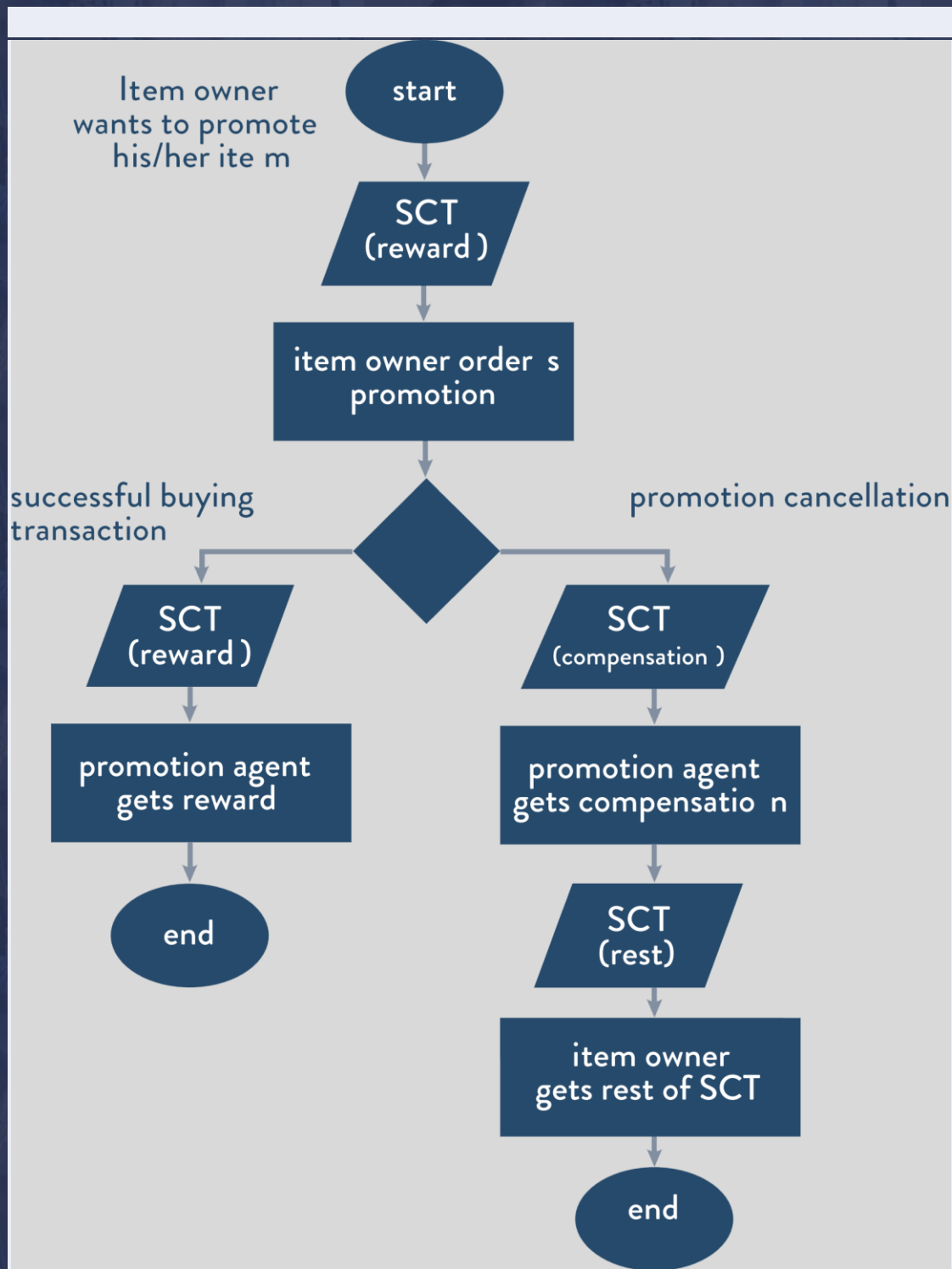
TESTING CONTRACTS

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 Tru e 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. Tru e 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 re lled, 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 o -chain, without involving the Ethereum blockchain for every transfer. Although running o -chain, the Raiden Network promises to ensure transfers with guarantees of nality, 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