SINTEZ

The era of the Global Digital Economy (GDE) on the verge of humanity. Synthesis of new technologies for distributed computing, new ideas and a new worldview creates a world of the future. SINTEZ - We synthesize the future!

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Technical whitepaper of GDE platform SINTEZ

INTRODUCTION

1.1 What is SINTEZ?

SINTEZ is a breakthrough decentralized blockchain platform for the economy of the future that combines traditional and innovative mechanisms of building economic relations with up-to-date methods of security promotion.

Our mission is the synthesis of maximum convenience, security, quality, efficiency, and performance of the new generation and, as a consequence, of the GDE's new level of development. SINTEZ is the synthesis of the economy's future!

1.2 What do we do?

The modern economy is a complicated and cumbersome set of relations of manufacturing, exchanging, and consuming of goods, services, finances, and financial instruments. The key elements of an open economy are banks and management companies, exchanges, goods and services markets of the real economy, and also their producers. In addition to that, the governments carry on business operations that are partially secluded but extensive. Most of the said organizations are regulated in a centralized, nontransparent, bulky manner, have a variety of risks and huge interaction costs that are borne by the users. These fundamental elements are what we focus on when creating a GDE platform, SINTEZ.

We are making a client-oriented interface that allows any person or enterprise to satisfy their needs in handling finances, such as saving, investing, depositing/crediting or trading, in a simple, convenient, efficient, and secure way. Apart from that, the involvement of the market will make it possible, in addition to financial instruments, to sell and buy goods and services without the need for creating additional accounts, for replenishments, risks, charges, and for waiting. This will allow for significantly decreasing the barriers for capital and asset flows, and enhancing the efficiency and viability of the emerging GDE. And creation of simple mechanisms of coordination with governmental authorities and organizations will let the users pay and receive salaries, pay taxes, fines, pay for household services, etc., on a consistent basis.

A natural combination of the previously described elements in one SINTEZ platform contributes to the achievement of our first goal: the synthesis of maximum convenience for users who get the possibility to build any economic relations in a single place.

1.3 The SINTEZ economy and SINT tokens.

The SINTEZ economy is based on SINT tokens. All the charges of the service (and of third-party participants providing the platform's work) will be paid in them. The accumulated funds will be distributed among SINT holders from time to time. That is, the entire platform is an analogue of a miner with a POS mechanism. SINT holders will be able to vote for SINTEZ's parameters of work and its development, to set the fees and, in the long run, to regulate the entire economy in such a democratic way. SINT holders will be able to use the tokens to pay for all SINTEZ's services, and also to earn a profit due to:

- initial growth of the price after the start of trading at the exchange

- long-term growth of the price for tokens

- receiving additional tokens distributed via the POS and POV mechanisms (read more about the distribution in the "The Benefit of SINT Token Holders" section)

- New Year gifts for long-term investors!

1.4 SINTEZ's structure of data.

SINTEZ's database is formed in a transparent way with the aid of unified inter-enclosed "forums". Forums are elements of information exchange among two and more participants of the system, and also between the users and the system itself. After communication of humans with one another, or of a human and the system, the results of such communication are saved into the database that is based on a system for decentralized storage of data (common database). All the information for verification and smart contracts will also be stored on the blockchain. Besides, the users themselves can save any information from the common database on the blockchain if required, with the aid of a simple option in the interface. After that, anyone can restore the open history and obtain the summarized information on the numerical data if they were present in the exchange.

SINTEZ's user interface contains elements of history generalization: calculation of the general financial and economic indices for individual participants and for the whole system, obtaining the history of open dialogues, and so on. This allows each user to get any detailed information that is of interest for them in a convenient form for the purposes of controlling their activity and the work of the entire platform, in case if they participate in managing it.

Each process of information exchange among the elements within the platform, between the users and the platform, between the users and the developers, or among the users, is strictly structured in such a way that the platform itself is the base for a well-ordered set of relations. The users will be able to participate in communities created especially for each type of activity – investors, traders, creditors, sellers, consumers of goods and services, etc. Each element of the system will be provided with a support forum where feedback will be organized, and token owners will be able to discuss the variants of SINTEZ's development and to vote for them.

1.5 Security.

The security of all economic relations has top priority for us. The information security of money transfers is ensured by blockchain-based cryptographic algorithms, and that of investing, by smart contracts. The possibilities of decentralization are implemented stage-by-stage, up to complete decentralization of the entire system and elimination of the need to trust anyone.

To ensure economic security, and particularly the security against exchange risks, the first stable and completely decentralized digital currency was created, which performs the functions of money with maximum efficiency: circulation, saving and measurement of value. A full description and argumentation can be found below. The rules and mechanisms of work, the general financial and economic indices of SINTEZ are open for all the users of the system. That is, the system is completely transparent, and there will be reports published at regular times.

SINTEZ is not owned by any private person or a company. All the information is stored in an encrypted and decentralized form (and the key information is stored on the blockchain), and checked by way of exchange between different nodes, which ensures additional security for SINTEZ and the GDE. The combination of information security achieved due to encryption and decentralization, and economic security achieved by means of implementing the original innovative economic mechanisms described below, leads up to the second global goal: synthesis of security for the economy of the future.

1.6 Integration.

One of the priorities is to integrate all the complicated economic mechanisms and to manage them via a common simple interface that can be understood by anyone. The users will be able to efficiently perform complicated actions, such as selection of the optimal investment strategy, in just a few clicks, without the need to delve into the finer points of trading and the traders' personalia. To preserve their money, one can simply purchase a secure currency, without exploring the question of the purchasing rates of exchange for dollars, euros, and yuans. And then they can purchase goods and services in the same currency, or use it for other purposes. We are going to make the preferences of managing one's welfare, which are now available for wealthy people, absolutely available for everyone. SINTEZ will make it possible to remove a number of barriers between people, financial organizations and markets, countries and regions of the globe.

1.7 Key advantages.

Full value	SINTEZ comprises all the fundamental elements of the economy: the bank, investment management, the exchange, the market, and management of organizations and governmental authorities.
Synergy	The comprehensive opportunities for improvement of the platform elements' work are implemented by means of their combination.
Convenience	A client-oriented interface allows for fulfilling all the needs in handling finances and assets in an optimum manner.
Quality	Operability, velocity, productivity, and maximum liquidity are achieved by way of combining the key economic entities.
Security	Decentralization, encryption, anonymity, transparency of operations, democratic management of the platform and of its development are an addition to the methods for ensuring the information security.

2.1 Backing as an indispensable aspect of money.

Some of the most important functions of money are saving and measurement of value. They are interrelated, because for saving to be efficient the value of the money being saved must be consistent, and for this purpose the value of one and the same unit of currency, which the value of other goods can be measured in, must be consistent. Different goods claimed the role of money during different periods of history, but we will not go into the history of this question here, we'll only note that in the contemporary economy the functions of money are successfully performed by currencies backed by large economies and strong governments that have the possibility of maintain the stability of their currencies. It is the power of the economy, along with the government's guarantees, that makes the modern fiat currencies money. Only such a 100% backing must be possessed by a global currency in the economy of the future.

2.2 Bitcoin is not money.

Let's imagine that you had taken out a loan in bitcoins for developing your business, and its exchange rate grew by 10 times in a year… it's easy to guess that you will most probably go bankrupt. Or maybe you have decided to save your money in bitcoins in order to buy a car with it in a month? But in a month the rate can easily be down by half, and you won't see your car. You can say farewell to the planned trip to your summerhouse…

In other words, bitcoin (the same as most cryptocurrencies), being backed by practically nothing except its infrastructure (the value of which changes quickly, and is difficult to assess in general), is not a money unit because it does not perform the fundamental functions of money. And it will never become money due to its nature. It can rather be classified as the equities of its system having the same name. Other cryptocurrencies and tokens that are more stable have critical weaknesses as well.

2.3 A global digital currency: COIN.

But a global money unit is a vital necessity in the global economy, and therefore we are presenting the GDE's foundation - COIN! A digital currency backed by the entire global economy and by the world's most powerful states is a real money unit that can be used by all the economic entities without exception because on the one hand, they perform all the key functions of money, and on the other hand, they are maximally safe to use.

2.4 Backing.

By analogy with the SDR of the International Monetary Fund, **we back Coin by a set of fiat currencies** of the world's stable economies in accordance with the weights of those economies (see Figure 1). **The weights are determined as the GDP (gross domestic product) as measured by PPP (purchasing power parity)**, normalized to unity. Such an approach was chosen because the primary source of any goods' value is the person or organization that consumes the goods. Therefore the gross product assessed in a consistent manner at common prices (by PPP) is the best way to assess the value of the economy that produces the product. As a rule, the goods produced and sold are the goods that are consumed, which means they possess real value. The summation of different countries' economies makes the global economy, which backs the corresponding basket of fiat currencies that Coin is based on. That is, Coin appears to be backed by the maximum possible value – the whole world!

The initial equivalent of the unit of Coin is set, for convenience, as equal to the most valuable unit of fiat out of the entire basket in the backing. For example, out of the set of three units: euro/dollar/yuan, the euro will be chosen as the unit that is worth more than the dollar and the yuan. Consequently, the sum of fiat in the backing of one coin will be equal to one euro. Let us assume that the weights of the fiats in the backing are Ri (i=1..N, where N is the number of different fiat currencies used). Then the quantity of each fiat will be equal to Ri*(1 euro)/(the price of the i^{th} fiat in euros). The GDP by PPP of China, the European Union and the USA are equal to $23.2, $20.8 and $19.4 trln. correspondingly. Consequently, R1=23.2/(23.2+20.8+19.4)=0.366, R2=0.328, R3=0.306. If, for example, EURUSD=1.2, and USDCNY=7, then the backing of one coin will be selected as equal to a basket of 0.328 euros, 0.306*1.2= 0.367 dollars and 0.366*7=2.56 yuans.

The information about the fiat currencies' exchange rates and the sizes of the world's leading economies (in the form of data on the GDP) is supplied by a network of oracles. Initially, this function is performed by private oracles, then by any third-party oracles for a remuneration in SINT. A median is calculated for all the data, and only those oracles are rewarded whose data were close to the median. In accordance with the information about the economies' sizes, weighing coefficients for the backing of Coin are established once per week, and its price in ethers once per minute. At the moments of interruptions in fiat currency

trading when it is impossible to apply for quotations, the prices are approximated with the aid of forecasting methods (described below).

2.5 Emission and the Maker.

Emission of coins takes place after they have been purchased with the aid of a client interface or API. Purchasing and selling of Coin will be carried out based on ether (and alternative blockchains with smart contracts).

As a direct purchase of a fiat for the backing does not give a possibility for Coin's complete decentralization, we are introducing a mechanism of synthetic backing, the Maker. The Maker's function is to guarantee buyback of coins in some time after they are purchased by the user, if necessary. The work of the Maker is provided for by a set of third-party participants who wish to invest in ether with leverage or to make money from a spread. The Maker's mode of operations is the following:

- Buyers of coins conclude a SCC (Smart Contract Coin) smart contract with the Coin Bank.

- The Bank gives out coins to the buyer and automatically concludes a SCM_ask (SmartContractMaker_ask) smart contract with a Maker participant. Under this contract, the buyer's funds and the Maker's collateral are frozen. Each participant of the Maker can specify the amount of collateral they provide, and also the conditions they are ready to close the contract under. With consideration for these conditions, a closing order is issued.

- In case if, resulting from a change in the Coin's price, the collateral goes below the minimum (the minimum collateral is established by the DAO contract by way of SINT holders' vote), or the condition for closing the SCM_ask is met, the SCM_bid (SmartContractMaker_bid) smart contract inverse to SCM_ask is automatically fulfilled. The contract is concluded either with the seller of coins or with another participant of the Maker who wishes to conclude a SCM_ask contract. If the amounts of finances specified in the contracts do not match, the contracts can be fulfilled partially.

- If it turns out, after one of the next price recalculations, that the SCM_ask holder's collateral is insufficient to cover the liabilities, their contract will be closed, and the remaining liabilities will be passed on to the next participants wishing to conclude a SCM_ask contract. This way, backing is guaranteed for coins even in case of strong instantaneous volatility of the markets. The amount of minimum collateral will be set at the level, at which such events will be extremely rare (no more than once a year) and will not pose a significant additional risk for the Maker's participants.

The conditions for closing a SCM_ask of a Maker's participant may involve reaching a certain price of coin in ethers (a limit or stop order), including in case of executing a SCM_bid order at a price that is slightly lower than the calculated price of coin. That is, the Maker is a platform where third-party participants will be able to invest in ether with big leverage or make money from a spread between SCM_ask and SCM_bid orders, which will be a stimulus for enhancing the liquidity and decreasing the spread when purchasing coins for their users, like at an exchange. Also, a SCM holder can always close it instantly by an opposite order with loss of spread, and exit the position.

To create initial liquidity, a primary participant of the Maker is created that will operate at the cost of funds attracted with the aid of ICO and hedge against risks at a third-party cryptocurrency exchange. After a big number of the Maker's participants appear, the primary participant will only perform a supporting function.

