MINTFORT

Whitepaper

Version 1.2.0

Thursday, May 10, 2018

1. Introduction

Have you ever had an issue with your bank? Maybe your account was blocked, a payment rejected or you had the hassle of reaching a daily withdrawal limit. Now imagine a bank where such issues become a thing of the past. In this new reality, being a bank customer means that you are in full control and can be free to choose how your money is managed.

A. Banking Situation

If we take a look at the traditional banking market and in particular focus upon the advantages as well as the disadvantages, we see that today's financial services are slow, limited and centralized. The last point is an important one. As a bank customer, trust is a key issue. You have to be able to trust the institution that it is handling your money and feel that your account is safe. After all, on a legal basis customers are just creditors. The past shows us that we should not have unwavering faith in our banks. Taking on risk is part and parcel of banking with a minority of institutions even being involved in fraudulent activities. The implosion of Lehman Brothers, the US investment bank, shows that no financial institution is safe. If your bank goes bankrupt you have only limited protection on your account holdings. If you have just one bank it means putting all your eggs in one basket. This basket is not immune from the consequences of flawed human behavior. In addition, political issues are more and more threatening to customers' privacy. Government protection of bank accounts has in recent years been compromised in many countries.

Also, do not forget that banking – especially for businesses – is very expensive. International money transfers cost €50 or more when currency exchange fees are included. Receiving payments as a merchant from customers always results in high fees and bank accounts can incur fixed monthly charges. When it comes to investment products, account management fees often eat up returns.

Last but not least, limited services are an ongoing pain in the industry. Banks are still working in the nineties when it comes to easy wealth and asset management, digitalization, automation or speed. A transaction still often needs a few days to process and is limited to a specific amount. Internal account functions often only focus on transacting money or receiving payments. Additional features such as short-term investments, peer-to-peer instant transactions, access to different asset classes or simple digital notifications, alerts and transaction confirmations have limited availability in a traditional banking service.

B. Decentralized Banking

Instead of relying on a central third party that keeps full control of your assets, the development of blockchain technology is opening a totally new approach to asset management. It is now possible to take back control and access to the owner while storing his or her wealth in a decentralized network built by a community.

The blockchain enables people who take part in the network to build an institution or pool where money and wealth is held. Interactions with each other, especially transactions, do not need to be verified by an external participant, but can be regulated and determined by secured protocols called smart contracts. Blockchain technology is not only providing the opportunity to drastically reduce risk factors and dependency on others but will also have a huge impact on pricing and speed.

This knowledge is already widespread within crypto communities. The main challenge now is to connect these opportunities to the real world and especially to existing fiat money systems. In addition, when it comes to cryptocurrency banking, solutions are still quite rudimentary and not able to fulfill retail or business needs. Most services are restricted to a wallet and the ability to make transactions to another wallet that is capable of holding the same currency.

Handling wallets is often difficult and sometimes even dangerous. What is truly needed is an easy-to-use universal interface, adaptable to external services, giving free choice of currency usage. Now a network built on a blockchain forms the underlying backbone of an ecosystem, connecting all participants with each other. Within this network, transactions are being made, either automatically transformed to a universal base currency, or using new technologies, such as atomic swaps (https://www.cryptocompare.com/coins/guides/what-are-atomic-swaps/) or COMIT (http://www.comit.network/), to achieve transaction cross-chain and currency-independence.

Within such a system, the bank is only a service provider putting the necessary algorithms and technology in place for usage and a working infrastructure. Now the key question remains: How do you achieve such a system for fiat currencies without keeping control over users' bank accounts?

C. The Mintfort Vision

At Mintfort, we believe strongly in the importance of freedom. Everyone should have the right to freely choose their next step in life, be it personal, social or financial. Driven by that strong belief, we are building a bank of the future that combines modern requirements of customers on banking services with the most advanced technologies, such as artificial intelligence and the blockchain.

Meanwhile, it is our mission to reach true decentralization when it comes to assets and their management. With that as one of our highest values we will put wealth back into the hands and control of the people building a modular service infrastructure well protected by the consensus of the blockchain. We have the vision of a bank that is flexible, digital and modern. A bank that delivers value to its customers and where only the customer has high-speed and secure access to their assets on a global basis. Where plenty of services, be it in regards to banking or investment are available flexibly, to be chosen at any time. Where transactions take seconds, no matter if you pay your local food store or a major supplier overseas. All this at a fraction of current traditional banking costs.

