COSS.IO

Beta

COSS: CRYPTO-ONE-STOP-SOLUTION MADE EASY

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TABLE OF CONTENTS

ABSTRACT

The white paper describes the COSS (Crypto-One-Stop-Solution) platform and its functionalities, approaching the subject of online payment technologies and the position of cryptocurrencies in this developing market. With over 3000 altcoins on the market, there is hardly a single cryptocurrency which does not suffer from usability or user adoption issues.

Imperfections in the technical setting of these digital coins result in the loss of potential customers and merchants, and low transaction volumes, affecting the market price of the coin accordingly. Furthermore, the path from creating a digital wallet to making actual payments in cryptocurrencies is very inconvenient and cumbersome, requiring a newbie to spend a lot of time and effort making his/her way in the cryptocurrency world.

When addressed mindfully, the problem of poor user adoption of crypto can be resolved by means of a one-stop-solution platform – a platform designed specifically to inform and educate users about the variety of coins out there, helping them to make an informed choice and providing multiple possibilities to spend digital money, all in the same place. The concept of a Crypto-One-Stop-Solution (COSS), together with the actual implementation of the platform and the technical specificities are outlined in this white paper.

Key words: cryptocurrency, blockchain, VEROS, dAPPs, smart contracts

INTRODUCTION

The inherent value of cryptocurrencies as an alternative payment method has gained critical mass among investors, entrepreneurs, and consumers over the last few years. Such popularity would not be possible without the blockchain technology, which brought a number of world banks and corporations on board in a desire to increase the efficiency of their services. The permeation of cryptocurrencies and the blockchain is not simply a technological trend, but rather a steady shift towards a better future, in which managing one's finances is becoming easier, faster, cheaper and safer.

The cryptocurrency industry has given birth to an entirely new market, or a set of technology-driven markets, which have the potential to disrupt the existing market strategies and the conventional business practices. However, as with any other industry, the cryptocurrency industry faces a number of obstacles slowing down its natural dissemination among the non-technical users. One of these challenges is the absence of a one-stop-solution combining the existing services into a single user-friendly 'ecosystem'.

The main objective of this paper is to propose a means of improving the overall cryptocurrency user experience. The name of the tool, which can fix it is COSS, a crypto-one-stop-solution. The COSS platform shapes the foundation for a community of cryptocurrency users: companies, startups, employers and employees, traders and gamblers, customers and merchants into a viable market, the latter three elements being essential for the mass adoption of cryptocurrency.

With COSS usability issues related to virtual currencies are resolved in an innovative way. The platform gathers the most popular cryptocurrency services and products into one portal allowing users to gain access to financial services, manage transactions, integrate merchants' payments, deposit funds and so much more. In this white paper you will learn more about the platform's features.

INDUSTRY TRENDS
Past, Present and Future

In 2008 Bitcoin was introduced for the first time by Satoshi Nakamoto. Soon after, it became the first world-known decentralized cryptocurrency, introducing lots of new solutions to the existing electronic payment systems.

Thanks to bitcoin large banks, corporations and governments started recognising the great technological value of cryptocurrencies: the decentralized peer-to-peer public ledgers, the blockchain, the new ways to approach security and anonymity, which have spread to a great variety of fields. The fact that cryptocurrencies are censorship resistant and almost impossible to shut down by a centralized institution or entity has increased the amount of trust people have in this technology.

The design model of cryptocurrencies has made traditional financial institutions seem obsolete by bringing new capabilities to individuals and organizations adopting them, such as:

- Facilitation of monetary and legal transactions without the third parties;
- Transfer of money in a more secure or completely anonymous way, which protects users' personal data;
- Access to banking and the global financial system with any device connected to the Internet, improving the quality of users' lives;
- Avoidance of substantial transaction fees, such as those charged by credit card companies and centralized payment processors;
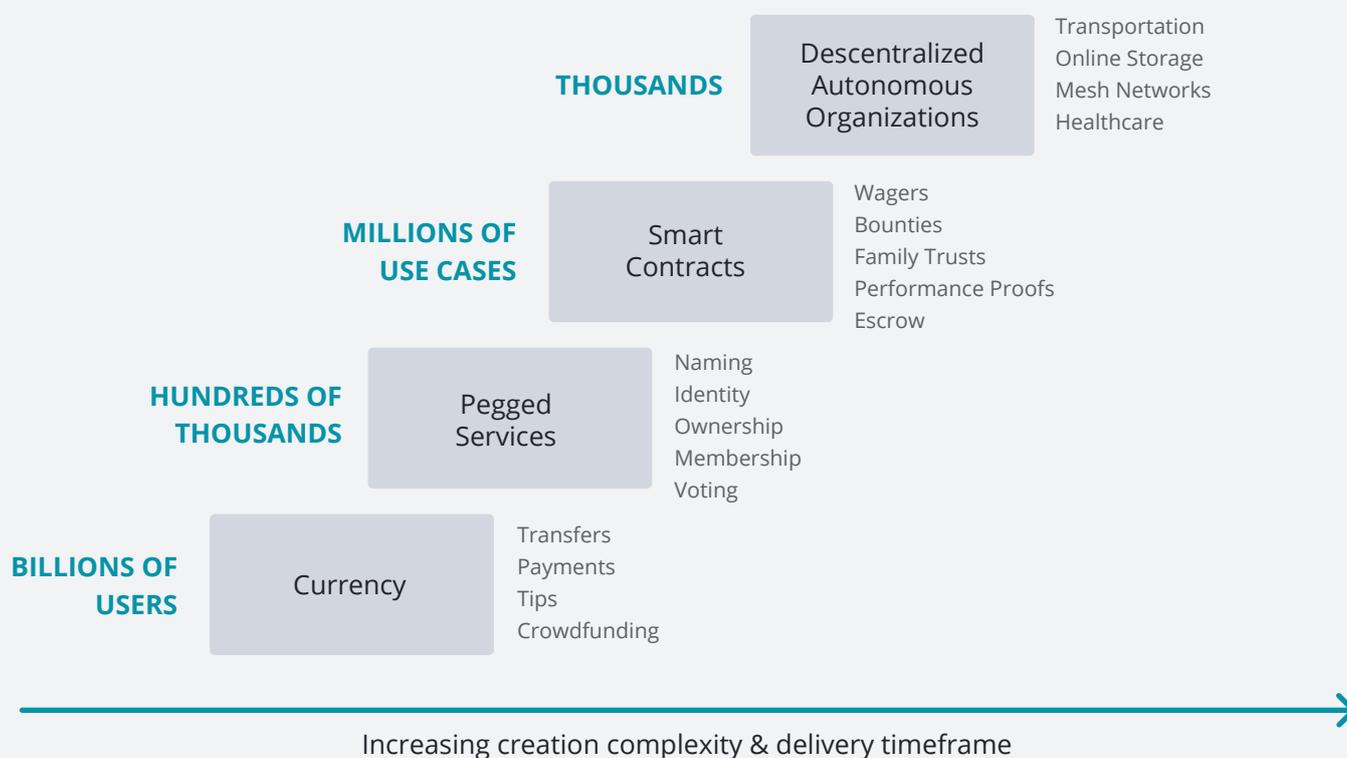- Reduction of inflation risk and the risk of speculations on the price of a cryptocurrency.