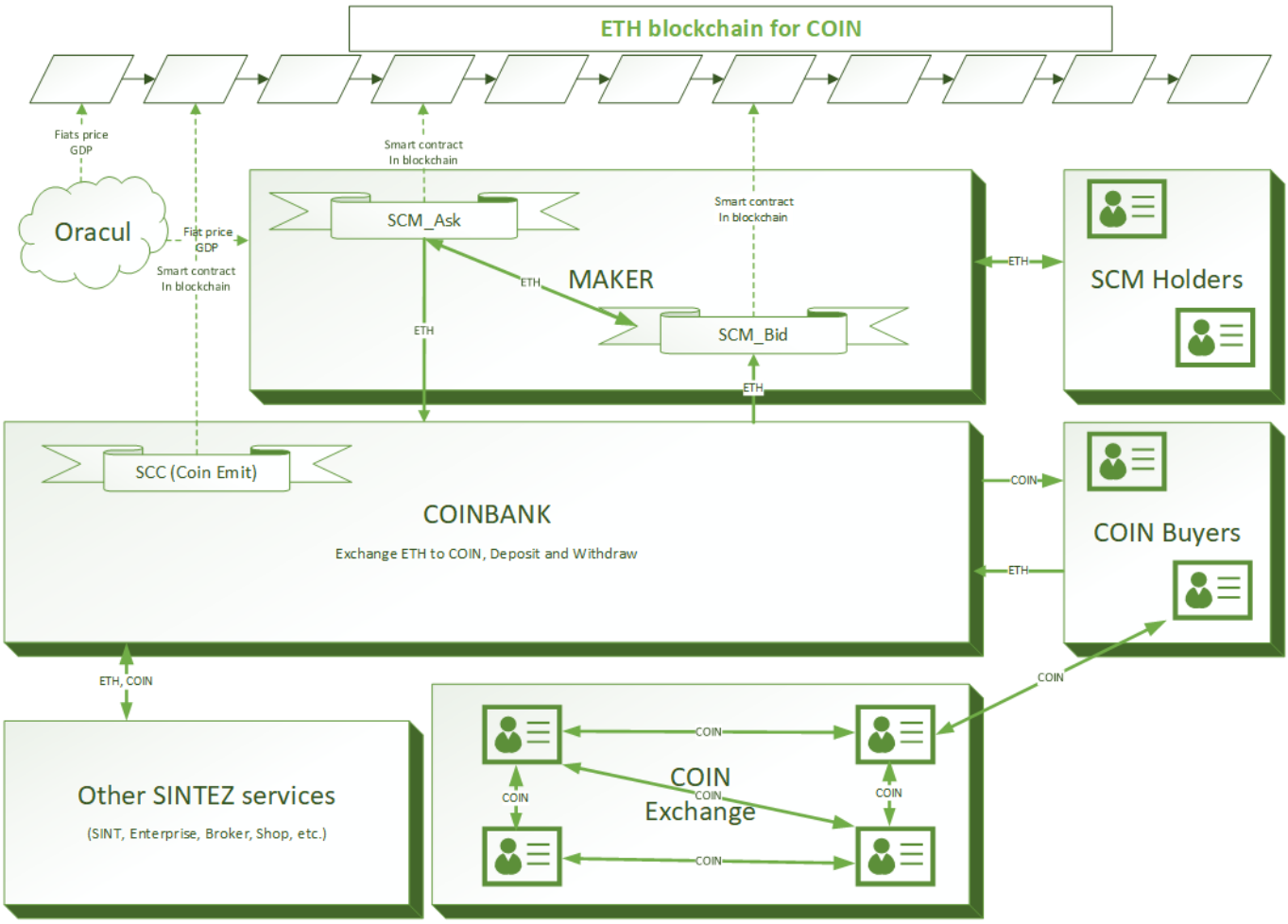


Fig. 1

Let us give an illustrative example of a particular case of the Maker's work. Let us assume that there is a trader named Bob who supports the Maker's work, and there is a buyer of coins named Alice. Bob concludes a SCM_ask smart contract, under which he provides 1 ether as collateral and is ready to receive 2 more ethers. Alice buys 1 ether's worth of coins. The cost of one ether at the moment of buying is equal to 200 coins. Bob's smart contract is partially fulfilled, in the course of which Alice gets 200 coins, 1.5 ethers (Alice's 1 ether and Bob's 0.5 ethers) become frozen as collateral, and Bob receives a long position with 1 additional ether. A SCM_bid smart contract is automatically created, which can be fulfilled with Bob's condition when the price of ether grows to 220 coins. Let us assume that ether has grown to 220, and at that moment Alice is going to sell 200 coins back. Then she becomes a participant of SCM_bid, her 200 coins are canceled, the 1.5 ethers are unfrozen, Alice receives 200/220~0.9 ethers, and Bob receives his 0.5 ethers plus ~0.1 ethers earned on the long position. Considering that the real value of coins had changed little, Alice got back approximately the equivalent of the money she had given, and Bob earned a profit on the growth of ether. This example leaves out a spread, due to which Bob can earn even more, and also other variants of events, for example, fulfillment of SCM_bid at the cost of SCM_ask.

2.6 Denomination.

In view of constant inflation, the countries perform denomination from time to time. Sometimes a country can cease its existence in a certain form at all (an example: the breakup of the European Union and refusal of euro). The coin's value will not change in such a case (there will be simply a redistribution of fiats in the backing). But with the course of time, due to inflation, its value can decrease so much that settlements will become inconvenient. In this case, Coin has to be denominated as well. The total value of the backing will not be changed in any way, and the total value of the coins possessed by each user will not change. But a new unit will appear. The algorithm of denomination is the following:

- the participants vote for a name for the denominated Coin

- a price for the denominated Coin is set, which is equal to the most expensive unit of the fiat currencies in the backing

- The SINTEZ interface is changed for working with the new Coin

Note that in case of denomination of Coin, the old coins will not disappear, all the internal settlements and smart contracts will continue to be performed in coins. Only the interface will change, and the users will be able to still use the old one if they wish.

The same algorithm will be used in case if our world tips into a global long-term deflation, and the Coin unit becomes too inconvenient for settlements.

2.7 Coin's advantages.

Stability.

Each emitted coin is synthetically backed (by means of the Maker) by a set of currencies in proportions corresponding to the global economy, that is, as the result, it is 100% backed by the entire global economy. As a consequence, Coin has minimum currency risks and fulfills the functions of saving better than any fiat currency.

Liquidity.

A fundamental difference of Coin from the existing decentralized but no liquid "stablecoins" is the potential of liquidity growth due to the structure of SINTEZ. All the settlements within the system will be performed in coins, and the platform will suck money into itself from any and all sectors of economy like a vacuum cleaner. Considering that liquidity is a fundamental property of money that ensures efficient exchange, **Coin will be real money**!

Due to the potentially huge liquidity of Coin, the spread for the buyers and sellers of coins will be minimal, which will eliminate the barriers for its common usage.

In view of the openness of SINTEZ, each user can check that the number of coins in the system corresponds to the declared backing in the form of SCM contracts. But an average consumer of Coin will not have to think about its internal structure at all, it is enough just to use it and to enjoy the stability.

Convenience and security.

Being a token, Coin provides the possibility of using the advantages of decentralization and anonymity in money transfers. The same as with bitcoin, any user can install the SINTEZ client program with a Coin wallet on their computer, receive and send money transfers quickly with the aid of a simple interface, without having any contacts or obligations to third persons, only paying a fee to miners for performing the transaction. But unlike bitcoin, as it is already clear from the aforesaid, Coin has maximum backing, and its market value will not change much over the course of time. That is, Coin users can carry on business comfortably in a global currency.

Information security is a critical advantage. The methods used to ensure it are described below.

2.8 Coin's security.

Special attention is given to the information security of Coin. Possibilities for theft pose the greatest risk for any financial system. In case of cryptocurrencies or tokens, such a risk can lead to a complete loss of all the money. A number of measures are taken to eliminate the possible risks:

- Audit from the best white-hat hackers and programmers. Complete check of the code and proving that it cannot be hacked. Using different methods for preventing DDoS attacks.

- Buying, selling and transferring coins within a preset interval of time since the starting time are limited by the speed. This will make it impossible to withdraw a significant amount of money in case of crack.

- Smart contracts use specialized private oracles, with the aid of which a command can be given to instantly close all the contracts and to return the money to the participants. This will allow for suspending the work of the system in case of an unforeseen critical problem ("Black Swan") during the first year of its work. After the expiry of one year, smart contracts will not react to this command, and this centralized element will be eliminated.

- Protection of oracles and their information with the aid of different methods described in Annex 2.

User protection:

- The users can access their accounts with the aid of a private key. The service for personal identification on the blockchain (Civic) is integrated, which will enhance security even more and ensure preservation of individual funds. Personal identification will also be required for transfer of big amounts.

- The "Escrow" system with a multisignature will allow for confirmation of transfers by a third-party guarantor.

- For compatibility with third-party software, a wallet owner will be able to backup the private keys to a third-party medium. Only the user will have access to the private keys of the personal accounts.

2.9 Comparison of Coin to the existing exchange systems.

→Parameter ↓System	Low commissions	Backing (Provision)	Blockchain	Anonimity	Decentralized emission	Transactions speed	The liquidity growth potential
COIN	**+**	**+**	**+**	**+**	**+**	**+**	**+**
Fiat Banks	-	+/-	-	-	-	-	-
Visa/ MasterCard	-	+/-	-	-	-	+/-	-
PayPal/ WebMoney	-	+/-	-	-	-	+/-	-
BitCoin	+	-	+	+	+	+/-	+/-
Tether	+	+/-	+	+	-	+	+/-
Steem Dollar	+	+/--	+	+	+	+	+/-
Digix Dao	+	+/-	+	+	-	+	+/-
BitShares USD	+	+/--	+	+	+	+	+/-

2.10 The Coin Bank.

The first fundamental element of SINTEZ that is planned to be created is the Coin Bank. It has the function of exchanging cryptocurrencies to coins and issues coins every time when someone wants to buy them in their account. That is, in fact, the issuer of Coin is the platform user, and the Bank only performs the mediation function, forming a collateral through the Maker, charging the fee established by SINT holders, and organizing a record of the user's transactions.

The possibility is implemented to recharge the wallet, in addition to coins, with USDcoins, CNYcoins, GOLDcoins, and other synthetic coins backed according to a scheme that is similar to the one described above, in case if the user wants to store their money in equivalents of classical finances or assets.

Coins can be visible in the Coin wallet after they are purchased at a specialized exchange office of the Bank, or after other participants of the system transfer them to that wallet. Cryptocurrency accounts are present at the Coin Bank as a network of related accounts on different blockchains. An embedded interface associating these wallets with the rest of the system makes it possible to exchange or freeze the money depending on the operations performed.

After the Exchange and the Market are created, the Coin Bank will be used for granting loans backed by the traders' or sellers' funds. That is, it will become possible to attract the users' deposits at interest and to grant backed loans to other participants within the scope of SINTEZ. The maximum size of a loan and the other parameters of working will be determined automatically

in accordance with the form of activity and established by way of SINT holders' vote. This way, the Bank will be able to fulfill the classical functions of banks, doing it now on the basis of the main unit of account – the Coin.

The Bank's work, the same as everything related to Coin, will be completely transparent. It will be possible to obtain all the information from the common database, to analyze the consolidated figures, and to check the balances (deposits/loans, etc.).

So, we are synthesizing an innovative infrastructure for a fully-fledged, convenient and secure circulation of a global currency, the Coin. Its functioning is provided for by the Coin Bank. In the future, as the digital market grows, operating of coins for the end user will be simplified due to the possibility of making payments from a smartphone/tablet after installation of a mobile application with the full functionality of SINTEZ or using credit cards with support of Coin.

3.1. The classic problem of investments.

In general, investments are considered vital for stable growth and sustainable development of the global economy. That is why we pay special attention to this topic. Investing is a challenge. A potential investor must answer a few rather complex questions. Where can I invest? How can I match my investment preferences with the available tools? How would it be better to manage the investments — whether to do it by myself or through an intermediary; if with the help of an intermediary — how to choose them, whom can I entrust my money? To answer each of these questions, you need to make a large research. Security, efficiency, and success of your investments will depend on your solutions.

In many cases, investors are not professional managers, so they have to rely on third parties, such as investment companies that act as intermediaries between investors and traders who carry out their trading strategies using outside funds.

3.2. Solution — Smart Investing.

The jewel in the crown of SINTEZ is our effective investment solution. We deliver an innovative system —Smart Investing (SINT). Our user-friendly interface helps investors form a request for fund management and optimally distributes such funds using an intelligent algorithm. Investors and traders participate in smart contracts within the SINTEZ platform. Smart contracts enable traders to automatically receive funds to manage. At the end of the management cycle, traders return the funds, and investors get their money back along with profits.

Below you will find an algorithm which ensures the utmost efficiency, optimization, and security of your investments, as well as provides professional traders with an opportunity to attract maximum funds and earn maximum profits using their trading strategies. In this context, a trader is a general term referring to private traders, management companies, investment banks, hedge funds, and any other organizations engaged in professional asset management.

3.3. Broker and traders.

The analogue of a broker enables trading in third-party stock exchanges within the SINT. Traders can trade various instruments on stock exchanges, which they can access via the broker client, and implement their own strategies with attracted funds under the control of the SINT (in addition to cryptocurrency exchanges, we plan to add trading platforms dealing with classic assets and real estate, ICO platforms and an additional tool — Coin Maker). Traders can choose any of the following as their reward: the desired share of profits and losses (if they have their own funds in their wallets), percentage of the funds managed, fixed daily reward, and/or one-time payment. In other words, traders can set a flexible reward system and manage their fund attraction policies. Also, in case of trading in illiquid instruments, he will be able to specify the minimum period for which a refund can be made.

Since from a point of view of a third-party stock exchange, SINTEZ is a broker and money input/output is performed using accounts beyond the control of the trader, traders cannot withdraw invested funds anywhere except to their own accounts within the SINT, if necessary, the system will automatically close certain positions and return the required amount to the investors (a margin call analogue). It means that the condition of timely return of investments stipulated by the smart contract is strictly observed.

To facilitate trading activities, we use liquid deposits — rather than transferring traders' deposits to a stock exchange, they will be created within the broker using own funds (funds raised with an ICO).