Another main goal within the upcoming months and years is to give an answer to the question in 1A (how to decentralize a fiat bank account). Only this will truly disrupt the banking industry and give full value to users. If a reliable solution can be found, the connection of the crypto space, fiat currencies, daily life and existing infrastructures is established in a sustainable model.

Philipp Petzka

Founder

CEO

Moritz Schuster

Founder

COO

Oliver Weber

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CTO

Axel Furmann

Co-Founder

Head of Product

Advisory Board:

Gary Leung

Mr. Leung had maintained senior executive positions with Global TOP 500 companies as well as listed companies in Hong Kong and overseas markets.

Viagold Capital Ltd. (Chief Investment Officer)

Culturecom Holdings Ltd. (Senior Vice President)

Chinese University of Hong Kong (Executive Director of incubation)

China Solar Energy Holdings Ltd. (Senior Vice President)

Oracle China/Hong Kong Ltd. (Managing Director)

Kilian Thalhammer

Mr. Thalhammer has been working in the Payment/ FinTech/ eCommerce & Loyalty sector for more than 10 years.

Schweizerische Post AG (Director Solutions)

RatePay - Otto Group (CPO)

Paymill - Rocket Internet (Managing Director)

Savedroid (Consultant and Business Angel)

Lodgify (Consultant and Business Angel)

2. Mintfort Application – Core Features

B. An Intuitive Interface

An intuitive interface will form the core of the Mintfort application, working as a one-stop shop to access multiple services that are connected. We aim for a modular structure whereby if there are new features accessible for the customer they fit smoothly into the existing structure.

C. Mintfort Smart Exchange

Exchange and conversion mechanisms are core functions in the Mintfort ecosystem as exchanging and sending money is the main purpose of a bank account in the traditional sense.

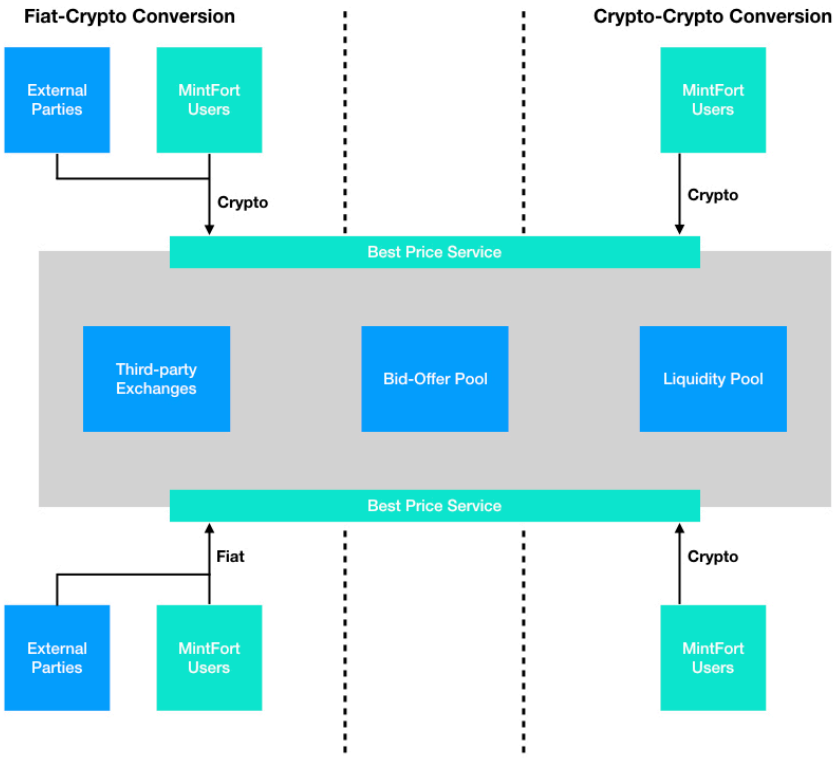
While we believe cryptocurrencies will grow in importance, users of Mintfort should be able to purchase any currency at the best possible rate using the Mintfort Smart exchange service (MintfortSX). Getting involved in the cryptocurrency space, the fiat-to-crypto exchange process is still one of the most expensive issues. To reliably provide the best rates, MintfortSX's proprietary algorithm is connected to third party exchanges worldwide to identify the best price for all currencies. In addition, we will build our own decentralized bid-offer mechanism for our users so that they can convert their assets on a purpose built market place and trade with each other. Order matching and conversion services will be fully automated and done by smart contracts, whereas the MintfortSX service also compares prices between internal and third party market places to consistently achieve the best rate. As a third option, we will build up a liquidity pool as a gateway for cross-currency transactions especially when it comes to crypto-to-crypto transactions.