In terms of their impact on banking, cryptocurrencies have generated a technological revolution similar to those the Internet and email once brought about, all because of the blockchain technology. Bitcoin was the first use case of the blockchain, but it had not received much attention up until 2014, when the technology underwent a tremendous re-evaluation in the public's eyes, becoming one of the most widely discussed topics in the fintech and IT communities. Within a short period of time a large number of blockchain applications emerged, often referred to as decentralized applications - dAPPs for short.

The cornerstone of the blockchain is its decentralized nature. There is no person or entity in control of the blockchain. Instead, the system is run by a network of computers, and data stored on the blockchain is distributed among them. Such distribution helps to resolve data storage and security issues: everyone has access to the data, but no one owns it, nor can change it without everyone else knowing it.

Another example of a blockchain application is a decentralized autonomous organization (DAO), which is predicted to become one of the most disruptive inventions after the blockchain and cryptocurrencies. DAOs are considered to be a new form of legal structure, in which management and control are carried out by means of smart contracts, the so-called self-executing agreements on the blockchain.

The number of blockchain applications is increasing and expanding further away from the domain of cryptocurrencies to other industries such as accounting, real estate, data storage, etc. The illustration below highlights the growing number of users of various Blockchain Apps by segments.

BLOCKCHAIN APPS - END-USER VIEW

THOUSANDS
Descentralized Autonomous Organizations
Transportation
Online Storage
Mesh Networks
Healthcare

MILLIONS OF USE CASES
Smart Contracts
Wagers
Bounties
Family Trusts
Performance Proofs
Escrow

HUNDREDS OF THOUSANDS
Pegged Services
Naming
Identity
Ownership
Membership
Voting

BILLIONS OF USERS
Currency
Transfers
Payments
Tips
Crowdfunding

Increasing creation complexity & delivery timeframe

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The same tendency is true for most cryptocurrency platforms limited to a small number of services and products. However, the ability to use these platforms is directly tied to several applications, which customers need to switch between in order to buy or exchange cryptocurrencies, to shop, trade, gamble, fundraise, donate or invest. In this way, a payment in cryptocurrency takes an extended amount of time, due to the time spent switching between these applications. This results in an unpleasant user experience and poor adoption of digital currencies. It also explains the increasing need for user-friendly products and services, such as a one-stop-solution platform. Large organisations, including the Big 4 companies, as well as technology corporations, are looking for ways to develop such products.

CURRENT CHALLENGES

There are a number of reasons explaining why cryptocurrencies keep gaining traction, mainly due to the limitations imposed by FIAT currencies, such as identity protection, transaction process and safety, which are burdening user experience.

As payment technologies evolved, the demand for card payments increased together with the concern about peer-to-peer (P2P) payments. In this highly competitive environment, the players are working hard to maintain their position and to disrupt the status quo. This is done to eliminate the complicated and inefficient set of separate processes making a simple purchase with a credit card cumbersome. The credit card payment compels not only a customer and a merchant, but also banks, acquirers, payment processors and a group of organizations operating the network to participate.

The payment ecosystem is limited to being a counterpart of a broader commercial landscape, where fraud management and data privacy are being managed integrally within the IT security framework. This framework spans towards the Internet, mobile devices, social networks and cloud services. As a result, payment processing organizations have to manage risks associated with online payments in FIAT currency via a complex and slow mechanism. On top of that, the challenges faced by fintech applications include: fraud and thefts, chargebacks, cross-border transactions, data security, multi-currency payments and payments on-the-go.

Generally speaking, there are three major challenges in payment processing according to IBM Commerce 'Pay It Forward' ebook:

- Satisfying customers' needs for payment options and localization
- Meeting security, privacy requirements and regulations
- Reducing complexity across the payment ecosystem

80%
of customers

dislike the checkout process because it's inefficient or inaccurate[9]

52%
of shoppers

want to see a variety of payment options at checkout[10]

24%
of consumers

have abandoned an online purchase because their preferred payment option was not offered[11]

Key takeaway: Provide customers with a frictionless shopping experience regardless of when, where and how they want to pay.