Traders receive funds from investors as coins. If a third-party stock exchange preferred by a certain trader does not support deposits in coins, traders may be required to exchange currencies. To do this, traders can use one of the following:

— Liquid deposits using funds raised with an ICO. Funds of a team allocated in the stock exchange will be transferred to the trader in exchange for his/her coins or at his/her request.

— In case of insufficient funds required for such deposits, within a year after the SINT launch, traders will be able to receive attracted funds directly in ethers (ETH) and then transfer such ethers to the stock exchange. All internal payments will be in coins.

— You can exchange your coins for ETH using the Coin Maker. This involves additional costs and thus will encourage traders to trade in stock exchanges that support deposits in coins.

Traders can always see the amounts they have received and the amounts they have to return. Thus, traders can close some positions themselves to satisfy the conditions concerting return of the attracted funds and avoid forced closure.

As demonstrated below, traders are not in a position to foul play — they are not interested in changing their strategy to the disadvantage of investors or engaging in fraud. Fund distribution parameters depend on the trading history, which means that traders having a positive trading history will receive larger funds. We drive a competitive environment; in other words, traders are interested not only in the best performance indicators but also in minimum rewards for their services, as well as a reasonable share of losses — something that investor-manager relations often lack.

In addition to the general algorithm, we plan to enable corporate access. It means that a company which has many investors or traders can add them into the system within one account by providing them with keys for sub-account. Thus, a management company will be able to distribute funds to several traders and provide each of these traders with access to a separate account where they can implement their strategies. Trading results of such traders will be independent, while only the company management will have access to the general account and will be able to control all sub-accounts.

3.4. SINT interface.

SINT UI has a simple user-friendly structure of parameters of investment strategies which allows for automated identification of investors' attitude to profits, risks, investment markets, and traders.

Investors have minimal interactions with traders. Investors only need to specify their preferences and sign a contract with the system — after that they don't need to reflect on how traders do their job — just set the parameters of the traders you trust, such as duration of trades, managed amounts, and total funds earned for other investors. Only traders who meet the specified parameters will be able to manage your funds.

Investors can view dynamics of growth of their investments up to the completion of the investment period or early withdrawal of funds. After return on the funds, investors can reinvest them taking into account new preferences or use them for other purposes.

3.5. SINT algorithm.

Let us denote portfolio dynamics history (%) of each trading strategy by S, and a set of such strategies/histories by **S**. N is the number of strategies. In this context and in the context of the platform, this only refers to information on transactions (algorithms are private). This information is stored in dedicated nodes which receive data on the trading transactions. Miners that run such nodes will solve the optimization task below for a certain fee.

When distributing funds of an investor (see Fig. 2), the SINT can assign each strategy with certain weight Ki (i=1...N) so that $\sum Ki=1$. After that, the system distributes the funds between the strategies in proportion to such weight. If the funds are distributed between strategies with a history longer than T days, we can restore changes of an abstract portfolio to the present day as if the distribution and beginning of the management process were T days ago. Such changes also include trader rewards as if they had set them in the past and withdrawn them from the invested funds under their management. Thus, we have a new strategy which is in fact a superposition of strategies from the **S** set and with new estimates of profit and loss parameters based on the history. Let us denote a set of all such synthetic strategies by **Z**.

Each strategy Z of the **Z** set has a nonuniform vector of parameters **P**={ **P0** , **Pm** , **Pt** }

P0 is a vector of parameters which includes the **expectations** of the following formal trading characteristics:

- Average daily profit (%)
- Average daily loss (%)
- Average drawdown (%)
- Maximum drawdown in the history (%)
- Duration of the average drawdown (days)
- Average maximum drawdown for the investment period (%)
- Duration of the maximum drawdown (days)
- Ratio of the average profit (per drawdown) to the average drawdown (profit to risk)

- Recovery factor (ratio of maximum profit to maximum drawdown)

Pm is a vector of parameters which characterises markets in which a particular strategy operates (which markets are present and which are not available).

Pt is a vector of parameters which characterises traders and their strategy (which are included in Z):

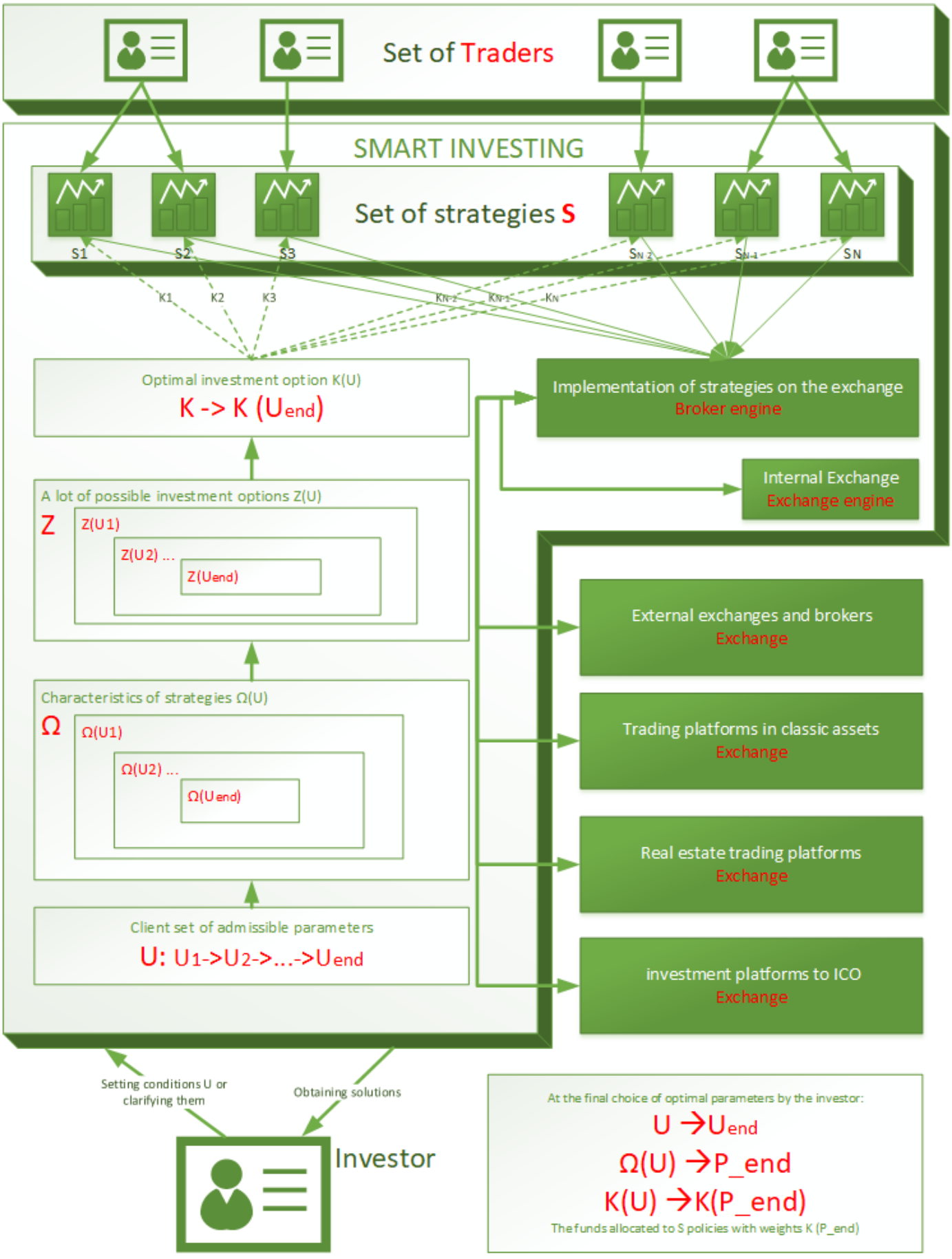
- Minimum total trading time (minimum experience)
- Minimum time of strategy use (T)
- Minimum amount of funds involved in the strategy
- Minimum amount of funds earned by a trader

Let us denote a set of **P** vectors corresponding to **S** by **Ω**. Thus, we have a multidimensional set of vectors corresponding to all possible strategies that could be deduced by linear distribution of an investor's funds in the past.

In our system, investors can choose the investment period, amount of funds, and ranges of parameters — **P** components. The system is user-friendly, and even amateur users can easily and precisely define their preferences concerning the final investment product. Users can fix some range limits and set condition **U** according to which the system suggests the allowable ranges for other parameters, i.e. set **Ω(U)** (for specific mathematical techniques used to solve this problem and calculate vector **P0**, see Annex 1). Each time an investor pays a commission fee to the SINTEZ NET network of nodes in SINT tokens which depends on the desired precision (for the description of the structure and the operation algorithm of SINTEZ NET, see Annex 2). To define the optimal final vector **P_end=Ω(Uend)** of the **Ω** set, which depends on an investor's preferences concerning profits, risks, investment markets, and traders, an investor needs to narrow down range limits and fix them one after another.

Having defined **P_end**, we need to find the corresponding probable Z(**P_end**) strategies and Ki weight sets which will determine distribution of funds between trading strategies (see Fig. 2). The more strategies we have in the **S** set, the more diverse and flexible choice an investor has.

Searching for **S** and the corresponding **P_end** is a complex task every investor has to solve. It becomes even more complex when we take into account rewards of traders and their share of losses. The SINT delivers an automated precise and convenient solution. As described above, every Z strategy takes into account rewards of traders and their share of losses. As all investors chooses Z(**P_end**) strategies with maximum profits and minimum risks, S strategies with the most appealing parameters (including minimum trader rewards or higher share of losses) will have more weight. It means that given the same professional qualifications, traders compete for fund raising, i.e. decrease their fees. This is how the digital market of professional management services is shaped. In addition, traders also can use the described solutions to analyse reasonable rewards, which would allow for sufficient fund raising, as well as to understand if their strategy is competitive and decide if it needs revision.


Set of Traders
SMART INVESTING
Set of strategies S
S1
S2
S3
SN-2
SN-1
SN
K1
K2
K3
KN-2
KN-1
KN
Optimal investment option K(U)
K -> K (Uend)
A lot of possible investment options Z(U)
Z
Z(U1)
Z(U2) ...
Z(Uend)
Characteristics of strategies Ω(U)
Ω
Ω(U1)
Ω(U2) ...
Ω(Uend)
Client set of admissible parameters
U: U1->U2->...->Uend
Implementation of strategies on the exchange
Broker engine
Internal Exchange
Exchange engine
External exchanges and brokers
Exchange
Trading platforms in classic assets
Exchange
Real estate trading platforms
Exchange
investment platforms to ICO
Exchange
Setting conditions U or clarifying them
Obtaining solutions
Investor
At the final choice of optimal parameters by the investor:
U →Uend
Ω(U) →P_end
K(U) →K(P_end)
The funds allocated to S policies with weights K (P_end)

Picture 2

3.6. A case.

Let's review a case of SINT work. Bob is a trader, and Alice is an investor. Bob has a great profitable strategy S1. Bob analyses the competitive ability of S1 using SINT and decides to set a reward of 15% of the profits and share 5% of losses. Alice invests 1,000 coins for one day. She selects the preferred investment parameters **U**a and signs a smart contract. After that 200 of her coins are transferred under the management of Bob (K1(**U**a)=0.2), while the remaining 800 are transferred to other traders.

In total, Bob receives 500 coins (200 coins from Alice and 300 coins from other investors). Bob also has his own funds (100 coins), so in total, he manages 600 coins. Bob buys 5 bitcoins for 300 coins and invests the remaining 300 coins to buy ETH 50 at his favourite Polofinex exchange.

In the first scenario, the next day 5 bitcoins can be traded for 400 coins, and ETH 50 — for 260 coins. In this case, Bob's portfolio has grown by 60 coins, or 10%. Thus, Bob earns 20 coins with Alice's 200 coins (for Alice and himself). His remuneration amounts to 20*15%=3 coins, which means that he has to return 200+17=217 coins to Alice. To do this, Bob closes certain positions, and in 24 hours after the investment, the system transfers 217 coins to Alice's account. If Bob forgets to close the positions by the required time and he does not have any coins on his account, the system automatically closes positions in proportion to their amounts to release 217 coins. In this case, the system sells (400/660)*217/(400/5)=1.64 bitcoins and (260/660)*217/(260/50)=16.4 ethers at Polofinex. 217 coins are then transferred to Alice's account. Now Bob has 100*(1+10%)+50*15%=117.5 own coins and 660-217-117.5=325.5 coins of other investors (the current return on these investments using S1 amounts to (325.5/300)-1=8.5%, just like in case with Alice) as 3.36 bitcoins and ETH 33.6. Using the SINT, Bob managed to earn (117.5/100)-1=17.5% i.e. an additional 7.5%). In general case, the system will release funds sufficient to repay liabilities to all investors.

In the second scenario, Bob has a loss. Let us assume that the value of 5 bitcoins has dropped to 200 coins, and the value of ETH 50 has increased to 340 coins. In this case, Bob's has lost 60 coins, or 10%. Alice's funds now amount to 180 coins, and the loss of 20 coins will be divided between Bob and Alice. Bob's share is 20*5%=1 coin, which means that Alice has lost 19 coins and will receive only 181 coins. If Bob doesn't have sufficient funds on his current account, the positions will be closed the same way as specified in the first scenario.

Please note that this is only an example of SINT work. For the sake of simplicity, we don't take into account the impact of a non-zero spread and exchange commissions, loan options, or other nuances. We left out certain details in this example, as well as in this Whitepaper in general to keep it simple and not to bother the reader with insignificant information.