In general, the smart exchange service will fulfill the following functions:

- Fiat-to-crypto conversion for customers, plus external parties
- Currency and asset conversion in the Mintfort wallet or bank account
- Savings and investment related conversions
- Optimized currency conversions while processing payments for daily purchases
- Cross-currency transactions

Currency conversion should be easily done in seconds. We are aiming to build conversion mechanisms directly into the users' wallet, but also offering the service standalone to external parties, which is increasing the size of the available bid-offer pool and increases liquidity as well as making the platform more attractive.

Figure 1: Mintfort Smart Exchange

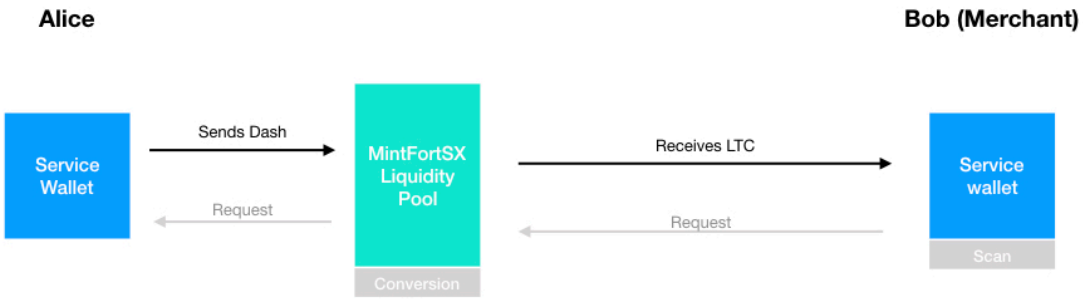


D. Cross Chain Transaction Liquidity Pool

To enhance convenience and lower fees, Mintfort is developing an entire transaction network in line with its smart exchange service. An asset pool holding a certain volume of multiple currencies is acting as an intermediate between parties and is fully automated. This structure allows instant transactions, independent of volume. Users, no matter if a business or private member of the network, can interact with each other without any currency dependencies, as all currencies are able to be sent or received. Even multiple currency payments can be managed within seconds.

To avoid clumping risks, the Mintfort liquidity pool is equipped with a rebalancing algorithm to keep a balance between the different currency pools. The algorithm will be AI-driven to predict probabilities of constraints in certain currencies, ensuring no pool will run short of liquidity. If certain currencies are accumulating to a specific overweight threshold, overweighting funds are being released and traded on the Mintfort Smart Exchange automatically.

Figure 2: Mintfort cross-chain transaction



Use case: Alice is shopping in a local grocery store, named Bob. They are both using the Mintfort app. When it comes to pay Bob for the goods Alice wants to buy it turns out she wants to pay with Dash but Bob prefers to accept Litecoin. Bob then sets the payable amount. Afterwards, Alice scans Bob's app. A request is being sent to the MintfortSX. Since the described situation requires an immediate confirmation, the smart exchange service chooses the liquidity pool as the right gateway of interaction for Alice and Bob. Then, the requested amount of Litecoins is sent to Bob, deducted by a small fee. At the same time, Dash worth the equivalent value is being withdrawn from Alice's services wallet.

Since decentralization and security are the ultimate goals, Mintfort Smart Exchange is going to be a decentralized exchange in the future. In the beginning, the funds for trading and exchanging must be held in the Mintfort wallet, while the matching machine works the same as at traditional exchanges. This approach is taken as a result of the fees and the very young stage of decentralized exchange technologies. We as a team are aware of currently rising advanced technologies in respect of decentralized exchanges, such as the 0x protocol (https://0xproject.com/). Unfortunately, at the moment such protocols are only working with ERC20 tokens and Ethereum. Relying on these technologies now will cause a huge restriction in regards of usability, convenience and freedom of choice for our users. As soon as decentralized exchange protocols are able to work with a majority of coins, Mintfort Smart Exchange will become decentralized, whereas Mintfort will be only the broadcaster of orders.

E. Mintfort Wallet

Accessible via our interface, the Mintfort wallet is designed to hold multiple currencies. We are first starting with cryptocurrencies while extending the asset range step by step. Hereby, security is the main issue and user protection must be of the highest standard. Our vision is to unite cryptocurrencies, fiat currencies and other assets such as stocks or treasury bond certificates in one universal wallet to give easy access, control and an outstanding managing experience to our users.