Source: IBM Commerce 'PayIt Out' ebook

With the expansion of e-commerce within the last few years, customer demands for multiple payment options emphasising a seamless user experience, have increased. The high-growth areas within the industry are oriented towards mobile payments, multiple payment options and on-the-go payments. Cashless transactions over smartphones and tablets, for instance, amount to about 39% of e-commerce sales in the UK alone as of 2015. Between 2015 and 2018, global e-commerce spending is expected to grow up to 56%. To make this happen, retailers need to ensure that the checkout and payment processes are smooth and optimised. The mobile payment industry in the US is predicted to reach 73% by 2019, which will increase payment providers' concern for security.

USD 32 million
lost in US retail credit card fraud in 2014, up 39% from 2013[18]

75%
of consumers
expect online payment systems, stores and banks to protect them from fraud[19]

59%
of consumers
fear having their credit card data stolen or abused[20]

49%
of consumers
feel vulnerable to security risks when transacting online[21]

Source: IBM Commerce 'PayIt Out' ebook

In spite of a rapid market development for online payments worldwide, the problem of poor cryptocurrency adoption remains unresolved. Although the outstanding role of crypto in the fintech world is recognized and taken into consideration by IT industry leaders such as Microsoft, a number of technical reasons, such as the technology's inaccessibility, the overload of difficult terminology and usability hindrances, prevent the average internet user from taking advantage of the technology, causing a slow adoption rate. Thus, a PwC research on the cryptocurrency market conveyed in 2015 has shown that the level of familiarity with cryptocurrencies among people affects the frequency of use, meaning that the key to cryptocurrency user adoption lies in spreading the knowledge about it.

THE MASS ADOPTION CHALLENGE

According to Hardwin Spenkelink, the three main barriers to overcome for greater cryptocurrency adoption are:

- **The ease of use/ the lack of user-friendliness:** Sending and receiving digital money is still cumbersome, because each time the user decides to spend cryptocurrency, he/she is required to visit three different websites to set up a wallet, to exchange crypto and to spend it. Users also need to be able to have more confidence in the safety of their funds.

- **Fluctuation:** Price volatility of many existing altcoins is driven by speculation, whereas the lack of liquidity makes keeping funds in cryptocurrency risky for users. The constantly changing cost of crypto, undermines the possibility of using it as a value storage.

- **Governance:** In the Bitcoin system, governance is seen as being centralized and undemocratic, meaning that large mining pools and big investors own most of the available bitcoin supply.

The second generation of cryptocurrencies initiated by Ethereum in 2014 have taken into consideration the Bitcoin experience with all its drawbacks, and designed a different governance model. Although Ethereum's blockchain has many similarities with that of Bitcoin, the principal difference between the two is as follows: Ethereum uses the blockchain as a shared space for other decentralized apps and smart contracts, making them easily compatible with its system. In this way, governance is taken away from a centralized individual or entity. The protocol on Ethereum does not require parties to trust each other and allows them to reach consensus automatically. The use of ether token on Ethereum excludes any possibility of speculation, because the token's main function is to serve as fuel in the network.

Removing the above barriers is likely to improve the adoption of digital currencies, although the success is not guaranteed. For many users the benefits from using cryptocurrencies outweigh the aforementioned barriers. These benefits are:

- Low transaction costs;
- Low entry barriers for newcomers;
- Cross-border transactions at fast speed
- Pseudonymity.

Having considered the experience of earlier cryptocurrency projects, we came to the conclusion that the core factors influencing the success of massive user adoption of cryptocurrencies are user-friendliness and awareness. Users should feel comfortable and safe using the cryptocurrency service, and their needs should be met in the same place with no need to visit multiple websites and go through time-consuming registration processes. Furthermore, gaining sufficient knowledge about the industry (and/or service/product) and understanding its potential will enable users to start trusting the technology and use it with more confidence.

WHAT IS COSS?

COSS stands for Crypto-One-Stop-Solution and represents a platform which encompases all features of a digital economical system based on cryptocurrency. The COSS system consists of website payments, seller tools, a marketplace, financial module, e-wallets, coin facilities and a mobile platform for iOS and Android (and this list can be infinitely extended in the future). The platform not only unifies all transactional aspects that are usually managed using FIAT money, but it also offers services such as exchanges, payrolls, wallets, acquisitions and transactions.

MISSION & VISION

The main goal of COSS is to bring cryptocurrencies to the masses. What COSS aims to cater to its users is a complete experience with an access to all available cryptocurrency services and products in the same place. From the very first moment a customer decides to use cryptocurrency he/she will be guided through the platform and its features. Protected from any unwanted negative experience, the user will continuously find new possibilities of using the platform and interact on it. By means of this integrative approach to virtual currency services, the platform aims to become preferred information source with regard to cryptocurrencies and ways of using them. For this purpose, the COSS platform is equipped with its own token (VEROS), a wallet, an exchange and a merchant platform.

The merchant platform on COSS aims to bring together cryptocurrency businesses and potential clients, facilitating communication between them for their mutual benefit. In this way, the COSS platform performs the role of a middleman in massive cryptocurrency adoption, helping cryptocurrency users to spend and earn their digital coins all in one place.

The COSS developer team has a clear vision with regard to achieving the goal of cryptocurrency mass adoption. Firstly, through providing for the customers' needs via one-stop-solution services. Secondly, through its reward system inclined to bring more merchants and affiliates on board. Thirdly, by establishing a cryptocurrency marketplace, where cryptocurrency users and merchants can meet each other seamlessly.

VEROS

COSS is based on a native cryptocurrency named VEROS (VRS), which was officially launched on October 29, 2016.