3.7. SINTEZ NET.

SINTEZ NET is a network of nodes which perform investment tasks. Collection of information on trading histories and parameters of traders' remunerations, as well as perform SINT tasks (in this document, "SINT tasks" and "investment tasks" refer to calculation of the optimal allocation of investment funds among traders taking into account investors' preferences regarding profits and risks) require large memory and computing power. To achieve high performance, SINTEZ NET comprises a number of principles:

1. Upgradeable optimization methods (see Application 1. Updates will benefit the miners as more advanced methods require less resources).
2. Storage of solutions (the existing solutions are used as starting points for the search for more precise and relevant solutions).
3. Data comparison (if data of two nodes do not match, data of several nodes are compared to identify and exclude the bad node).
4. Distributed computing (an investor can specify precision of calculations which implies different commission fees. The more he/she invests, the more he/she is interested in more precise and expensive solution, the more nodes are involved in handling of his/her task, and the less probable is deception by unreliable nodes).
5. Data security (periodic data saving in decentralized repositories).

For more detailed description, see Application 2.

3.8. SINT general scheme.

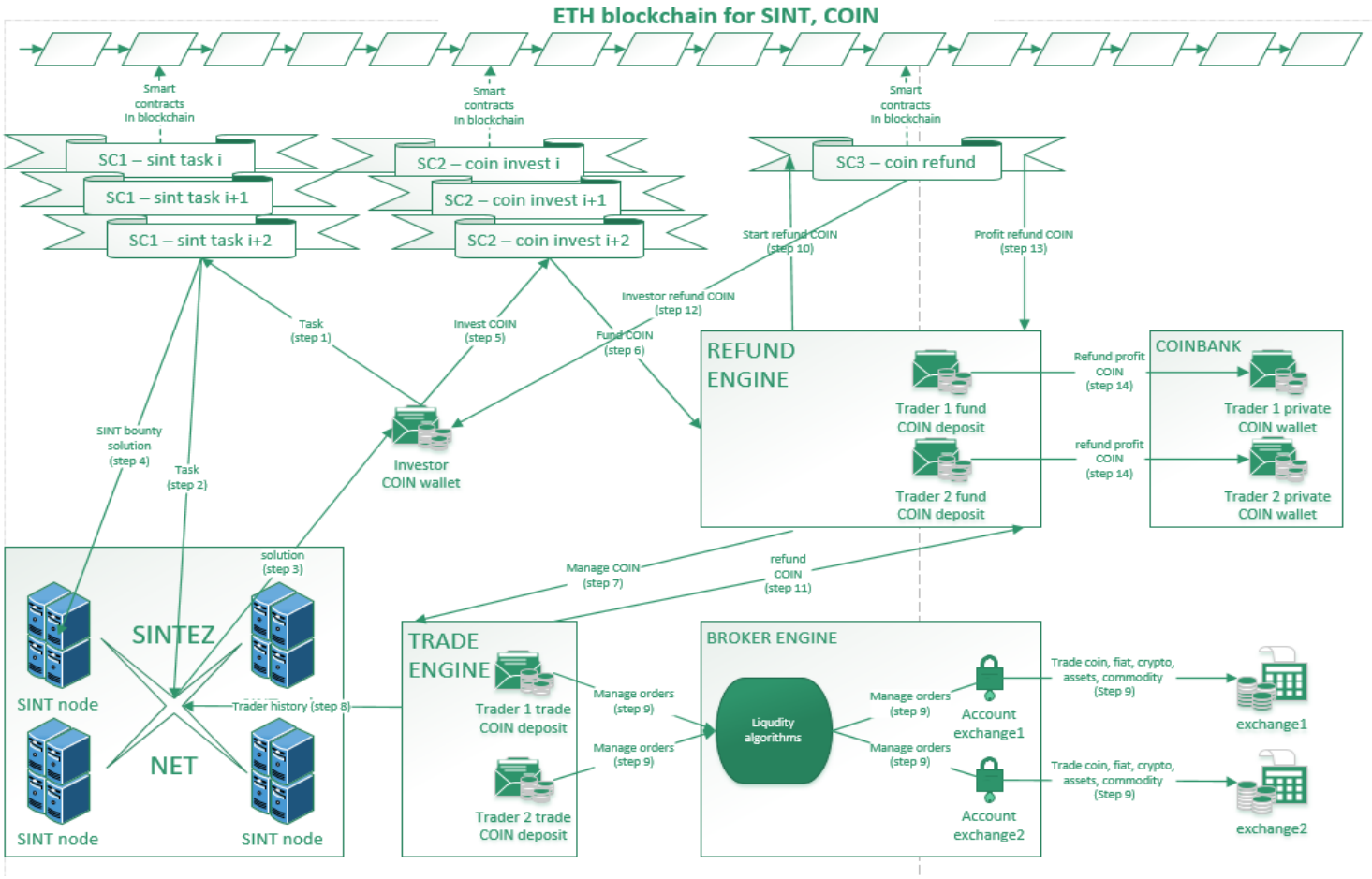


Fig. 3

Clarification of the scheme (Fig. 3):

Traders regularly send their trading history and can invest and withdraw funds using their private accounts.

Funds on traders' accounts are linked to the Refund Engine — investments transferred under the management of traders.

Trade accounts of traders are linked to the Trade Engine — traders make transactions using these accounts.

1. An investor sends a request for investment (creates smart contract SC1)
2. The SINT network of nodes receives the request and performs calculations
3. The SINT network sends a response to the investor (smart contract SC1)
4. The SINT network receives a SINT reward (smart contract SC1)
5. The investor invests COINS (to smart contract SC2)
6. COINS are transferred to the refund accounts of traders (smart contract SC2)
7. Traders transfer the funds to the trade accounts for the investment period.
8. The Trade Engine transmits the data into the SINT network to the Datastore module to calculate new tasks.
9. The Broker Engine controls positions and liquidity:
    - Matches part of orders within the system
    - Opens and closes orders across the pool of stock exchanges via the stock exchange accounts
    - Aggregates orders

Performs periodic automated reallocation of funds between accounts:

The logic of reallocation is determined by smart contract SC3.

10. A command is sent to the smart contract to run a function of funds return.
11. Calculation of profits and losses. Closing of traders' positions to cover losses and transfer from the Trade to the Refund deposits.
12. Return of the funds to investors.
13. Distribution of profits to traders.
14. Traders always know how much funds they have under their management, how much they owe and their profits. They can transfer their profits to their private accounts.

3.9. Import of the existing trading strategies.

A lot of traders have experience and a successful trading history but don't have any history in the system. To attract such traders, we'll define an algorithm that will allow to verify and export their trading history into the SINT. Such traders will be able to attract much funds because in the first place investors will select traders with long trading histories and stable profits.

It is worth noting that all calculations within the system are based solely on trading histories. Such information is referred to above as a "set of strategies **S**". No other information about strategies, including trading decision-making algorithms is provided. Such information is the exclusive property of traders, which ensures security and confidentiality of commercial secrets.

3.10. Advantages of the SINT.

Optimization

Unlike the existing and emerging systems where investors can trade using strategies of successful traders but have to select them themselves, the SINT offers an novel algorithm of automated efficient trader selection and distribution of funds between such traders in according with unique preferences. **This is a fundamental advantage of SINTEZ which makes investing easy and optimizes the process.**

User-friendliness and security

A user-friendly interface enables any user to invest wisely.

Given a large number of traders and characteristics of their strategies, the SINT helps investors solve the complex essential task which can be above their bend. Lacking a precise solution, investors have to invest at random not being able to order development of a tailor-made investment solution.

In addition, investors that don't use the SINT, are always at risk as one or two strategies, which were selected "manually", could impair trading quality exactly in the investment period and will lead to worse results than those of the previous case. The SINT distributes funds between a large number of strategies and traders to diversify such risk as much as possible.

Users can track their investment histories online.

Speed

We have developed mathematical and technical approaches to fast search for the best investment solutions.

Incentives

We attract successful traders providing them with an opportunity to raise the maximum amount of funds under their management. They compete and are motivated to set the minimum market price for their services. They can quickly raise funds by exporting their trading history from third-party platforms.

Investors, on the other hand, acquire access to the widest range of the best investment products. It motivates old users to invest and attracts new users.

Strong positive direct and inverse relations between the investment instrument and management quality leads to faster economic growth.

Flexibility

Investors can select any investment period and quickly withdraw the invested funds at their own discretion without any penalties.

Traders can set a flexible reward system and analyse their strategies to define their level of competitiveness. In case of receipt of additional funds, traders can automatically extend their positions.

Reach

By connecting to various stock exchanges and investment platforms, traders can trade in cryptocurrencies, usual stock, and real estate assets. Integration with ICO platforms enables traders to invest into new tokens of different projects at the time of their

issue, which makes their range of instruments even wider. It means that the SINT will be very attractive to a large number of traders that manage various assets.

Liquidity

Traders can improve their trading liquidity by a number of methods (see below).

Security

Investors and traders participate in smart contracts.

Methods of node performance and protection reduce the risk of improper distribution of investments between traders (see Annex 2).

Repayment of funds to investors is automated with the help of a dedicated algorithm.

Investing in stable coins minimizes exchange risks.

Information about trading algorithms of traders is confidential and is not required by the system.

Information security is ensured by the same methods as used for coins (see above).

3.11. Artificial Intelligence for trading.

After implementation of the basic GDE (global digital economy) elements, we plan to develop a distributed artificial Intelligence System which will manage invested funds on a par with traders. This algorithm will learn using market data, as well as available information on strategies of other traders. SINT based on AI will bring investments in the economy of the future to a new level!

4.1. Integration with external stock exchanges and a private stock exchange.

In addition to the Coin Bank and Smart Investing, SINTEZ will be integrated with stock exchanges and markets of goods and services. The integration will be undertaken in two steps. At the stage of SINT development, we will connect the system to external stock exchanges, including decentralized ones, to diversify traders risks (if they trade on different platforms) as none of the existing exchanges is totally secure, including the existing decentralized exchanges which also have low liquidity.

At the first stage, liquidity will be ensured by the following:

— connection to different liquidity providers

— instant depositing of traders' funds using funds raised with ICOs

— matching orders within the platform

— trader financing by the Coin Bank

Security, liquidity, fast speed, and user-friendliness of SINTEZ lead us to our third important objective — synthesis of high quality of digital economy.

Transition between a partially centralized solution and complete decentralization will mitigate the risk of errors which may result in serious consequences. The centralized solution will allow to trial the scheme ensuring proper control of the funds and security of financial information by means of cold storage.

The second stage implies establishment of a liquid decentralized stock exchange which will allow for complete abandoning of centralization of the SINT. Establishment of a private stock exchange will significantly improve security and will allow to reduce commission fees.

4.1. Integration with external markets and a private Market.

Decentralized markets will also be integrated into the platform. This will allow users to effect a wide range of purchases and sales for coins. Establishment of a private decentralized market will ensure the utmost efficiency of the platform. Being a comprehensive trading platform, it can be used for purchase, sale, and exchange of goods, services, and works of robots and machines. If a user has available funds, he/she can store the reserve in coins, deposit them, or invest via the SINT. In addition to the standard purchase and sale methods, we conduct auctions according to which a purchase smart contract will be executed if the posted price is better that offers of other participants.

4.3. Synthesis of new products.

After development of the required set of the basic elements of the platform, they will be fully integrated, and new opportunities of the economy of the future will be synthesized.

The Coin Bank will start attracting user deposits and use them to issue loans to businesses and traders in the market — quickly and easily. This will also be implemented using smart contracts that ensure automated loan repayment at the required time or bankruptcy of the borrower if the total collateral (property value in case of its sale on the market) is less than the loan amount. We get a comprehensive banking product as a loan in coins which can be used within the SINTEZ system. Given the highest level of security and the potential supply amount, loan rates are expected to be much lower than those in alternative financial systems (e.g. in stock exchanges which only have funds of the participants of the exchange). Traders within the SINT can invest not only in traditional stock exchange instruments, but also in investment goods of the market.

Additional benefits of the integration will be available after attracting a business to the system. Companies will like secure trading conditions, as well as cheap loans and employee search. They will also be able to hire workers using smart contracts and pay them in coins. Information on such income will enable workers to take out mortgages and automatically repay the loan against their wages. Such information can also be submitted to tax authorities. Users will be able to automatically submit data on their income, pay tax to the relevant authorities, and obtain subsidies when public services will be integrated into the platform.

In addition to the above, we also plan to integrate the platform with decentralized systems of enterprise and public authority management and develop custom solutions. This will allow to perform various economic transactions within a single platform (see Fig. 4). Such standardization along with a high level of security will free up tremendous resources that are now spent on work with electronic documents, large amounts of information, systems of data storage, processing, protection, etc. SINTEZ will allow to reduce bureaucracy costs by providing people with an opportunity to perform more creative work free from monotony and routing.

Fig. 4

OPTIMIZATION AND DEVELOPMENT OF THE PLATFORM

In future, owners of SINTEZ tokens will be able to make strategic decisions concerning platform management. Commission fees for operations and priorities in implementation of strategic projects financed by SINTEZ funds will be defined by poll. Democracy would further enhance transparency of the system.

Our goal is to create a fully decentralized and independent system. One step towards this goal is establishment of additional nodes of developers — independent teams that will implement platform update projects. Token holders will be able to vote for specific teams that will implement the projects and for rewards of such teams in case of successful implementation, as well as for integration of such updates into the platform. This way, step by step, we will develop a comprehensive and fully decentralized platform of the global digital economy.

SINTEZ — WE ARE SYNTHESIZING THE FUTURE!

APPLICATION 1

This application describes the broadest method classes, which are supposed to assist in the investor's task solution. Certain formulas and program code depend on researches and the trade-off between the additional accuracy (thanks to the improved or corrected model) and the computational cost that the SINT users agree to pay.