If the user does not want to hold all currencies in one place, we are offer API and smart contract services to access exchange accounts or third party wallets. Our current live product is already in place, helping users to track their balances and portfolios:

www.mintfort.com

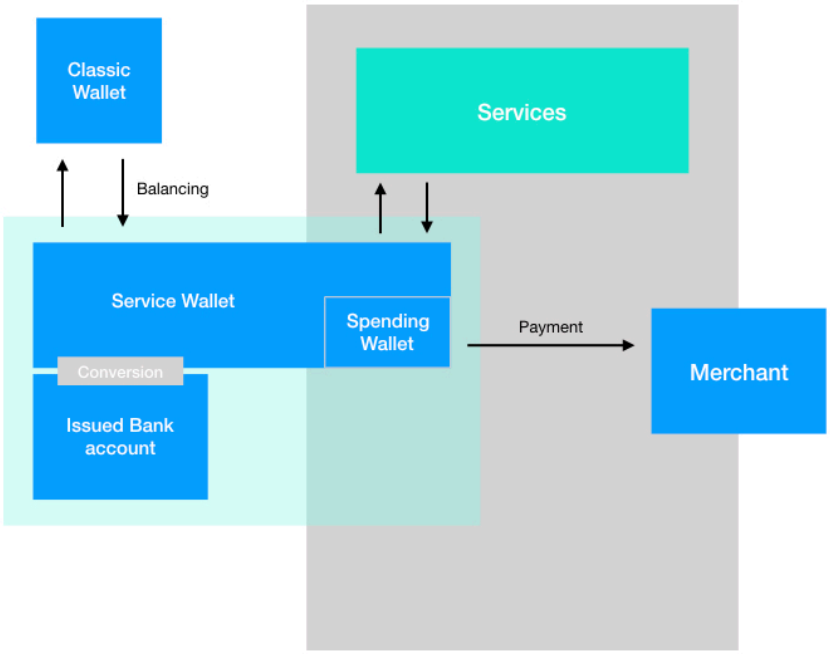
As flexibility is vital, our mobile wallet will be developed to work hand in hand with the user's account wallet (service wallet). To reduce risk and the exposure of assets to the quite vulnerable environment of smartphones a risk management mechanism can be activated by users. This sets a maximum and/or percentage amount that is available on the mobile wallet. If an unlocked phone is lost, only the set amount can be withdrawn. When funds drop to a set amount, the mobile (spending) wallet will automatically be topped up by the service wallet.

Within the Mintfort account, two different types of asset storage will be available. On the one hand, a classic wallet, where a user controls his or her private keys. In addition, another wallet, titled Service, is needed for ecosystem interactions. Funds used for payments, investments, pool transactions will be stored in the service wallet (except P2P payments). Meeting current technology standards, this is the only possibility to provide convenient services and ensure very low fees in the system. We are aware of the risks of value accumulation/asset clumping and ensure that the highest standards of security are met. Our highest mission in the long run is to decentralize all services without exception. For now, this compromise has to be made for the already named reasons.

Mintfort Classic Wallet	Mintfort Service Wallet
User controls private keys	Mintfort controls private keys
P2P transactions only	Multi-currency, pool and cross-chain transactions
Primary purpose is to store assets securely	Main purpose is to interact with ecosystem and use services
Fees depend on currency blockchain and are usually high	Fees are set by Mintfort, significantly lower than traditional blockchain fees

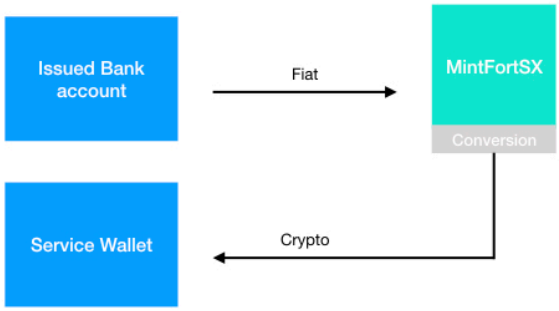
An overview of how the different types of wallets are working with each other is shown in the following graphic:

Figure 3: Mintfort Wallet structure



Issued bank account… *A bank account for fiat money, connected with the user's Mintfort account.*
Service Wallet… *A multi-currency wallet. A user needs to hold funds here to access Mintfort banking and investment services.*
Spending Wallet… *A mobile wallet for daily use. The wallet is part of the Service Wallet, but only a set amount of funds are available to lower the risk of losses.*
Classic Wallet… *A multi-currency wallet to lock up funds safely.*

Figure 4: Conversion process between the user's bank account and the Mintfort service wallet.