In turn, VEROS is built on Ethereum, a blockchain-based distributed computing platform that runs smart contracts. Ethereum serves as an abstract foundational layer, integrating all its core features on VEROS directly in the form of smart contracts. These smart contracts are deployed and processed by the entire network. The entire Ethereum infrastructure is utilized to validate, transact and add new blocks to the blockchain, which minimises the possibility of attack on the coin. Technically, VEROS is accessible as a DApp (Distributed Application) implemented on the Ethereum blockchain, with access to both online and offline services.

The main purpose of VEROS is to serve as fuel for the COSS network, just as Gas does on Ethereum. With VEROS customers can pay for all kinds of services and products offered by COSS merchants, and all the fees and rewards within the platform are also paid in VEROS.

ECOLIFE

As the system continues to develop, we anticipate a balance will be reached between supply and demand for VEROS, which will ultimately lead to an increase in its value. VEROS has all the prerequisites to becoming a viable replacement for FIAT money over the Internet, allowing millions of unbanked individuals to gain access to more convenient payment methods and have equal opportunities with the 'banked' people. This key feature will allow VEROS to be re-used continuously within the transactional ecosystem that we named EcoLife. We foresee that the many challenges facing the following industries (and many others) are will be resolved by means of EcoLife:

- **Gaming:** Online gaming is a continuously expanding industry, in which many passionate gamers find it difficult to upload funds onto various gaming platforms. The COSS platform presents a competitive solution that we expect will increase the demand for VEROS in this field.

- **Real Estate:** A great number of real estate developers are searching for simplified ways to accept payments from foreign investors. VEROS can become a secure and viable alternative with the potential to create increased revenue for developers.

- **eCommerce/Merchant Platforms** are one of the greatest sources for public communities' feedback. Merchants accepting VEROS as the preffered payment method on the COSS platform will contribute to the development of a lively marketplace for crypto services and products.

- **ATMs** are a fast and easy method of exchange from FIAT to crypto-currency or the other way round, serving as one of the main bridges between these two types of currencies.

- **The public cryptocurrency exchanges** integrated into COSS will offer the opportunity to exchange various crypto (VEROS, Bitcoin etc.) and FIAT currencies (EUR/USD/SGD).

This is only the first version of a list of potential industries, which can benefit from using COSS. Just like Internet technology, which no one can shut down, the COSS platform is likely to become a 'living' project, or 'a smart contract with no expiration date'.

SMART CONTRACTS

COSS has a very wide range of possibilities for development within the cryptocurrency industry. One of the main objectives of COSS is to create an environment in which the community of cryptocurrency users will continually expand. Therefore, COSS invites startups onboard to create a vibrant market with a financial model that everyone can benefit from. The first step to building the market is realized through the following features:

- **Smart contracts** as a service with functions such as crowdfunding, peer-to-peer funding, etc. Smart contracts are offered as standardized templates to be signed on the blockchain for a fee paid in VEROS, enabling agreements between people, regardless of location.

- **Easy incorporation:** transformation of ideas into companies, startups and funding solutions by incorporating companies in different jurisdictions. Payment for incorporation is held in VEROS, increasing the popularity of the COSS platform.

- **Crossborder transactions / remittances:** COSS is compatible with the most used crypto and FIAT currencies. A great number of transaction types within the COSS platform is done with ease by means of VEROS, which can easily be exchanged to other crypto and FIAT currencies.

The number of features, that can be implemented into the COSS platform is potentially infinite, which gives us confidence in the future success of the project. We are looking forward to joining forces with enterprises sharing our vision to make the platform more global and making the blockchain/fintech community more cooperative.

❚ COMPONENTS

Crypto-One-Stop-Solution is developed with regard to the global needs of the cryptocurrency industry in general, and with due attention to the demands of individual users who intend to manage their assets online. The platform is focused on providing individuals with approachable guidelines for a smooth start in the cryptocurrency world: helping those who already own a business to improve the quality of their service, and catering cryptocurrency services similar to banking to the unbanked.

COSS will consist of (but not limited to) the following services:

- An archive list (similar to coinmarketcap.com) of all available/tradeable cryptocurrencies;

- The information about the market cap, the trading volume, the general overview of cryptocurrencies and an option to download/install wallets for all these cryptocurrencies;

- An exchange, to which any of these cryptocurrencies can be listed upon request;

- A download/install button for various cryptocurrency wallets.

- A payment solution with a choice to accept payments in crypto currencies, in which direct settlement will be offered for highly tradable coins, and coin settlements for those with low volume.

- An API solution to plugin web shops and products, and thereby facilitate payments in cryptocurrencies.

- A display of featured products for merchants with a direct link to basket/checkout and cryptocurrency payment option.

The full system is composed of multiple connected applications that are accessible to the user. The applications are used by two main types of users: the normal users and the admins.

The applications are:

- **The Core Application:** provides the basic layout and functionalities for a user. It contains tuser registration, login and password reset mechanism.

- **Merchants Platform:** is used to create and configure a user's merchant account. The merchant platform serves as a payment processor that enables businesses to accept the most popular cryptocurrencies.