STRATEGY INDICES PROJECTION

It's necessary to determine the expected profit and risk indices (components of vector **P0**) for every synthetic strategy Z. It's necessary to forecast the growth of the investment capital placed under management and the drawdown.

1.1 The expected profit per time unit.

Undoubtedly, the profit is the most interesting index for investors. To forecast the expected profit or income in Z, it's enough to project these indices for each of the traders. Obviously, the resulting forecast for Z is a superposition of all strategies projections from **S** with weight factors **K**. For each separate projection, it's enough to take trade strategies data in the form of time series and use the known methods of short-term and medium-term projecting of these series. From the technical point of view, it will be realized through frequency capture of data on the trading sessions of all the traders and the detailed trading histories requests if they're imported. Accurate projections require 'sufficiently long' trading histories (much longer than the user-programmed T0 investment period). Otherwise, the expected indices are calculated as the average trade indices. Nevertheless, supposing most investors would like to entrust their funds only to traders with long (in comparison to T0) trading histories, the expected indices are calculated more accurately.

Time series projection is reduced to building adequate models of a non-random (long-term and/or cyclical and/or seasonal) time-dependent component and random excesses in the form of a stationary series and then estimating future series values on the basis of these models. The methods of extracting a non-random component that are given below are the ones we're going to implement in the course of the system's development.

- The first approximation to be used is a supposition that there is linear dependence between a non-random component and time. I. e. the model involves building the linear regression and estimating its coefficients according to the least squares method. Even the simplest projection of this type allows to give weight to traders with 'recent' increase in indices. It may be connected, for example, to active strategy improvements and, undoubtedly, such cases are more interesting and advantageous.

- The second model is building nonlinear regressions, although this method probably doesn't offer significant improvements comparing to the first one.

- The moving average algorithmic methods, including the exponentially weighted moving average method. In this case, the nonrandom component approximation is achieved through each-point smoothing without the function type initial assumption. The importance of the latest observations in relation to the previous ones is taken into consideration for the exponentially weighted moving average.

- The power weighted moving average method, which we offer. In this case, the weight of the previous data decreases not as quickly as exponentially, but according to the power law. This discounting allows to consider a long 'data tail' and reflect rather long-term tendencies in strategy indices, at the same time giving higher priority to the later than earlier observations.

Methods of modelling a random component in the form of a stationary series:

- The first approximation doesn't take random components into account.

- The second approximation involves building ARMA (autoregressive moving average) models of different complexity and, consequently, effectiveness. These models represent random series value dependency on the linear combination of the previous series values and 'white noise' impulses.

- We offer our own method. In general, it has been proven that ARMA models come down to ordinary AR (autoregressive) models, which represent the time series value as a superposition of a finite or an infinite series of the previous values plus 'white noise'. Parameterization of these models is connected to the trade-off between the model's complexity and the parameter estimation consistency. The problem can be well solved by decreasing parameters through introducing the series coefficient

dependency on time. Thus, you need to estimate far fewer parameters (one or two for some distributed lag models) in the model. At the same time, we achieve logical remote data influence discounting. Our method (similarly to the nonrandom component distinguishing method) involves the power law discounting and achieving the same advantage before the analogous discounts in considering the 'long tail'.

- For the optimization of the above-given algorithms and projection through pattern recognition and description, we're going to use machine of neural networks, including that with Bayesian networks when there isn't enough data for other algorithms, deep learning for indicating the trader's improved strategy or, on the contrary, competitive performance decrease, as well as the genetic algorithm and the simulated annealing for the parameter optimization.

1.2 The expected loss per time unit.

The methods of the expected average loss per time unit projection are similar to those described above, except for the fact that it's necessary to make a projection for every unique strategy Z. Of course, it results in a significant growth of the demanded capacities, that's why we will give preference to simpler methods to estimate this value.

1.3 The average drawdown and its duration, the ratio between the drawdown risk and the profit, the expected maximum drawdown during the investment period.

What is special about projecting these indices is that these time series don't have equidistant observation points. The time distance between the two nearest drawdowns is a random value. We will use the averaging method to project such series:

- Dividing strategy Z into a number of equidistant time points in such a way that one time unit contains much more than 1 drawdown.

- Averaging drawdown indices.

- Forming a time series with equidistant time points and values equal to average.

- Projecting the obtained series with the help of the above-given methods.

We should note that, similarly to Paragraph 2, it's necessary to project these series for each strategy Z, which significantly limits the model's capacity. The length of the obtained time series (which should significantly exceed the averaging period) also becomes an important condition. Otherwise, the projection is determined as Z indices average.

1.4 The maximum drawdown, its duration and the recovery factor.

Although it's just a single incident during the whole trading history, the maximum drawdown poses the biggest threat for traders and investors. At this, the recovery factor becomes the most interesting index in the whole strategy. It's impossible to make a projection on the basis of a single incident in the past. That's why the expected index equals the index that was once observed in the past. Of course, when the maximum drawdowns are equal, it's better to choose the strategy with higher profit. Finding the best recovery factor allows to take this into account. The longer Z history is against T0, the lower are chances to encounter such a drawdown, therefore careful investors will be able to choose longer strategies in order to optimize this risk.

SEARCH FOR OPTIMAL SOLUTIONS

The investor's task solution is divided into a number of steps, and, at each of them, the investor specifies conditions **U** that he wants to impose on the strategy parameters while SINT offers acceptable parameter intervals for further choice – If there are any solutions with these conditions at all. The process goes on until the only one (or a very small group) optimal solution is found, which precisely reflects the investment preferences. Calculation of all possible combinations is an unimaginably difficult and unnecessary task. We proceed from the belief that any rational investor sets the limits for the minimum profit and the maximum loss. Thus, the task requires mathematical programming at every step, components of vector **P** being loss functions and vector **U** being non-strict conditions. After optimization, the investor gets the widest range of options for further limiting. We will represent methods of solving the optimization task and options for the planned optimization of these methods below.

We should note that we don't apply the famous Markovitz portfolio theory directly, because the real investment risk depends not entirely on the profitability variance (but, for the most part, on the maximum drawdown), the profitability itself appears not in the Gaussian distribution, and our goal is to accurately reveal the preferences and solve the investor's task. Nevertheless, this theory is used for solution search optimization described below.

2.1 Beginning the search.

At the first step, the SINT system forms a set of vectors **P** without limitations (**U**) for the investor. The next methods are used for this purpose:

- Determining vectors individually for each trader. I. e. for vectors **K** with one component equaling 1 and the others equaling 0.

- Random superposition. This method involves a random choice of components of vector **K**. The found points (from now on they are points in vectors **P** space) take some intermediate positions between the points calculated for each trader. The optimization of this method lies in giving averagely bigger weights to traders with extreme indices (high profits, low losses etc.) It allows to somewhat broaden the initial framework.

- Recalculation of the vectors from the system's memory with account for the specified investment time T0. If there is a considerable base already, the investor can access it bypassing the first two methods.

2.2 The optimization method.

Let's consider a simplified task. Let the traders in question have altogether a number N of strategies S. Vector **P** has only 2 components – the expected profit per time unit and the average drawdown. The investor imposes a condition **U**1, which limits the minimum expected profit. It's required to find the coefficient vector **K** with the minimum expected drawdown. The loss function domain is limited $\sum Ki=1(i=1..N)$, i. e. it's an N-1 dimensional tetrahedron in an N-dimensional space (let's denote this space as G).

The trading history, the time series representing income, drawdowns and their expectation assessments are significantly rugged functions of time, not smooth at any point. Strictly speaking, we can't use the whole mass of optimization methods for differentiable functions here. Therefore, we offer the modified gradient descent method (MGDM) for the second and further steps. The method lies in expanding the ordinary mathematical programming method in case of a non-smooth loss function. We introduce a supposition that, in any certain scale in G, the loss function is 'approximately smooth'. Then it's admissible to introduce the loss function gradient as a continued proportion between the function variation and the variation of its arguments and scrutinize it in the neighborhood comparable to this scale to determine the minimum. We suppose the same in relation to limitation **U**1, which is graphically represented in this scale as a hyperplane in G with N-1 dimensionality, going through the minimum possible profitability points. Further, in the chosen scale, we use the gradient descent method until we reach this hyperplane and then we search for the minimum point nearby. Graphically, for a smooth function, the mathematical programming solution lies at the point where the loss function contours touch the condition-determined surface, in this case – the hyperplane determined by condition **U**1. Now, the order of the search steps:

- Choose a few starting points in G. For effectiveness, we take a few points with the minimum drawdown, meeting condition **U**1, and a few random points.

- Choose a few scales in G.

- We use the MGDM in each of the scales. Every time we assess to what extent the approximate smoothness condition is met and assess the area where the function is approximately smooth.

- After the search reaches the smooth area boundaries or the gradient descent doesn't give any improvement, we move to a smaller scale and repeat the MGDM until optimization on the minimum scales.

In this method, we don't use limitation $\sum Ki=1(i=1..N)$, and we normalize every found decision a posteriori. I. e. instead of taking into account a complex tetrahedron limitation, we use the whole positive part of G (coordinates >=0).

We can consider a clear and simple analogy for this method. Let's assume we want to find the highest peak in a country. The height-coordinates function isn't smooth anywhere. We use MGDM. In the largest scale (maybe hundreds or thousands of kilometers), we look for directions from the initial points to mountain groups. Then we come close to them gradually, by hundreds of kilometers, and scale down to tens of kilometers. Then we find the direction to the highest peaks again, move to them and scale down. Thus, we find the highest mountains, then – individual peaks, cliff parts and stones. In the smallest scale, we can find the highest grain of sand. When and if we reach the country's border (which is approximately smooth locally), we move along the border tangentially while we continue to gain height.

The general task reduces to this. Instead of one hyperplane with a limitation, we get a few in accordance with all components of **U**. Correspondingly, in case of descent to these hyperplanes crossing, the search will cover the crossing, i. e. a hyperplane with

N-2 dimensionality and so on. Besides, we will have to repeat this algorithm in relation to all the components of vector **P** we are interested in.

Besides the search itself, investigations of the old decisions will be held a posteriori. The matter is that decisions for vector **K** may turn out to be inconsistent, in other words, it may turn out that some strategies S as a part of a synthetic strategy Z improve the indices accidentally and won't give the same results again. To eliminate this effect, we will periodically analyze to what extent the old decisions proved their quality a posteriori. If excluding a strategy S systematically improves the indices in the future, then the strategy won't be considered during the solution search. It gives a supplementary guarantee that the investment result will be close to the one expected.

2.3 The method optimization.

The above described method requires huge machine resources and will get into various local extremum traps. Here is the list of the optimizations we plan:

- Use the conjugate gradient method. It accelerates the descent to the solution, although it can show weak efficiency in our case, because it requires the use of the second derivatives.

- Clusterize the traders and decrease the loss function domain dimensionality. In fact, many traders work on similar tools and according to similar algorithms. We can divide them into groups and choose index leaders in every group. If a strategy trails behind the leaders in all indices, we exclude it. Then we solve the optimization task in an area with a much smaller dimensionality. The results will be basic for further more accurate search. Thus, we significantly reduce the resources spent for the calculations.

- Use solutions found through Markovitz portfolio theory to determine the search starting points. After clusterizing the traders, the covariance matrix (covariations between the cluster centers) dimensionality becomes insignificant, and Ki coefficients calculation doesn't require significant capacities. It gives approximate solutions (in the sense of Markovitz theory suppositions) while the precise ones can be found nearby.

- The simulated annealing. After another scaling down, we calculate a few random points around the end point and choose the best of them as a starting point. This algorithm allows to significantly decrease chances of encountering local extremums.

- Neural networks. With their help, we're planning to indicate the areas, where approximate solutions 'lie' and then find the most precise ones among them.

APPLICATION 2

1. STATEMENT OF THE PROBLEM OF SMART INVESTING.

Input parameters:

1. Trading history of the traders.
2. Parameters of rewards and risks set by traders.
3. Investment conditions (U), set by the investor (for example, minimum profit).
4. The commission established by the investor, according to which the necessary accuracy will be determined, and the calculation of the nodes will be performed (is paid by the investor. Nodes of Sintez Net receive a commission).
5. The history of all previously solved tasks with timestamps, the version of the algorithm for finding solutions and addresses of smart contracts. Out-of-date tasks will be archived, as this information will be used in the analysis of node security.

The result of the calculations:
The optimal set (or several sets) of weights K_i, according to which the funds are distributed between the strategies of traders.

2. ORDER OF STARTING NODE SINTEZ NET.

1. Install container – Downloading and installing the container.
2. Start container – Start the container and configure the network interface.
3. Integrity check – Checking OS versions, files, modules inside the container, updating the software.
4. Resync – Synchronization and updating of all data to current.
5. Benchmark – Run test task to estimate the performance of the node and the time of the job.
6. Create key pair – Generate a unique node access key.
7. Register node – Registration of node parameters in the blockchain, including public key, address, timestamp, benchmark results (see below).

3. BENCHMARK.

The procedure for determining the speed at which a specific node performs a test task. In the future, this information is used to verify the nodes among themselves in a dynamic group that solves one task.

1. Trusted nodes generate a random job. The task uses random selection of investment parameters and traders' histories.
2. The calculation goes on for some time to estimate the time intervals for different degrees of accuracy of the problem being solved.
3. Averaging time intervals.
4. Saving benchmark results on all nodes of the network and its signature in the blockchain.

The system periodically creates benchmark tasks indistinguishable from ordinary. In these tasks using a random sample of only investment parameters. This is necessary to exclude the possibility that a compromised node falsifies only tasks from trusted nodes.

4. ECONOMY.

SINT consumption:

- The nodes register themselves in the blockchain, sending the transaction (once).
- Investors create a task to calculate the investment, creating a smart contract.
- The chosen node (oracle) publishes the result of the calculation of the task.