F. Bank Account

We want to connect traditional banking service structures with cryptocurrencies, leveraging the advantages of blockchain technology. Therefore an account with traditional identification characteristics, such as IBAN, BIC or SWIFT as well as an account number is needed. Any potential user will be able to open such a fiat bank account by simply providing an identification proof in line with international KYC and AML regulations.

Our approach is to tackle the issue of decentralizing fiat bank accounts in three steps:

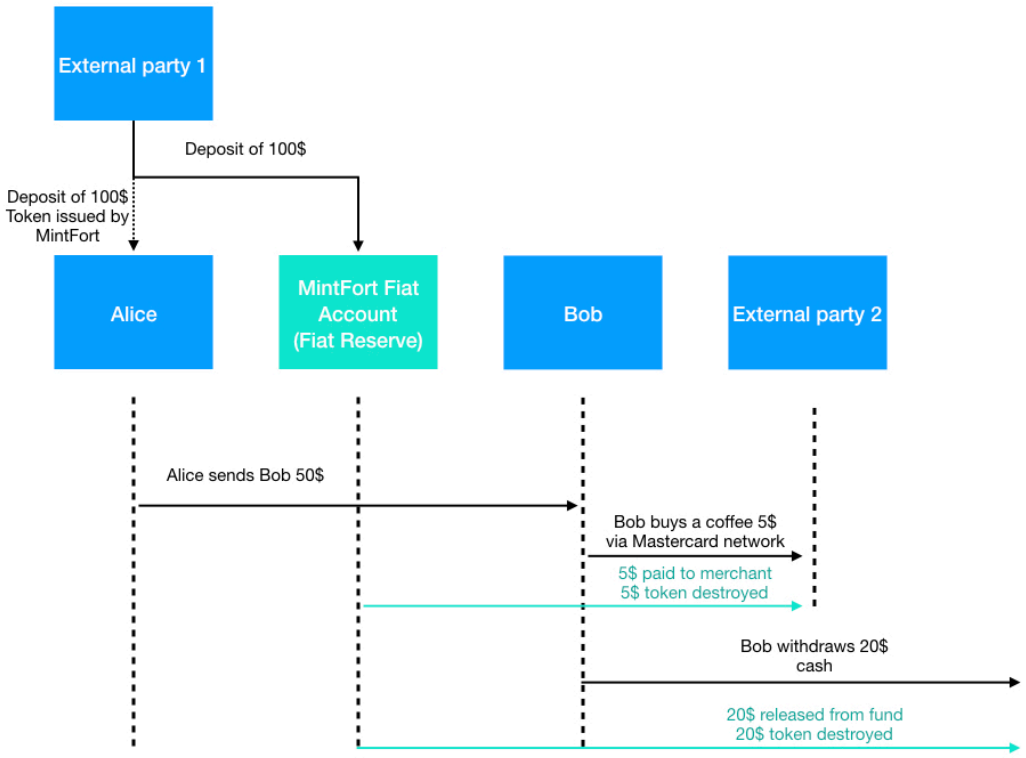
Working with an account and card service to provide traditional use cases and a gateway to traditional banking systems. The bank account is fully integrated into the Mintfort interface to enhance interactions with the wallet and let the user conveniently benefit from Mintfort services i.e. instant conversion and investment. This approach is fast but a poor solution in respect of decentralization and full user control.

Fiat money deposited in the account will be tokenized. Through tokenization, even fiat money can be sent and received within seconds, operated by smart contracts on the blockchain. In addition it opens the possibility to hold any fiat currency in your account. If user interaction is resulting in funds flowing from the ecosystem i.e. paying a merchant with fiat money via the Mastercard network, fiat tokens are destroyed. Figure 5 displays the full procedure.

A simple tokenization might be a solution in regard to interaction within the ecosystem. But it is not a final solution to give back full control of funds to users. Tokens are issued by Mintfort and enforced access to funds in the fiat reserve account of Mintfort, i.e. through governments can still be done. For true decentralization we will make use of blockchain combined with data decentralization. Funds flowing into the network will not go to a fund reserve anymore. The details of where funds are located and who they belong to will be split up and stored in a decentralized ecosystem while the key to access them is hashed and provided to the owner only.

How this will look exactly is still a question that needs to be researched.

Figure 5: Tokenization of fiat money



External party 1… *Somebody who is not part of the Mintfort ecosystem, i.e. her employer. She sends Alice $100 as salary.*

The $100 is deposited in the

Mintfort Fiat Reserve… *A reserve account to collect all fiat money circulating in the Mintfort ecosystem.*

Alice receives a deposit of $100 tokens, issued by Mintfort and representing the amount she owns in the network. She sends Bob $50 in tokens. The transaction is being recorded on the blockchain. Bob now decides to buy a coffee at a local coffee store for $5.