- **Exchange:** the COSS platform has an integrated Exchange that handles both cryptocurrencies and FIAT. Users will trade currency using their COSS balance.

provides the basic layout and functionalities for a user

THE CORE APPLICATION

COSS.IO

MERCHATS PLATFORM

is used to create and configure a user's merchant account

EXCHANGE

handles both cryptocurrencies and FIAT
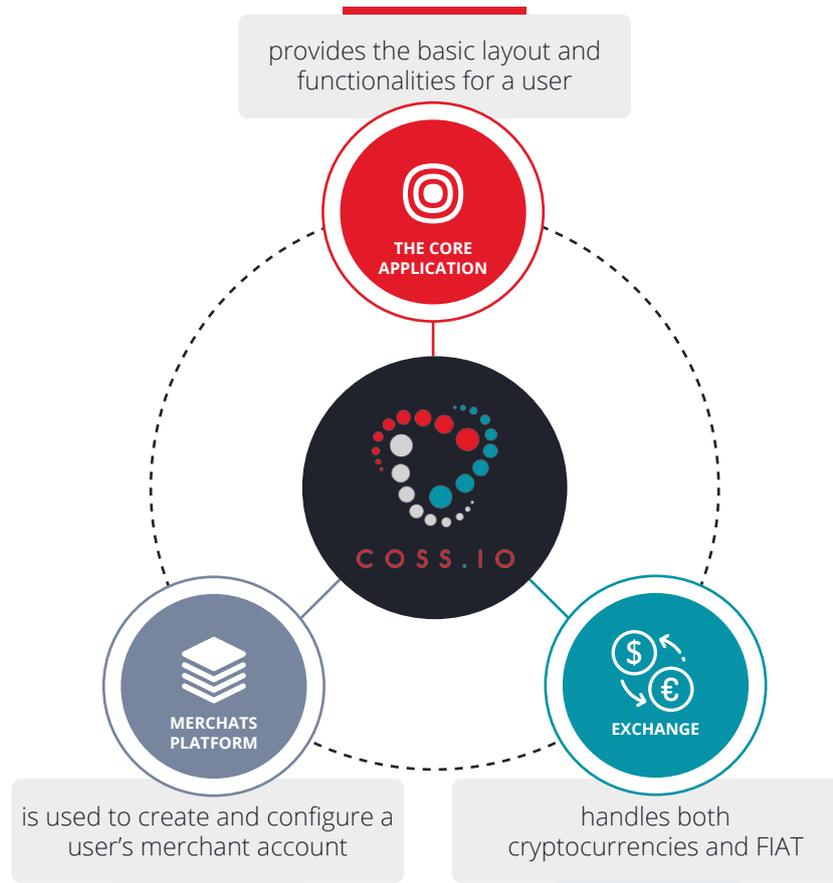
CORE APPLICATION

The core application provides the basic layout and functionalities for the user. It contains the user registration, login and password reset mechanism.

The functionalities offered to users are:

- All actions related to account management, such as:

    A. Registering a new account.

    B. Login into an existing account.

    C. Logout.

    D. User profile deletion.

    E. Configuration security (password change, adding phone number, setting email address, two-factor authentication configuration)

    F. Viewing account activity log

- Two Factor Authentication (2FA).
- Wallet Management

    A. Viewing balance for each currency.

    B. Creating deposits.

    C. Creating a withdraw request.

TWO FACTOR AUTHENTICATION (2FA)

ACCOUNT MANAGEMENT ACTIONS

THE CORE APPLICATION
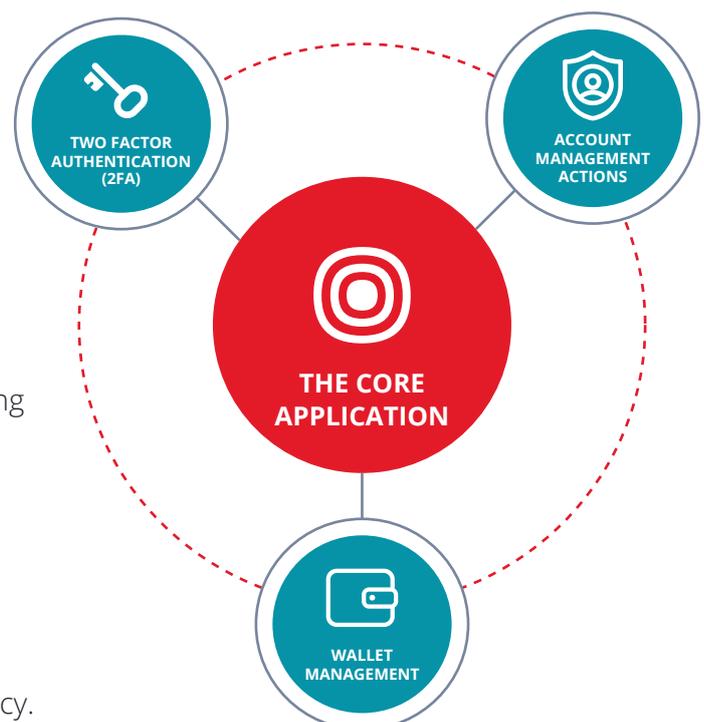
WALLET MANAGEMENT

THE LOGIN PROCESS AND ACCOUNT MANAGEMENT

A new account registration

In order to register a new account, the customer must provide the following information:

- email address (unique),
- username (unique) and password (minimum 6 characters).

After submitting the form, the user must confirm his/her email address by clicking on the confirmation link. The user can't access the account until he/she confirms the email address.

Login into an existing account

A user can choose to go through the authentication process by using his/her email address/username and password. There is a number of ways to prevent malicious breaking into an account by an unauthorized individual:

- If the number of failed authentication attempts exceeds 3 times, the application will ask for a CAPTCHA code.

- If there were more than 6 failed authentication requests, the application will send an e-mail notification to the user.

- If more than 10 failed authentication requests have been made, the application will block the user for 10 minutes.

A user is granted access to the following modules:

User information

A user can change his/her profile details (e.g. email address, first name, last name, profile picture and address).

Wallet

A user can view all his/her crypto and FIAT balances in the wallet section, can choose to withdraw or to deposit funds.
The currency exchange balances, which cannot be withdrawn are placed in Exchange orders and are also displayed (without the cancellation of the limit orders).

Verification (KYC)

A user can check his/her account status using the left section of the menu. The account status can be upgraded by means of completing the KYC levels. Each KYC level comes with different limits and functionalities.