SINT income:

- The nodes choose which task will be solved from the queue depending on the allocation of nodes by groups, the cost of the task defined by the investor, and its performance.

- Nodes receive SINT from the smart contract for calculating the investment proportionally to the share of their performance in the dynamic group that performs the settlement.

5. THE ORDER OF THE SMART INVESTING TASK EXECUTION.

Before getting acquainted with the principles of Sintez Net working process, we need to notice there is a choice of the leader in classical option of a computing cluster. For Sintez Net the leader isn't necessary as his role is carried out by the distributed blockchain database. Nodes of network are outside and can read all status of tasks and account changes. They also can write down results of performances, acting as network of oracles. Thus, in the last stage of development the entrusted nodes aren't necessary. The reason why is because, as well as the others, they are subject to a compromise and can be overloaded or switched off.

1. Investor creates his request for investment and defines the commission for strategy offer.
2. Smart contract SINT task is generated on the base of request (sint task). Investor makes the payment transfer in SINT. He can pay the contract in any convenient way and currency, automatically there is a converting in SINT at a current rate. **The message-report will be encrypt by the temporary key, which is known only to investor (investor wallet).** Thus, only the level of accuracy and commission payment, but not parameters of investment are open to nodes until start of calculations.
3. **Pending nodes** in Node Sintez Net check new contracts in a blockchain also the current statement of the contract accounts. There is the waiting list of urgent tasks on each such node and the list of nodes ready to solve each task. I.e. **there is a dynamic table of values: the number of a task, quantity of the nodes ready to calculate, the list of public keys for these nodes.**
4. If the smart contract account keeps nonzero amount – nodes make a signal about readiness to take a task, passing into **Ready** condition. If there are several tasks in blockchain at the same time, the node chooses which task it can be connected with (on the commission and quantity of nodes in readiness).
5. **Investor Wallet sends the message with a key for task decryption to the smart contract.** There is a key encrypted several times by a public key of each node in the group. Therefore, each node in the group can decipher the message, find the key there and decode investment parameters with it. **The moment of receiving the message must be signed in the dynamic table** of each node. Also **maxtime** (limit operating time over a task) is calculated. It depends on benchmark values of all nodes in the group.
6. Nodes pass into a condition of **Task** and begin calculations process. When the commission is over or after getting sufficient accuracy, nodes find the solution and pass into a condition of **complete**. In a group of the nodes solving one task, the result can happen at different times and can be differ. **The table containing values on a concrete task is formed with the encrypted result, the number of a node in the group, a tag of time when calculation is complete, the signature of the node which has sent result by.**
7. **As soon as** maxtime **is complete, nodes distribute a key for results decrypting**. All nodes in the group can check and decrypt the table of results. Nodes are excluded if they were not in time with task sending. All results are compared by all nodes at the same time. If some node`s result differs too much from average value (value of median) within parameters of accuracy have set by investor, node is excluded from the group. Thus, we have the only nodes with approximately identical result in the group. This result distributes on all nodes in network
8. **The received result is published in a blockchain. For reducing workload and cost,** not all nodes are engaged in the publication given operations but accidentally chosen nodes of network. Especially for this purpose there is the algorithm of oracles random choice selecting the random nodes who publish data in a blockchain. This described algorithm is used also for messaging in other smart contracts (for example in a case of exchange quotations). **The next algorithm steps are used for the choice of random nodes:**
    a. Each node generates a private and public keys, signs the message and distributes the public keys and the message itself to all nodes.
    b. Each node checks messages from the others and knows their quantity.
    c. Each following message is supplemented with general information about all public keys (merkle tree hash) and quantity of nodes. Messages from nodes with different information cannot be accepted until the next couple of keys can be generated. Therefore, such nodes are included in the unverified list.
    d. Each node generates random sequence, mixing it with hashes. On the certain bits of the sequence, the node calculates what another nodes will create blockchain transactions to the address of the smart contract (investor's task).

e. There will be a record in the transaction info sent to the smart contract address: quantity of nodes in the group, public keys, result of calculations (calculations, accuracy, list of nodes in the group, time of nodes calculations, maxtime)

f. Thus, the smart contract can check the result, having the possibility to collect all list of public keys, to count nodes quantity, to compare different transactions and choose in which of them there were more nodes.

9. **The smart contract sends SINT in quantity proportional to the done work**. **It sends to addresses of nodes consisted in the group.** The contract account is zeroed.
10. The node notes both balance changing: on it`s own address and on the address of smart contract. Then it passes into a condition of **Updating**.
11. Investor Wallet scans the carried-out task result through blockchain.

6. SINT NODE STATUS.

1. **Updating** – node in the process of synchronization of data of traders, after the upgrade it becomes Pending.
2. **Pending** – free, expect distribution in groups, have up-to-date information.
3. **Ready** – signals the readiness to start task(i).
4. **Task** – are busy executing the job in the node group that corresponds to the specific smart contract of type sint task. In the process of calculations, they periodically verify each other, including the coincidence of calculations within the specified accuracy. For advanced protection of nodes, see below.
5. **Complete** – Noda signals the receipt of the decision, the amount of work performed and is waiting for the commission.
6. **Stopped** – The node is stopped and can not accept new data and tasks.

In order to provide the ability to receive and execute tasks in parallel without waiting for maxtime, the network node can be for each task in different states (pending, ready, task, complete).

7. SINT NODE MODULES.

- P2P locator – performs a node search and the distribution of node information.
- Connector – receives information about tasks and balances from the blockchain.
- Task scheduler – starts tasks.
- Task executor – performs the basic computational task.
- Pentester – analyzes security and provides signals of friend or foe.
- Platform integrator – interacts with the investment platform (SINT).
- Data storage – receives and saves information about job parameters and traders' history.
- Analizer – analyzes and visualizes statistical information about the state of the SINTEZ NET network.
- Updater - updates software modules.

8. STRUCTURE OF SINTEZ NET.

Each node keeps the constant register of all nodes in network, including their states, numbers of groups of nodes, etc. Therefore every participant, investor or trader, can receive the current analysis of network status for making choice of convenient time for calculations according to the goals of the personal investment strategy.

All nodes distributed on groups dynamically. One group performs the general task. All nodes have the identical set of modules. They are also completely interchanged.

There are 3 stages in Sintez node Net building:

1. **Private Sintez Net**. We start with nodes independently, for testing and optimization of various methods for finding the best optimal solution for the key-task. Traders introduce their information on trade history. The network accumulates data. All nodes trust each other by default. The first stage doesn`t assume any commission.
2. **Stake Sintez Net.** We create the algorithm of verification. Getting start of a third-party node is required to have a certain number of SINT on the node address. We check the scale of threats completely on the 2nd stage and introduce all methods of fighting against them. Holders of nodes receive a payment for the performed tasks.
3. **Distributed Sintez Net.** Anyone can add a node to SINT network free and receive a payment for the performed tasks. On the 3d stage each node will have an opportunity to choose the right method of participation, getting the best solution for it`s goal. We can see the market price regulation, depending on net workload, having provided it`s stability and value. The entrusted nodes are excluded.

9. SECURITY OF DISTRIBUTED SINTEZ NET (SMART INVESTING PENTESTER MODULE).

Let's look at the work of the network as a whole and determine what data can be analyzed to identify anomalies in the network. We also define attack vectors and methods of protection.

General properties of the network work:

The load on the nodes (let's call sint node) grows with the influx of new investors and traders. Adding nodes is necessary not only for fault tolerance, but also for increasing performance, if not all nodes consider the same task. In the network, there is an algorithm for allocating jobs to groups of nodes. For example, if 10% of nodes consider one job and compare the results, then the calculation speed increases by 10 times, that is, it is possible to perform simultaneously 10 tasks throughout the network. At 5% - 20 times. But the higher the network performance, the lower its fault tolerance.

In this case, the nodes themselves decide when to start calculating. Given that the investor's commission will be distributed among the nodes in the group, the node can choose from the dynamic task table the most optimal in terms of the time it will spend to solve it, and the reward it will receive. A non-optimal choice is possible, for example, when using dynamic groups that a node falls into, because there is still a requirement to reshuffle group membership as a security method.

Here is an example of an attack: some of the nodes at 5-percentage distribution of tasks can have 10% of the network performance and to supply the network with answers to 2 tasks in parallel - while on their backend can be a juggling responses. Thus, they can outplay a part of the nodes that think honestly and offer the investor a convenient solution to them – they can be managed by a trader who wants to get more convenient investment terms for him. The resulted example of the attack, as well as other potential vulnerabilities, will be detected by the anomaly analyzer (see below), and the sintez net architecture will be provided to protect against such attacks. For this we have provided the second stage of the development of the network sintez net.

Attack vectors (attack landscape):

The following are the elements of the system that can be targets of attacks. The reason for the attack, we do not consider, because the motivation may be different, including just for fun. So the main thing - is to ensure operation of the system in terms of the correct execution of its tasks. In each element of the landscape is a way to provide protection.

Investor wallet (investment platform) – This software will not transfer private keys to the server side, only signed transactions. The investor can always track the chain of distribution of his assets through both Blockchain and through the analytical software we use to distribute investments between traders.

smart contract (information in blockchain) – all smart contracts will be audited by third-party development teams with experience in creating and verifying smart contracts. All smart contracts will be tested in testnet before implementing them into the production environment and the main blockchain. The protection of the blockchain itself depends on the network of miners forming blocks. In order to diversify possible problems in the network of miners, smart contracts will be duplicated in several blockchain: Ethereum, OMNI, NEO.

Sintez network node (The network node and the entire network as a whole):

- Smart investing algorithm (errors and inaccuracies in the algorithm for solving the investment problem) – algorithm and all changes to it will be in the public access (open source), the results of its work and the estimation of errors will also be constantly published.
- Update software - from the very beginning the software will include a module for updating and verifying the versions and files of all modules via signatures and timestamps. The analytic module (Analyzer) built into the Sintez node software will constantly monitor the status of the versions and the integrity of the files on all nodes.
- Substitution of data in benchmark - Periodically, tasks are created for the benchmark, masquerading as ordinary.
- The collusion of traders and the owners of the nodes, for example, in order to obtain a larger share of investments – random selection (reshuffle) when creating a group of nodes to solve one task.
- Substitution of the result by a node – the results of the group of nodes that perform one task, compared. There is a rejection of the result that went beyond a certain accuracy, from the median of all the results of the group of nodes.
- Hacking a trusted node – network protection, software and OS update, benchmark.
- Failure of node during task execution – by the results of the benchmark is determined maxtime; If the node does not send a solution within this time, it is excluded from the task group.

Let's write out separately all possible methods of protection:

- **creating trusted nodes**. (It will be laid at the stage of Private Sintez Net, but in the future their role will be reduced to the total exclusion).
- **enter a temporary limit on the task** (using benchmark and maxtime)
- **verify that the node performance does not change much over time** (disguised benchmark and speed analysis on previous jobs)
- **Constantly mixing groups of nodes doing one job** (dynamic node groups)
- **Anonimize the analyzed data on the nodes** (because the trader's account status can be estimated indirectly from other sources, and the trading history falls on the sintez net nodes from the broker and has different lengths in time - this method can not be universal and 100% of depersonalization can not be achieved)
- **Maintenance of the register of addresses of anomalous nodes, friend or foe signals from the analyzer**
- **The introduction of virtual accounts with virtual COIN for Smart Investing calculations**
- **Advanced analysis of the behavior of nodes on the detection of anomalies using machine learning**

Anomaly analyzer:

Using machine learning as a means of security - is a popular and useful trend. Especially it is important in the environment of distributed services, such as Smart Investing.

Different node parameters will be analyzed. Once an anomaly is detected in the analysis, a signal is propagated along the nodes about the loss of confidence in the abnormal nodes. In order to understand what parameters of nodes are important for such analysis and how to react to them, a protocol will be implemented for exchanging data on the signals of friend or foe, and a continuous updating of the software of nodes. Analyzed parameters of nodes depend on the algorithm and mathematical methods of solving the problem (for example, benchmark), which they are engaged in, as well as general parameters:

- **Node performance**
- **Network address**
- **Task calculation speed**
- **Accuracy of task calculating within a group of nodes**
- **Node lifetime**
- **Idle node time percentage**
- **Software version**
- **History of membership in dynamic groups**
- **Account address and transactions on the account**
- **The signaling of “friend or foe”, including erroneous (rejected by the majority of nodes)**

Anomaly - deviation of parameters from standard behavior. In the case of each parameter, there are a number of requirements for its constancy, linear change or change for a particular function.

For example, the performance of the node, the network address, the address of the account, the speed and accuracy of the count - should not vary significantly. The lifetime of the node, the software version, the balance on the account grow linearly with time or almost linearly. The proportion of idle time should be minimal. The membership history competes with the choice of the optimal job from the table of available assignments, so here we apply the analysis of the level of node membership mixing by groups. The erroneous signaling should be minimal and not significantly different from the average signaling in the network.

It is a deviation from the expected dependencies and will generate signals or foe.

In addition, each anomaly may have a weight that will vary with time, depending on the frequency of false alarms. And each signal will be accompanied by a description of the cause of the signal and its weights at the time of the alarm.