External party 2… *Displays the coffee store. The store is not part of the Mintfort network (has not downloaded the Mintfort app) and only accepts card payments in dollars. In this case, when Bob pays with his card, tokens worth $5 are being burnt, whereas the coffee store receives Bob's payment from the fiat reserve account of Mintfort.*

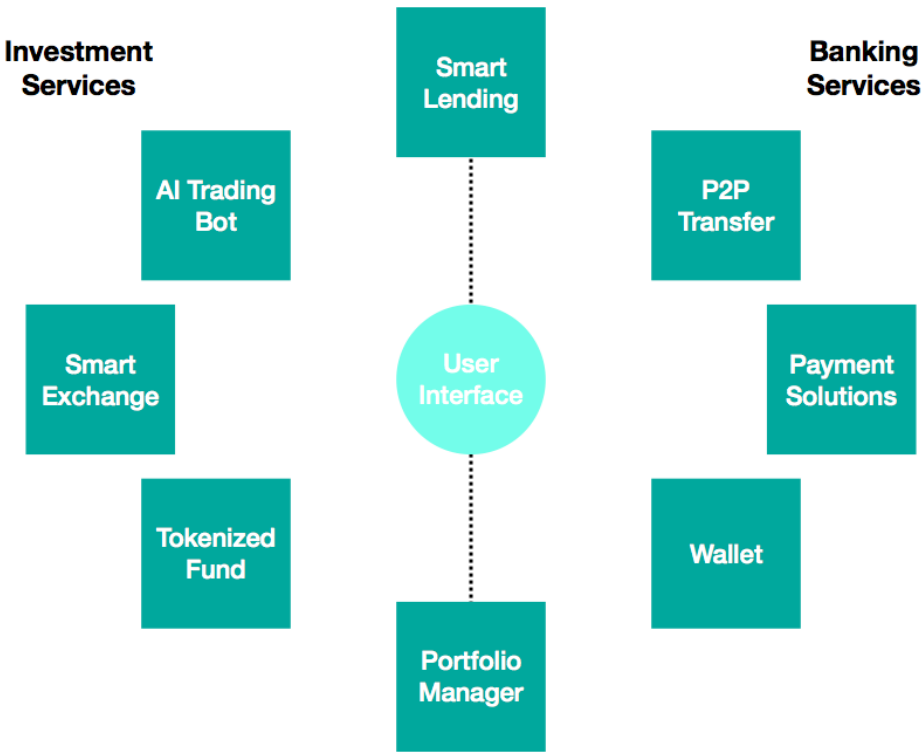
The same procedure takes place if Bob is withdrawing cash from an ATM. The withdrawal of $20 is causing a token burn worth of $20 and $20 from the Mintfort Fiat reserve account.

3. Mintfort Ecosystem

A. Overview

After concentrating on the core features, which are building the backbone of the ecosystem, we will add more services. The vision here is to create an outstanding user experience as well as to offer totally new ways of banking and investment in the digital era.

Figure 6: Overview of Mintfort ecosystem



B. Banking Services

P2P Transactions:

Independent, “one click“ peer-to-peer transactions that are instantly confirmed are essential in a modern bank account. If sent and requested, currencies of equal amounts can be sent directly over the blockchain. If currencies differ, the Smart exchange algorithm, liquidity pool transactions or atomic swap protocol are triggered, depending on the current fee structure.

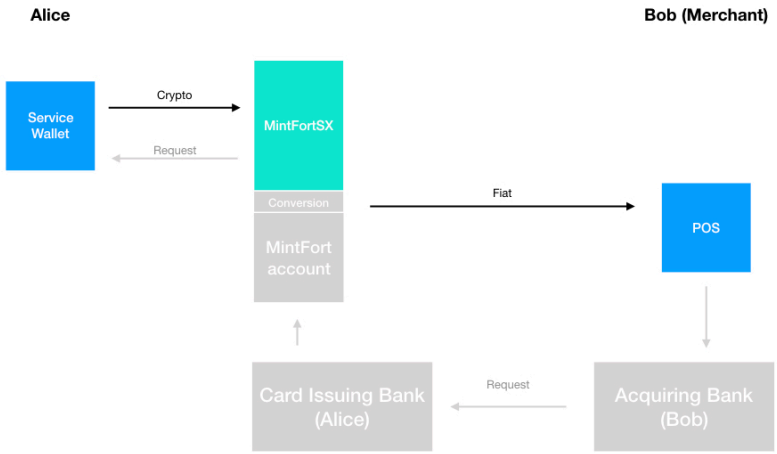
Payment Solutions:

Next to P2P transactions, various methods of paying merchants or other individuals as well as receiving payments are available.