History

A user can view his/her transaction history as well as withdrawals, deposits, account security, and some other features in the History section. The actions are grouped into the following types:

- Accounts: creation, authentication, enabling/disabling 2FA, adding phone number, changing password, changing email, upgrading account level, KYC, etc.

- Exchanges: posting, completing, trading

- Deposits & Withdraws: viewing the history of deposits, withdrawals and transactions

ACCOUNTS

EXCHANGES

DEPOSIT & WITHDRAWAL

Security

The Security sub-module can only be accessed after an additional password confirmation (for security purposes). This sub-module can be used to edit phone numbers and email addresses (only after confirmation), to change the password and activate / deactivate 2FA. A user gets his/her 2FA code from the COSS mobile authentication app or the 2FA email.

The application displays a list of balances for all crypto-/FIAT currencies a user has. A user is also capable of depositing or withdrawing in and from his/her account.

The menu section on the left is used to reveal available sub-modules and user's account type (based on the KYC input information). A user can send referral links to increase his/her affiliate level or receive additional perks.

Deposit

A user can deposit FIAT or digital currencies by pressing the buttons in the wallet bar in the application. After pressing the **Deposit** button, he/she can select a FIAT /crypto-currency he/she intends to deposit.

If the user chooses to deposit a FIAT currency, he/she will be redirected to several payment options. The possible action flow will be differentiated based on the selected payment method. If a user opted for **Bank Transfer** he/she will be taken to a page, on which the bank transfer details can be viewed and downloaded in PDF format.

If a user has selected a payment gateway, he/she will land on the respective website to complete the payment. After the payment is completed, the user will return to COSS.io for the payment confirmation. The confirmation page will inform the user that the payment has been completed and processed.

If a user selects to deposit a cryptocurrency, he/she will be redirected to a page with direct payment. This page contains information about the cryptocurrency payment receiver's address. The payment can be completed by scanning the QR code, copying and pasting the address, or simply by clicking on the payment link (if the user's wallet is installed on the device he/she is using). Depending on the cryptocurrency type, the application is required to wait until a certain number of confirmations is done, before the user's balance will be updated. A confirmation email will also be sent out once the payment is received indicating that the payment is completed.

Withdrawal

Withdrawals from users' balances are enabled in both FIAT and CRYPTO currencies. Withdrawals cannot be executed immediately, because they are required to undergo manual processing.

Users can withdraw amounts of any currency (FIAT or CRYPTO) that they own. Withdrawals are processed differently depending on the currency that is being retrieved. Withdrawals are not executed immediately.

If the user opts to retrieve a certain FIAT currency, he/she must enter his bank account details and amount and submit the withdrawal request. The withdrawal request is then manually processed by the back office operator and executed in the web-banking interface. Withdrawing in CRYPTO is similar: a user completes a withdrawal request, fills in the cryptocurrency address and the amount in the required fields. The back office operator can download all the withdrawal requests and process them in the cold wallet.

Merchant Platform

The merchant platform is a payment processor that enables businesses to transact using the most popular cryptocurrencies. The platform is used to create and configure merchants' accounts.

Before accessing this module, a user should select an existing merchant account or create a new one. One user can own multiple merchant accounts. One merchant account can have multiple users assigned to it under different roles. Each merchant has a general profile, subjected to any modifications only in accord with the initiative of the owner or admin.

There are multiple account types designed specifically for merchants depending on their KYC (different from a regular user's KYC), the volume of transactions and partnership type, which they have with COSS. Having registered a new account, a merchant cannot immediately be seen by end-users, as his/her account needs to be confirmed by the COSS management.

The merchant platform represents the first stage to creating a marketplace, which is an essential part of the EcoLife that COSS will create step-by-step. The application will have a frontend for the users (authenticated or unauthenticated) to search and filter merchants. Each merchant has his/her own wallet, used independently from the regular user wallets.

Merchant Roles

A merchant's account is owned by the user who created it. This user automatically becomes the owner of this merchant account. The ownership status cannot be transferred to someone else and is in the ultimate possession of rights on the merchant's account.

A merchant can select cryptocurrencies he/she would like to accept for each of his branches (e.g. shops, locations, businesses). Additionally, a merchant can add discount intervals for each cryptocurrency and set the maximum payment amounts.

When a user opens the merchant platform, a dialog window appears, in which he/she can select a merchant. All the sub-modules of the merchant platform become available only after a merchant is selected. From that moment on, the actions applicable to the merchant can be accessed.

The owner can add new users to the merchant account and assign them roles.
The available roles are:

ROLE	PRIVILEGES
Owner	All privilleges
Admin	All privilleges except for creating or removing ADMINS
Branch Manager	A branch manager can only access data about his/her branch(es). A branch manager has full access to the following modules: • Adding users (with the exception of admins and branch managers). A branch manager can only manage users to the branches he/she is responsible for. • Accessing branches (except for deleting and creating new branches). A branch manager can only manage branch(es) he/she is in charge of. • Sales
Financial Manager	To be determined
Sales Manager	Managing POS devices and POS users Viewing sales (on his/her branches only)
Content Manager	Can configure the public profile of the branch

A merchant can view the discount list by clicking on the currency in the Settings. Each discount has a currency, a branch, a value (in percents), a start-date and an end-date. A user can also access the discount statistics (e.g. the number of sales, the total price reduction etc).

A merchant can add a discount for a certain cryptocurrency. When a customer goes to the payment page, he/she will see the list of available cryptocurrencies. A discount applied for each cryptocurrency specifically will be shown under this cryptocurrency.

A discount can be scheduled for the future by means of a mandatory starting date (the minimum start-date: the same day, current time) and an end-date (optional, minimum current time).