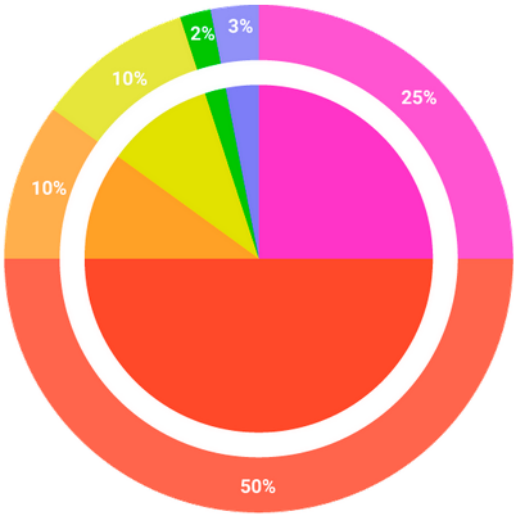
On each node there is a Pentester module that will detect anomalies, send signals to all other nodes, and collect signals from all nodes.

ICO EXECUTION (INITIAL COIN OFFERING SINT)

CONDITIONS OF ICO SINT

PRIMARY PLACEMENT

- 25% - First Stage (3 weeks)
- 50% - Second Stage (after 3 weeks)
- 10% - New Year Bonus (after 2018)
- 10% - Founders (blocked for 10 years)
- 2% - Developers Bonus
- 3% - Bounty



Name: SINT (Sintez)

Qantity: 1 000 000 000 SINT

First Stage start date: 7.11.2017 (Revolution Date!!!)

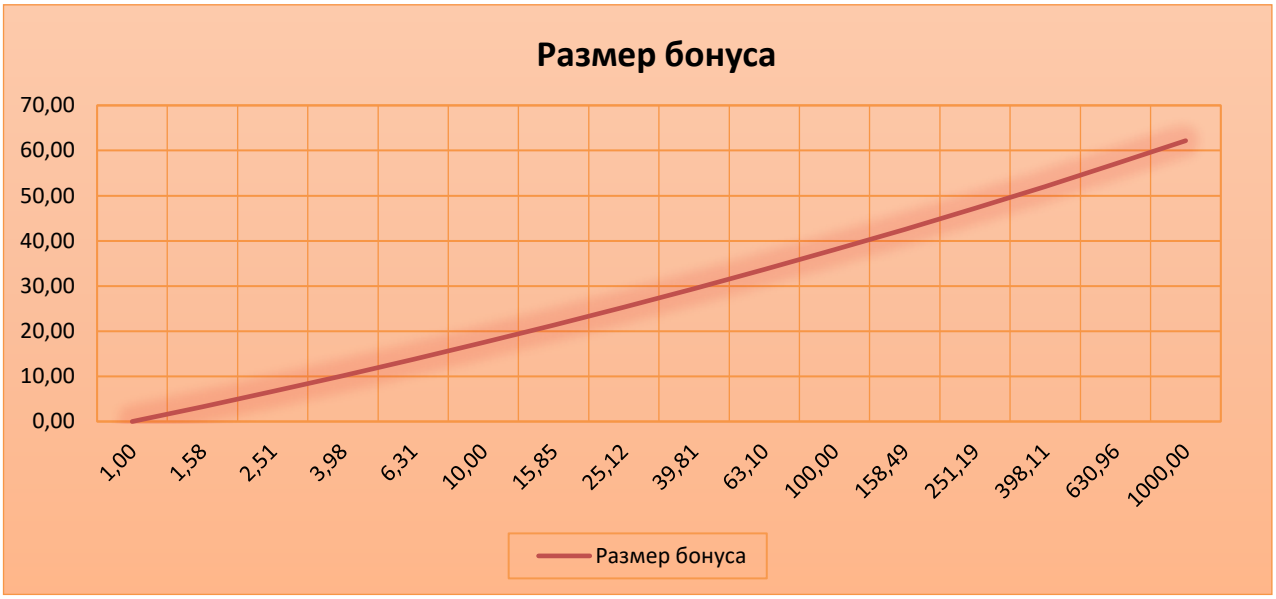
Second Stage start date: 28.11.2017

Detailed scheme of smart contract.

1. A total of 1,000,000,000 (one billion) SINT tokens are issued. These ERC20 compatible tokens based on the Ethereum blockchain.
2. In total, 75% of tokens will be sold, that is 750 million:
   - ✓ 25% (250 million tokens) in the first stage of the ICO
   - ✓ 50% (500 million tokens) in the second stage of the ICO
   - ✓ The remaining 25% of the tokens will be distributed as follows:
   - ✓ 10% (100 million tokens) are transferred to a special wallet for New Year gifts to long-term investors (automatically through a smart contract)
   - ✓ 10% (100 million tokens) remain on the SINTEZ team. Tokens are blocked and unlocked for use by 10 million tokens each year. Completely unlocked for 10 years.
   - ✓ 2% (20 million tokens) are distributed as bonuses to SINTEZ developers
   - ✓ 3% (30 million tokens) are distributed on the bounty
3. The first 250 million will be sold at the first stage of the ICO, which will last **21 days** starting on **November 7** or before collecting a minimum volume of **3000 ETH**.

Bonus for Volume. After the first stage, tokens are immediately given out to the participants in proportion to the amount of funds invested by them to the power 1.07 (X^1.07), if the volume is greater than 1ETH. If the volume is less than 1 ETH, the number of tokens is proportional to the volume of the investment. Such a formula sets a certain advantage for those who invest more.
In particular, an investor who buys tokens for **10 ETH** will receive them at a price lower by 17% than if they buy for **1 ETH**. If he buys tokens for **10000 ETH**, the price will be almost 2 times less!

Dependence of the bonus on volume:

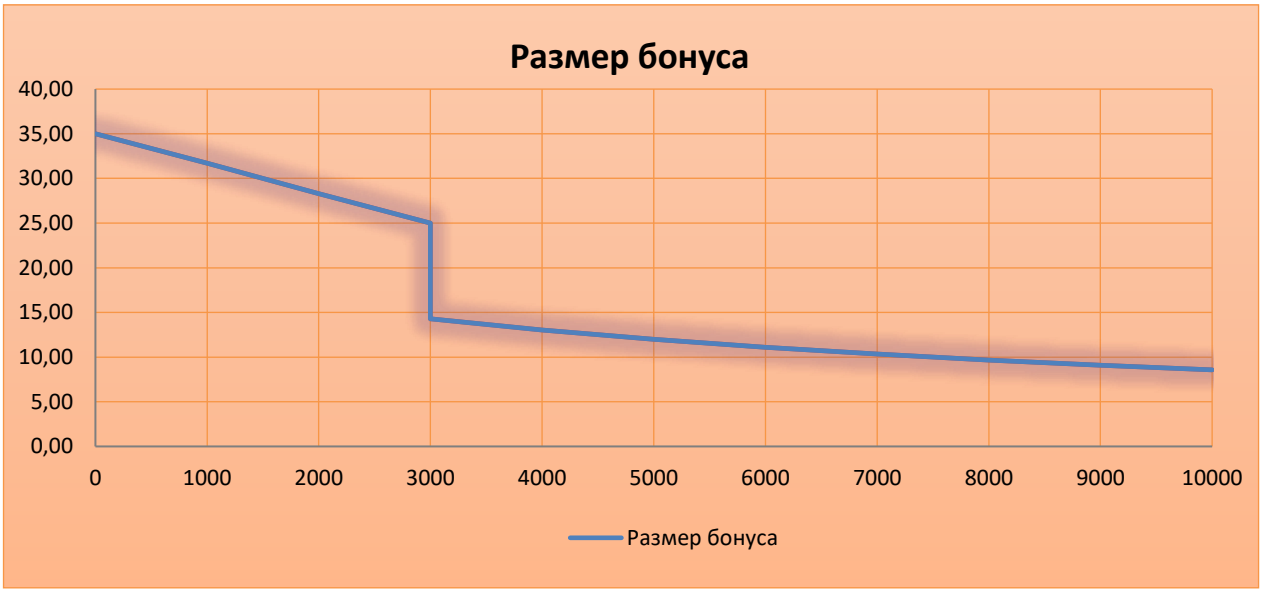


Early Bonus. An additional bonus will be given to earlier investors by the following scheme:

- ✓ Buyers of tokens to the minimum volume will receive a bonus, linearly decreasing **from 35% to 25%** with the growth of collected funds from 0 to **3000 ETH**.
- ✓ After collecting **3000 ETH**, the bonus drops to 15% and then gradually decreases according to the formula 15% / (0.7 + X), where X is the amount of collected funds at the time of purchase divided by **10,000 ETH**.

For example, if there are two investors - Alice and Bob and both invest in 10000 ether (Alice first and then Bob), then Alice will have a 35% bonus, while Bob has 15% / (0.7 + 10,000 / 10000) = 8.57%. Accordingly Alice receives 250 million * 1.35 / (1.35 + 1,0882) ~ 138mln, the rest will get Bob (~ 112mln.).

Dependence of the bonus for early investments on total funds collected at the time of the transaction:



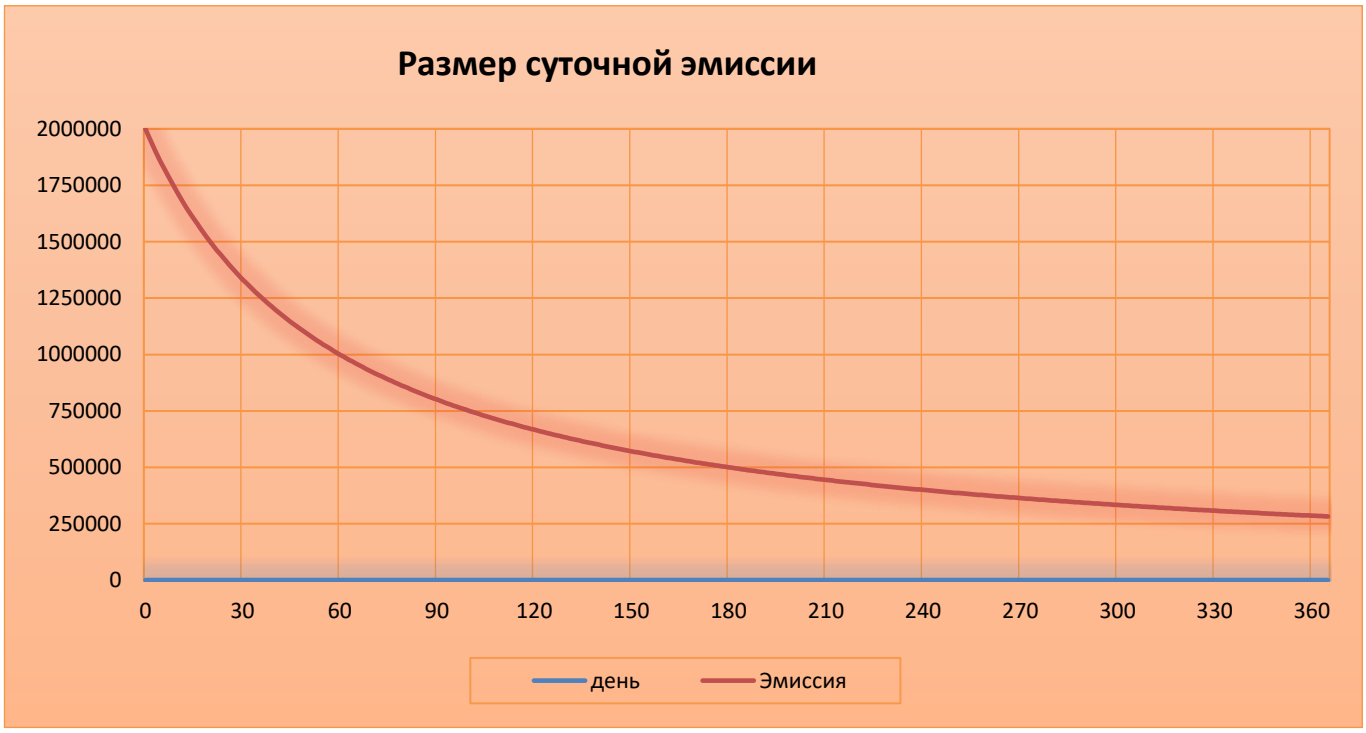
In general, the tokens will be distributed in proportion to the product (1 + bonus to early investors / 100%) * (investment amount ^ 1.07).

Immediately after the first stage, tokens enter free trade on crypto-exchange exchanges.

4. The other 500 million will be sold in the second stage, which will be held every day until all are sold 500 million. At this stage, tokens are distributed each day in proportion to the invested funds. daily emission following rules:
    - ✓ The daily supply volume is calculated as the **multiplication of the base volume and two coefficients**.
    - ✓ The basic daily volume is 2 million tokens.
    - ✓ **The first factor** is 60 / (60 + number of days from the beginning of the stage). This factor is introduced to smoothly reduce output and prevent sharp price fluctuations after the completion of the second stage.
    - ✓ **The second factor** is equal to the logarithm of (1 + X) on the base 2, where X is the ratio of the average emission rates of the token from the previous day to the average price of emission for the previous month. But not less than 0.1 and no more than 10. The first month of the second stage, the coefficient is set equal to 1. The average price is calculated as the ratio of funds raised to the number of issued tokens for a given period. It is introduced to suppress strong fluctuations in the price of the token, and establishes the dependence of the current financing on the success of the team and accordingly their assessment by investors in the form of a price SINT.

Current daily volume of issue will be published on the site in real time every day.

Below is a graph of the dependence of daily emissions without taking into account the second coefficient:



Registration will not be, only the subscription form with an e-mail. The data will be used for mailings during information events, informing about ICO address settings and instructions.

For those who want to invest in other cryptocurrencies - it is better to use exchanges, for example https://shapeshift.io/ or https://changelly.com/ .

We do not recommend sending Ethereum from the addresses of exchange deposits. Use only personal wallets, such https://www.myetherwallet.com/ .