Expenses:
Mintfort users will be able to utilize their account to pay via existing payment solutions such as NFC or debit card payments. Therefore, a third party such as a card issuer needs to be involved in the beginning – connecting user accounts to the merchant's POS – in case only physical credit or debit card payments are accepted.

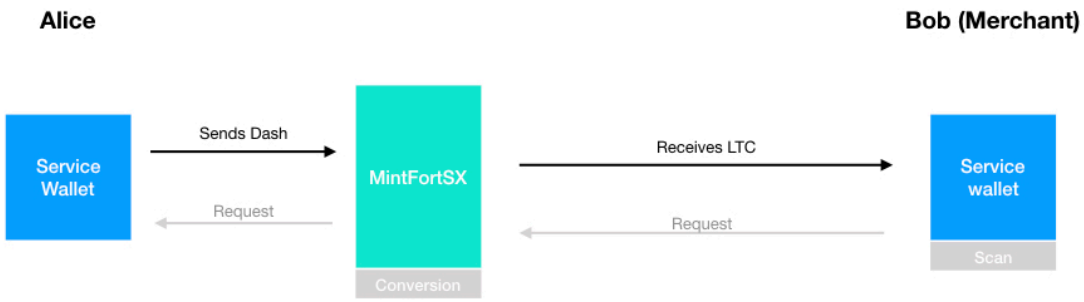
The issue of NFC payments will be solved by a much more elegant solution. Mintfort users will be able to take advantage of HCE host card emulation technology after downloading the mobile wallet and make transactions via Visa, UnionPay or MasterCard. Payments can be made at any POS that accepts these payment methods and are NFC activated, amounting to 42 million POS terminals worldwide. In addition, online stores can be paid over the emulated card as well.

Figure 7: General payment process and interaction with external networks



Alice chooses to pay with her Mintfort card or via NFC at a supermarket that is not part of the Mintfort network and accepts only fiat currencies. At the POS that is usually part of the card payment network a request is sent to the acquiring bank (bank of the supermarket, Bob). This request is being routed through the card issuing bank partner of Mintfort (and Alice) to the Mintfort bank account of Alice. The request triggers the conversion mechanism between Alice's service wallet and her bank account. After the conversion into fiat takes place, which is managed by the MintfortSX service, the money is being distributed to the supermarket's bank account. Please note that the process described above has been simplified to provide an understandable explanation to the reader.

Figure 8: General payment processes within the Mintfort network



Larger payments

Employers who want to pay their employees, manufacturers who want to pay a supplier as well as users purchasing goods online or those who need to pay an invoice can pay using the following methods:

4. Traditional bank transfer (fiat-to-fiat)
5. Mintfort Smart Exchange (in case of different currencies, or crypto-to-fiat)
6. P2P transactions (crypto-to-crypto, currencies are the same)

C. Investment Services

In addition to providing reliable banking services, Mintfort has plans to offer a variety of investment opportunities. We will develop an open platform that also allows third parties and partners to offer products alongside our in-house offering. We are exploring a variety of possibilities, including the innovative investment products listed below.

Smart Lending

To give users the opportunity to obtain some interest on their funds, we will build an in-wallet lending service. The service will operate P2P within the ecosystem, as well as on a public market place. Fund owners can set an amount, a period and a desired interest rate. Match and executions are automated and secured by smart contracts. In lending there is the risk of fraud. Borrowers go through a KYC process before being able to receive money from lenders.

Crowd Financing

Combined with functionalities of smart lending services, the opportunity arises to adapt a platform, where ventures are able to apply for funds from the crowd. In addition to lending money for an interest rate, an equity-like capital or virtual equity bond can be provided to a company in exchange for a certain amount of tokens. This means that in the long run we are aiming for a platform where off-chain as well as on-chain companies are able to raise capital via a distributed token sale (distributed ICO).

Tokenized Fund

Next to direct venture investments via the Mintfort crowd sale platform it will be also possible to invest in capital funds. These can be venture capital funds as well as real estate development funds. Certain funds will be dedicated to specific topics, such as AI technology, blockchain, or biotech innovations. On this regard, we will work with partners as well as building our own Mintfort fund, providing venture capital to startups in promising industries.