Each merchant has his/her own balance. A merchant, unlike a regular user, who can choose to have both a FIAT and a crypto currency account balances, can only hold a cryptocurrency balance. Only the Owner and the Admin are privileged to view and withdraw balance from the merchant's account. This also means that withdrawals can only be processed to the account balances of the owner and admin.

The transaction summary statement reports all the INs and OUTs of the merchant balance. The income is usually made from POS and payment gateway cells, and OUTs - from withdrawals from the merchant account. Withdrawals can only be made to another COSS account.

Exchange

The COSS platform has an integrated Exchange feature developed to handle both crypto- and FIAT currencies. Users can trade currencies using their COSS balance. Merchants cannot trade on the Exchange. In order to exchange their funds stored in cryptocurrencies into FIAT money merchants will need to withdraw these funds to their personal user accounts, which allow them to trade.

The COSS Exchange offers both Limit and Market Orders. The Exchange is a free system, in which all transactions are processed automatically. All a user needs to do is only entering orders.

The trading pairs on the COSS Exchange will be dynamically managed from the Exchange Backend. The Admin will be able to add a new pair, to set up dynamic fees for each individual currency and so on.

The trading pairs have a single direction, for example, you if you have the pair USD/BTC, you can't have the pair BTC/USD simultaneously. As an admin you can pin certain trading pairs on the top of the exchange list. Users can also mark certain pairs as favorites.

The initial trading pairs are as follows:

LEAD CURRENCY	PAIRS
VRS	BTC USD EUR ETH
BTC	USD EUR ETH

For each trading pair, the Exchange displays the following information: type of currency, daily transaction value (in BTC) and price increase / decrease over the last 24 hours (applies to the main trading pair).

The COSS Exchange is based on a separate, independent custom-developed trading engine. This trading engine communicates with the web-server through an internal API.

The trading engine has the following working principles:

- All trading is done automatically based on the orders available on the exchange in the real time. There is no possibility to BUY or SELL a certain order from the order book.

- All transactions are closed at the minimum price.

- Users can't enter the limit order when BUYING a pair at a lower price than the current exchange price. Setting the limit at the current price will transform the limit order into a market order.

- Users can't enter a limit order when SELLING a pair at a higher price than the current exchange price. Setting the limit at the current price will automatically transform the limit order into a market order.

- Market orders are executed instantly.

- Limit orders will be executed by the engine automatically when the price matches.

- If the price does not match, the limit order may never be executed.

- Limit orders expire in 24 hours.

- Orders can be partially filled, which means that a single order can be divided into parts and sold to different people (e.g. a sales order of 100 VEROS can be split and partially purchased by several buyers.

Differences between the limit orders and the market orders are outlined below:

LIMIT ORDER	MARKET ORDER
The order will be automatically executed by the engine. It may never be executed, if the price doesn't match	The order will be instantly executed by the engine. The price is generated by aggregating orders from the exchange.
A user selects the pair and enters the amount and the maximum (for buying) or minimum (for selling) price.	A user selects the pair and enters the ammount. Tthe trading price will be automatically provided by the system. The user can accept this order instant

MODULES

USER INFORMATION

WALLET

THE CORE APPLICATION

MERCHANT ROLES

VERIFICATION (KYC)

COSS.IO

WITHDRAW

MERCHATS PLATFORM

EXCHANGE

HISTORY

DEPOSIT

SECURITY

ARCHITECTURE

COSS is built using a number of technologies based on the latest software development requirements. With a combination of the best frameworks at hand, COSS is aligned with the latest technology standards.

In order to manage the client's communication the application NGINX is used for creating the web proxy server. The advantages of NGINX such as managing multiple connections, compatibility with a diverse range of protocols and advanced load balancing have determined our choice in favor of this application.

The web proxy server communicates with the frontend applications, which are based on: Angular2, VueJS and NodeJS. The communication is done via the HTTP2 protocol and Web-Sockets.

The Service Layer manages the SSO (Single-Sign-On), 2FA (2-Factor-Authentication), the messaging system (email sending service), user profiles, merchant profiles, wallets and Exchange. This layer communicates with the Backoffice web application (through HTTP2 and Web-sockets), the Wallets (through Remote Procedure Calls) and the Exchange Engine (Using TCP and a Message Bus).

The exchange engine is powered by Node.js and is a high-speed single-threaded application. The back-office management applications are built using the Bootstrap framework and Node.js, as they correspond to the latest technology standards and are widely adopted.