DISTRIBUTION OF INVESTMENTS FOR THE PROJECT

30% - Development

10% - Licensing, broker registration

30% - Marketing, PR, ADV

10% - Infrustructure and Hosting

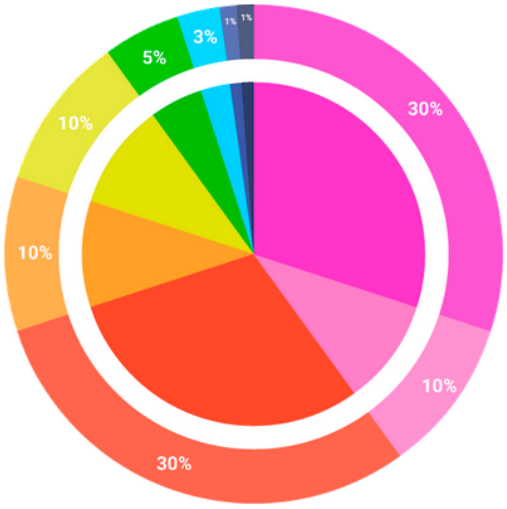
10% - Founders

5% - Provision for COIN and Smart Invest

3% - Advisors

1% - Bounty

1% - Escrow service

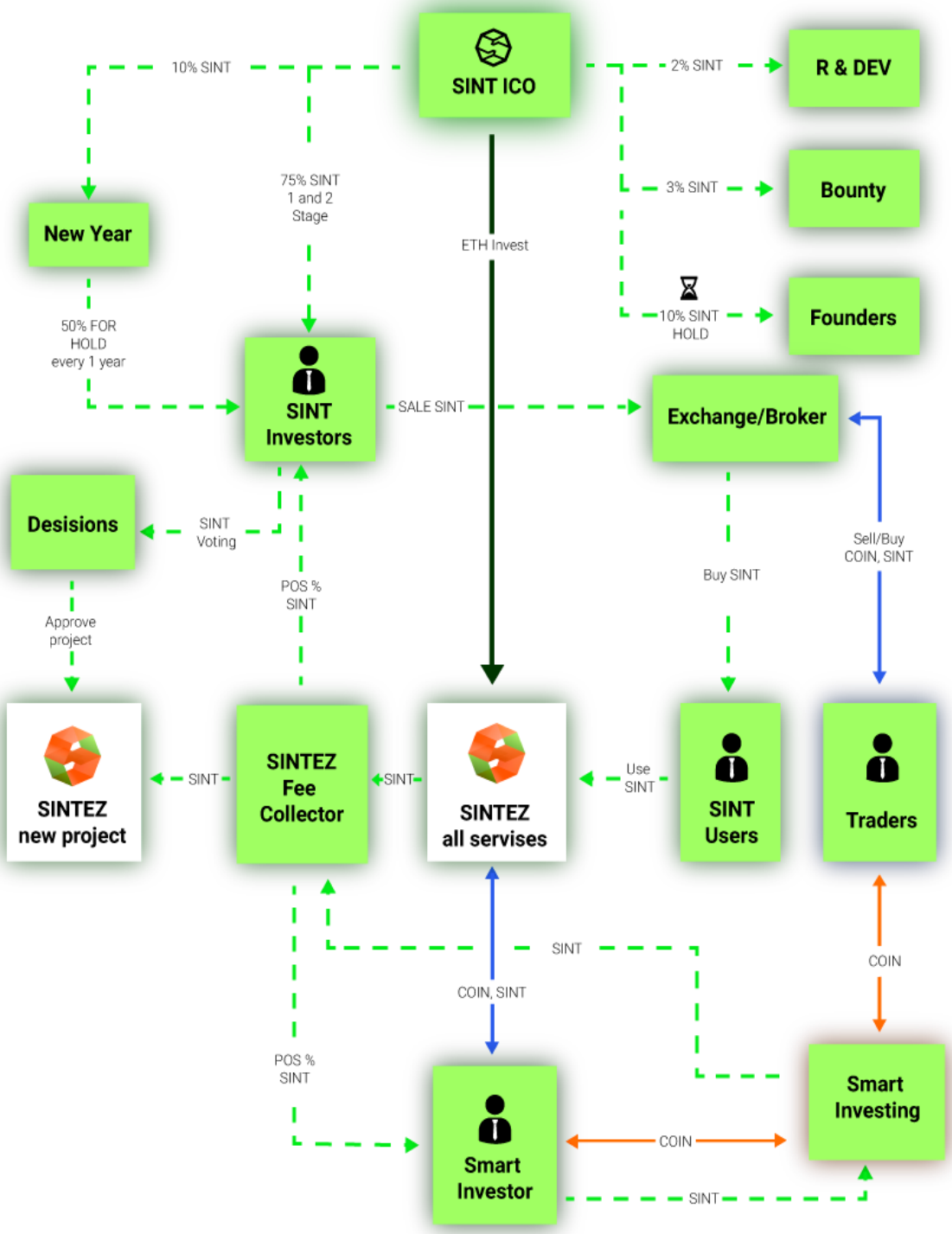


Distribution of funds raised when the minimum budget is reached:

- Platform development (30%)
- Licensing, broker registration (10%)
- Marketing, Advertising, PR (30%)
- Hosting and infrastructure (10%)
- Founders (10%)
- Provision of Coin and Smart Investing (5%)
- Advisors (3%)
- Bounty (1%)
- Escrow (1%)

If the minimum budget is exceeded, additional funds will be sent to the COIN funding (private Maker, see 2.5 in Whitepaper) and the liquid deposition of the Smart Investing (SINT) (see 3.3 in Whitepaper). Also partially - in the investor strategy of the SINT for the presentation of "cases". That is, in order to show investors and users the possibilities of Smart Investing.

SCHEME OF USING SINT



BENEFITS OF SINT TOKEN HOLDERS

Earnings on the growth rates.

- First of all, we are trying to determine the long-term growth of the price of tokens due to the qualitative implementation of a global project, which in the long term will be able to integrate all the key economic processes. Our goal is to make a truly fundamental product that will become the basis of the future economy.

- Potential turnover and demand for tokens from both users and investors, in our opinion, can lead to growth, exceeding the avant-garde projects like bitcoin and ether. SINTEZ users must purchase tokens to pay for all commissions on the platform. Initially, the commissions are set equal to zero and then will be determined by voting.

- The nature of the issue of tokens implies a reduction in the risks of investors by reducing the volatility of SINT. To do this, the volume of emission gradually decreases with time due to the first coefficient (see ICO conditions), and in the case of sharp increases or decreases in price, we accordingly increase or decrease emissions using a second coefficient, which will suppress sharp fluctuations.

Earnings for the redistribution of tokens.

All collected commissions will be on the proxy wallet and once a month will be distributed in favor of the holders of the tokens and project developers (if the SINT holders vote for these projects) on the POS (Proof-Of-Stake) system. The commission-sources of the wallet replenishment for distribution are as follows:

- Coin-Bank commission for buying, selling and exchange of COIN
- Coin-Bank commission in obtaining credit and other services
- Smart Investing (SINT) commission when investing
- Commissions of platform exchange and the market at buy / sale
- Commissions and fees of organizations and state organizations, depending on the services provided and users of related services

Earnings for voting.

For active voting and identification of the interests of investors in relation to the development of the economy SINTEZ we introduce the distribution of the collected tokens to those holders SINT, who actively vote (Proof-Of-Vote). In order to receive payment, the holder of the token will have to vote for the proposed projects and commissions.

General scheme of distribution of tokens.

- Project developers (improvements, creation of new services, marketing and other) receive as many tokens as they need to carry out the project in case the SINT holders vote for it.
- Holders of SINT receive 70% of the tokens, which will be at the time of distribution on the proxy wallet minus the tokens that will go to the project developers. Tokens are distributed to users in proportion to the volume they already own at the time of the distribution, multiplied by a factor equal to the logarithm from (2 + X / 12) on the base 2, where X is the token holding time in months. The factor is entered as part of our policy of attracting long-term investors. Thus, for example, investors who hold tokens for 2 years will have a 2-fold advantage in getting tokens before those who have recently purchased them.
- Voting SINT holders receive 30% of tokens (minus projects) in proportion to the volume of tokens they own.

New Year gifts.

Every New Year our strategic investors will receive a New Year's gift! The gift will be allocated from a special wallet for gifts to those who hold tokens SINT more than a year. The size of the gift will be proportional to the number of investor tokens. The total volume of gifts is half of the current balance of the wallet. That is, in a year (New Year 2018-2019) investors will receive gifts for 50 million tokens (the payment will take place immediately after the onset of January 1, 2019), after two years (January 1, 2020) - 25 million and so on. Investors who hold tokens from the first stage of the ICO will receive an additional bonus to the gift of 30% (when calculating the distribution ratio).

Platform management.

- Tokens owners can manage the SINTEZ platform by voting and thus be responsible for its development and growth rate, and most importantly - to control the reliability of its investments. A voice is counted with a weight that takes into account the time of holding the tokens on a separate address. This is done to ensure that strategic investors have more weight, and decisions were made in favor of long-term improvements. At the same time short-term holders can also make changes using their voice. Each holder can vote for:
  - ✓ Size of SINTEZ commissions. Commissions are set averaged with weights corresponding to the strength of the vote.
  - ✓ Approval or rejection of decisions on new projects.
  - ✓ System operation parameters. Including the minimum amount of backing the MAKERs, the leverage in lending by Coin-Bank and others.
- SINT holders will be able to propose projects for implementation. Anyone who owns at least 1% of the total number of tokens (at least 10 million) and no more than once a month can propose the project.
- SINT holders will have an advantage when using forums. Status on the forum will be determined, including by the number of tokens.

Evaluation of return on investment.

Now let’s estimate how much profit the investor SINTEZ can expect.

To evaluate the growth of SINT, we use the comparison method with similar projects. There are no identical projects in all, especially since our project is unique, but it is possible to assess the degree of proximity. To assess growth in the short term (1-3 years after the start of the ICO), we present a list of projects with a similar theme. Since the key project of the initial period, which has no analogues and direct competitors, is Smart Investing (SINT), we estimate the short-term growth of SINT based on one of this project. Below is a table of the growth of similar projects and the degree of their similarity to SINT.

→Project ↓Parameter	Ethereum	Waves	NEO	Iconomi	DigixDAO
ICO Price in USD	0,311	0,188	0,032	0,126	3,235
Current price in USD 25.09.2017	288	4	22	1.5	71
Lifetime of the project since the ICO (in years)	3,18	1,45	1,98	1,08	1,65
Average growth for the year	**8,57**	**8,24**	**27**	**9,91**	**6,5**
Estimation of the similarity of the project to SINTEZ	0,6	0,6	0,6	0,9	0,7

As you can see, the average annual growth of similar projects is X6.5-X10. Not counting the NEO, which grew 100 times in the last six months. We average with weight equal to "similarity estimation" (the estimate for Ether and Waves is not chosen high because the investments in these platforms are carried out only in ICO). Obtain (8.57 * 0.6 + 8.24 * 0.6 + 27 * 0.6 + 9.91 * 0.9 + 6.5 * 0.7) / (0.6 + 0.6 + 0.6 + 0.9 + 0.7) = **11.7**. Therefore, the expected annual growth of SINT is about 10 times. This is not including additional bonuses for early and big investments.

We will also evaluate the distribution of POS and POV. We proceed from the fact that the first SINT traders will trade cryptocurrencies. The capitalization of the crypto currency is about 130 billion dollars; most of it is the money of investors. We plan to capture the $ 1 billion (less than 1%) per year from these investments. We also believe that the commission from the work of the SINT will not be high (less than 1%, even for an estimate of 0.5%). We also believe that investors will be interested in periodically changing the investment strategy, at least for the purpose of optimization. Let on the average this be done 5 times a year. Thus, for 1 year of work we get the total commission amount - 0.5 billion * 0.005 * 5 = 12.5 million $ (half a billion is taken as an average within a year). If, for example, the total capitalization of SINTEZ is $ 100 million, investors will receive an additional 12.5% in the form of distributions. If cryptocurrency market in the coming years will continue to grow as in 2017, then the turnover of investments may well be 10 times more, which means that the profit from distribution will not be 12.5%, but 125%! In addition, New Year's gifts, which can add up to 20% of profit for the 1st year.

A significant advantage of SINTEZ is growth potential in the medium and long term. It is difficult to say what will happen in 20-30 years, but in 5-10 years, we plan to capture at least 1% of the entire investment market, which is incomparably larger than the entire market of crypto-currencies. This is realistic, since **additional investments in the project after its creation will be minimal** in relation to potential collected commissions. It is advertising, although given the potential benefits for investors and interest in the platform in general, advertising will be largely free of charge due to "word of mouth". We very much hope that the evaluation of our project by investors will initially be high and these funds will suffice for the development of the entire SINTEZ complex, so that additional costs for any improvements will not be required for a long time.

Thus, we will get a powerful **effect from the scale**, in which the limit of growth of the SINTEZ economy will be the volume of the entire world economy, including global investment. If you consider investments in all securities, real estate and commodities traded on exchanges (and the possibility of investing in them involves SINT), then the investment market now has a volume of about $ 500 trillion. 1% of this amount is $ 5 trillion. Growth from 1 billion $ to 5 trillion $ will be X5000. Then

the growth of SINT in the medium term should be a minimum of X5 per year (X5000 for 5-10 years). In the long term, of course, growth will slow, but then our strategic investors will be able to receive a dominant profit from the distributions of SINT. It can be estimated by analogy with the first year that 5 trillion $ of turnover in the form of SINT investment will bring in a year 5 trillion * 0.005 * 5 = 125 billion dollars of commissions, that is, on average more than $ 100 per year will be distributed for each SINT token.

Finally, the SINTEZ platform is not limited to one investment. Each element will add to the final growth and increase it due to synergy. That can increase the above estimates in another 2 - 5 times!