AI Trading Bots

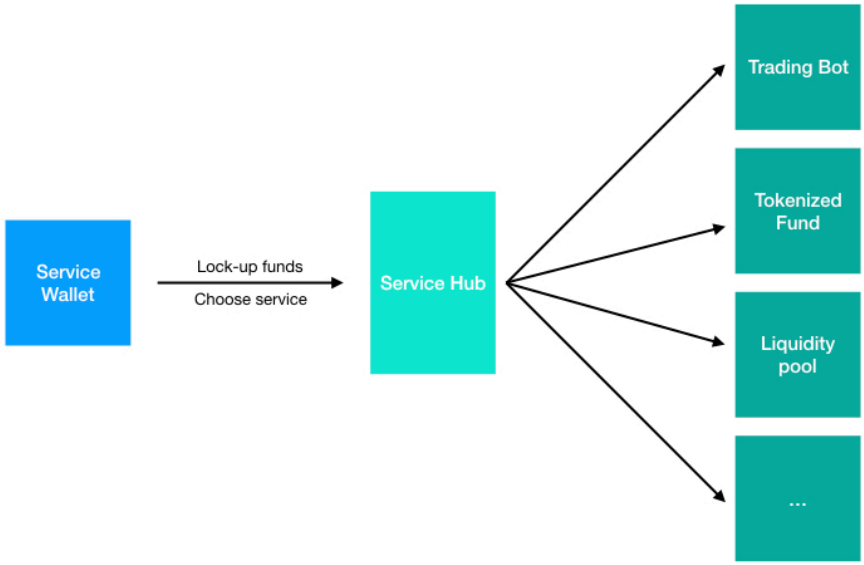
To make investments as easy as unlocking your laptop, several solutions will be put in place when using the Mintfort bank account. Within the app, you can separate funds for different purposes, such as investing or spending. After funds are deposited in the investment wallet, fingertip activation provides access to Mintfort investment services. One of them is a trading bot, based on an AI algorithm. Originally based on the development for Forex exchange mechanisms, the bot analyzes historical data every minute and calculates the probability of future price behavior between two currency pairs. Based on that data the bot decides whether to trade or not.

Liquidity Supply

A basic feature of investment possibility for users is to provide liquidity to the exchange pool and participate in fee returns. Funds simply need to be deposited in the pool wallet and locked up for a predetermined period of time. The rate of return depends upon the interest rate on the amount of pool transactions made during the locking period.

Return rates are depending on the amount of pool transactions being made during the locking period. Rates are either payed in ETH or the Mintfort token.

Figure 9: Investment Service Hub



Investment services are managed in the service wallet. The user locks up the funds he or she wants to invest and chooses a preferred service on the Mintfort platform (Service Hub). Funds are released on any investment product for a set period of time, according to the conditions of the product.

D. Mintfort Business

To provide convenient services to businesses, a Mintfort business application is in the pipeline. A key feature of the application is its ability to connect the Mintfort application to relevant third party services, including accounting and tax services, budgeting and CRM systems.

Merchants

On the one hand, merchants do not necessarily take notice of having customers pay via a Mintfort payment method, since that could be via NFC or card payment. On the other hand, they have multiple possibilities to take advantage through participation in the Mintfort ecosystem. In order to receive cryptocurrencies, a merchant just needs to download the Mintfort application or mobile wallet. Using the application will result in much lower fees than when receiving traditional digital payments.

Merchants and other businesses that use Mintfort business will have the opportunity to benefit from a flexible fee structure, depending on monthly or single transaction volumes, providing an incentive to choose Mintfort as their preferred banking instrument.

E. Privacy and Security

Personal data and privacy are very sensitive issues and remain our highest priority. Mintfort will leave sensitive information in the hands of the users. To obtain access to the platform, a user is required to input a private key that should not be disclosed to anyone. Nevertheless, security measurements are mandatory to protect users from fraud as well as the complete loss of their login data, especially their private key. Of course, Mintfort is unable to hold private key data in our own data bank as this would result in serious systemic risks. In addition, in the unlikely case that standard measurements of the user, such as physically writing down his recovery phrase, fail, other possibilities for an account recovery need to be put in place.

One solution is offered by “Schnorr Signatures”, whereby a signature is split up into private keys. These are separated into many different pieces while also divided in a way that M out of N pieces are needed to reconstruct the original key. Pieces of a certain users’s private key can be stored on designated devices, belonging to friends or family who can identity the user if required. In such a case, a new private key is created that is associated with the user’s identity, enabling him or her to regain access to their account.