The communication layer between GETH and the front-end application is implemented by means of Node.js, which uses an event-driven, non-blocking I/O model allowing it to manage communications between the users and COSS. The Node.js application communicates with GETH through IPCs (Internal Procedure Calls). The Node.js application shares the same server with Geth.
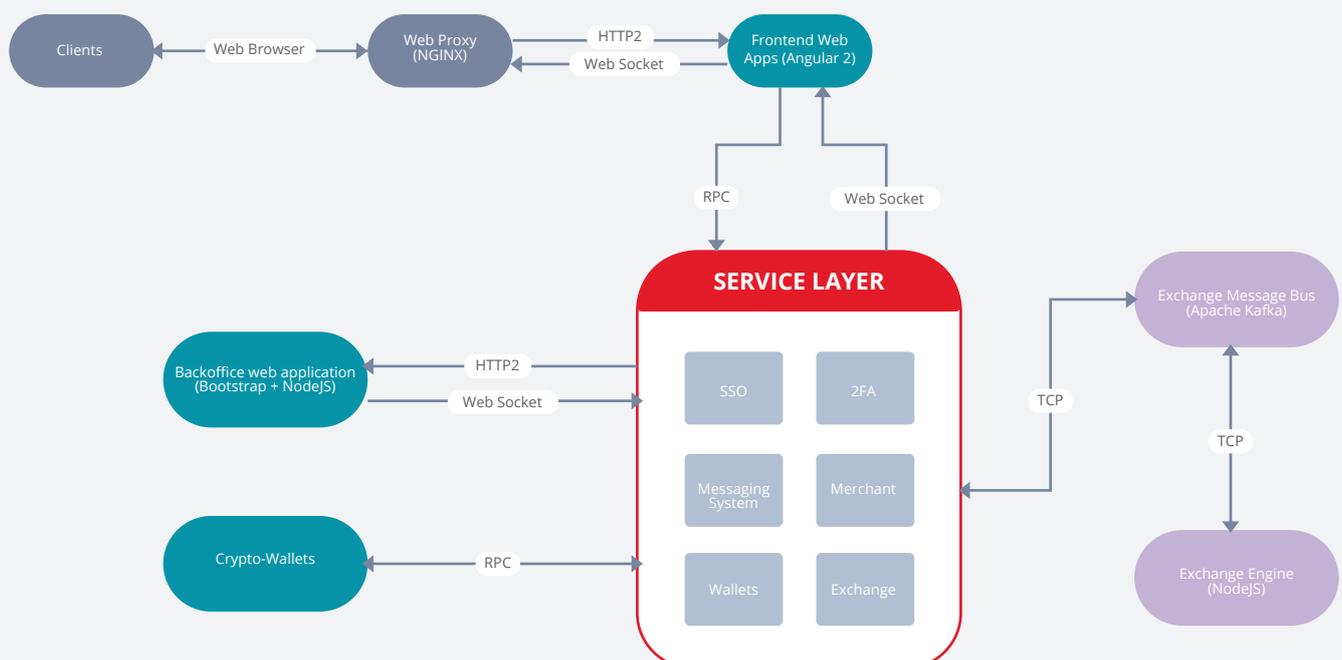
CONCLUSIONS

The crypto-currency domain has evolved within the recent years resulting in a great variety of sites providing all sorts of services, quite often similar to each other. The observation of cryptocurrency users' behaviours has indicated that many of them are looking for a unified platform comprising the principles of the educational websites, wallet providers, ranking and exchanges. Such a platform, compatible with multiple sites, products and services in relation to cryptocurrencies, designed to perform various business deals can significantly change the way most cryptocurrencies are operated at the present moment. The paradigm shift, which already began thanks to Bitcoin, Ethereum and the blockchain technology can be taken a step further to boost massive adoption of digital currencies and stabilise the role of this pioneering market in the global economy. This is the vision behind the Crypto-One-Stop-Solution platform.

The mission of the COSS platform is to consolidate and gain like-minded crypto-currency users (customers, merchants, enthusiasts, developers, traders) on board around a user-friendly and intuitive platform that can seamlessly integrate all the existing features under the same structure. This platform comprises exchanges, ranking, trading, shopping and social networking, but of course will not be limited solely to these functions.

Coss.io offers an entirely new customer and merchant experiences to its users, who can be bussinesses and consumers at the same time. COSS allows building further applications on its foundation and thus infinitely growing together with the customers' demands. The customers on the COSS platform are people from all walks of life with various needs and interests. Such a versatile community is a key factor inspiring non-cryptocurrency users to adopt this technology and to benefit from it in the long-run. Both groups of Customers have diverse ways of looking for products, which increases merchants' conversion rates as they grow.

The Coss.io platform is optimized to provide limitless e-commerce services to help individuals and merchants to embrace the best experience in utilizing cryptocurrency. This includes multiple services, e.g. an access to a marketplace, exchange facilities, point-of-sales, the products and services, which are yet to come.

RESOURCES

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APPENDIX 1: DEFINITIONS

A **cryptocurrency** is a medium of exchange, which makes use of cryptography to secure transactions and to control creation of additional currency units. The development of cryptocurrency has been actively growing in the past decade, thus offering a broad range of transactional possibilities for both users and organizations.

A **blockchain** is a distributed database, which makes the creation of a digital ledger of transactions and sharing it among a distributed network of computers possible. By means of cryptography each participant of the network can access and manage the ledger in a secure way. No central authority here is needed. The blockchain maintains a continuously-growing list of records (blocks), each containing a timestamp and a link to the previous one.

A **decentralized application or dapp** is a type of software represented by a set of smart contracts and code that enables them. A dAPP is designed to exist in the Internet so that no single entity can control it. DAPPs are similar to traditional web applications, although they don't have a centralized server. The function of a server is accomplished by the blockchain. DAPPs can be built on top of the blockchain, just like various altcoins. They can also connect to the other web apps and decentralized technologies.

Distributed applications (distributed apps) are applications or software that run on multiple computers within a network at the same time, and can be stored on servers or by means of cloud computing. Unlike traditional applications that run on a centralised system, distributed applications function on multiple systems simultaneously to perform a single task or job.

A **distributed ledger** represents a consensus of replicated, shared and synchronized digital data, geographically spread across multiple sites, countries and/or institutions. The efficiency of a distributed ledger is derived from the immediate reflection of changes made by any participant in all copies of the ledger. The full potential of distributed ledgers is attained at the moment when other applications are layered on top of them (e.g. smart contracts).

Smart contracts represent contracts on the blockchain with terms recorded in computer language; they can be automatically processed by computer systems and perform functions such as value distribution, data storage, interaction with other contracts, etc. It is economically viable to use these contracts, as they are low-costing when it comes to enforcements and compliance.

VEROS is a cryptocurrency functioning on the Ethereum platform, specifically designed for the COSS platform users to perform payments, exchanges and purchases using smart contracts.

The **unbanked individuals** represent people who do not own a bank account and/or do not have access to the traditional financial system.