BartCap Eco

Technical White paper

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1 INTRODUCTION

This whitepaper describes what technology will be used to achieve the goal of BartCap Eco. This includes high level design, approach to the problem to be solved.

This is written down in a “bare metal” way, touching base with what matters. The purpose for this is that technology investors as well as normal investors can get a grip on what’s going to happen and make a sound judgement if they want to participate or not.

1.1 THE PURPOSE OF BARTCAP

The BartCap Eco's mission is the integration of a barter/capital economic system with the independent merchant as the financial center. We plan to accomplish this mission by creating decentralized micro-economies where assets remain in the merchant's local community.

Our vision is the achievement of an economic structure where the movement of products, goods, and services is a person to person exchange within an interdependent economy rather than a large corporation to a large populace exchange within a dependent economy.

We plan to fulfil this vision by producing digital barter units that are a standard of exchange, a smart contract system that allows person to person exchanges, and a system of circulation that significantly reduces distribution costs

2 MERCHANT CENTRED

BartCap Eco aims to make life cheaper for the merchants and strengthen the local communities. This is done by creating an ecosystem with witch payments in a store will be cheaper compared to credit card transactions compared monthly.

The merchant will receive schooling on blockchain and cryptocurrency, but he/she will be free from most of the hassle that nowadays comprises working with cryptocurrencies. The merchant will get an easy to use device that will do all processing and blockchain transactions.

As practical daily use in US stores is intended, the tokens/units will be linked to the US dollar and will be backed by the US dollar. This means that older people and non “digital natives” will be able to understand the system and will be able to use it. It also removes the risk of currency volatility with associated risks.

Selected (educated) merchants will be able to buy the units from BartCap Eco in larger quantities. These merchants will in turn distribute/sell the units to the local customers.

2.1 BUSINESS CASE

A typical merchant pays $10.000 each month in credit card fees. He can charge his customer for this or take the cost himself and lose some margin. BartCap does not believe that credit card payment will be gone in the next 10 to 20 years. But BartCap believes that it can cut these cost in half for merchants within two years. The demand is there, BartCap is asked to supply coins even before work on the Whitepaper has begun!

If only 50.000 merchants would use BartCap this frees: $5000 x 50.000 x 12 = $3.000.000.000 each year. That is serious money.

BartCap will charge the merchant for use of the system. Buying Barter Units is done with fiot money and a premium. Consecutive purchases of customers at the merchants are Barter unit crypto micropayments, done at a lower cost.

So this will save the merchant serious money and give a solid outlook to the BartCap project. In the future extra services will be offered to customers, merchants and third parties, creating more revenue and an increase in profit.

3 DECISION FOR ONE TOKEN - THE BARTER UNIT

As of whitepaper version 0.4 the *BartCap enabler (Investor) token* has been taken out the whitepaper as the BartCap CEO decided not to have a fundraising ICO with a separate token as initially envisioned. It turned out there is a lot of interest from merchants in buying the Barter units to invest. Investor will be given the opportunity to buy the Barter Units using our standard tools and invest those in BartCap.

3.1 BARTER UNIT TOKEN

The barter units will be used daily in the stores. These units are bought from BartCap by merchants on a one-to-one ratio, ensuring hard coupling with the dollar. For these units another form of governance is implemented then the investor token. Important to note, there is no hard cap for the barter units. As fiot money will be inflated and additional currency is printed/generated, the units need to keep up with the numbers to satisfy customer demand.

3.2 WILL THE BARTER UNITS EVER BE ON AN EXCHANGE?

The barter units are not envisioned to be on current cryptocurrency exchanges. The vision is that Barter units are bought from a local merchant at a one-on-one rate with the US dollar.

There is one type of exchange the Barter units can be listed on in the future. In this case there will have been Barter units implemented in different countries with one-on-one backing of specific currencies. This exchange will then be thee digital/crypto counterpart of current forex exchanges.

4 BARTCAP SYSTEM

4.1 GLOBAL ECOSYSTEM

The global Ecosystem of BartCap comprises of everything needed to create a safe, modern, robust and decentralised financial barter unit system that is here to stay.

4.2 ENTITIES AND THEIR ROLE IN THE SYSTEM

Entities in the system are;

- Merchants
- BartConnect, the smart device for the merchant
- MyStore Merchant administration portal
- Customers
- Customer Dapp
- MyBart Customer's administration portal
- BartCap organisation & employees
- BartIDM Identity and rights management system
- BartCap Backoffice management system (Servicedesk, finance, control & compliance)
- BartCentral
- BartInsight public information system

4.2.1 Merchants

The BartCap system is designed around merchants. This means it is easy for the merchant to use. It is easy to do business with customers and with BartCap. It propels the merchant in the 21 centuries while at the same time promoting the local economy.

4.2.2 BartConnect, the smart device for the merchant

BartConnect is the smart device that will make use of cryptocurrency easy for the Merchant. BartConnect is personalised, secure and will ultimately integrate in the store register system.

With BartConnect the merchant can do the following (non-exhaustive)

- Bay Barter units (money taken from registered account)
- Return Barter units (money is transferred to registered account)
- Sell Barter units to customers
- Register sales using Barter units
- Performing sale/payment with customer Dapp.
- Salary pay using Barter units
- Printing QR code labels for products
- Scan QR codes for sale administration

There will be multiple security features implemented as base standard. Some of these are new to the market. The features will not be disclosed to the public but are available to investors and partners on basis of a signed NDA.

Next to base security there are additional security services offered to the merchant.

4.2.3 MyStore Merchant administration portal

The MyStore administration portal is the place where insights are given to the merchant. This will be a feature rich environment where additional advanced services will be offered as well as (real-time) exchange with other service providers (SAP, Dynamics and more).

Purchase of Barter units or returning Barter units cannot be done from the administration portal due to security reasons. This can only be done using BartConnect.

4.2.4 Customers

The customer is a prime asset next to the merchant in this ecosystem. The customer will be interacting with the BartCap system using the Customer Wallet Dapp.

4.2.5 Customer Dapp

The customer will get an application that is personal and has wallet functionality. It can be used to pay with in the stores that use the Barter unit.

The Dapp will show the latest transactions and the current personal balance.

4.2.6 MyBart Customer's administration portal

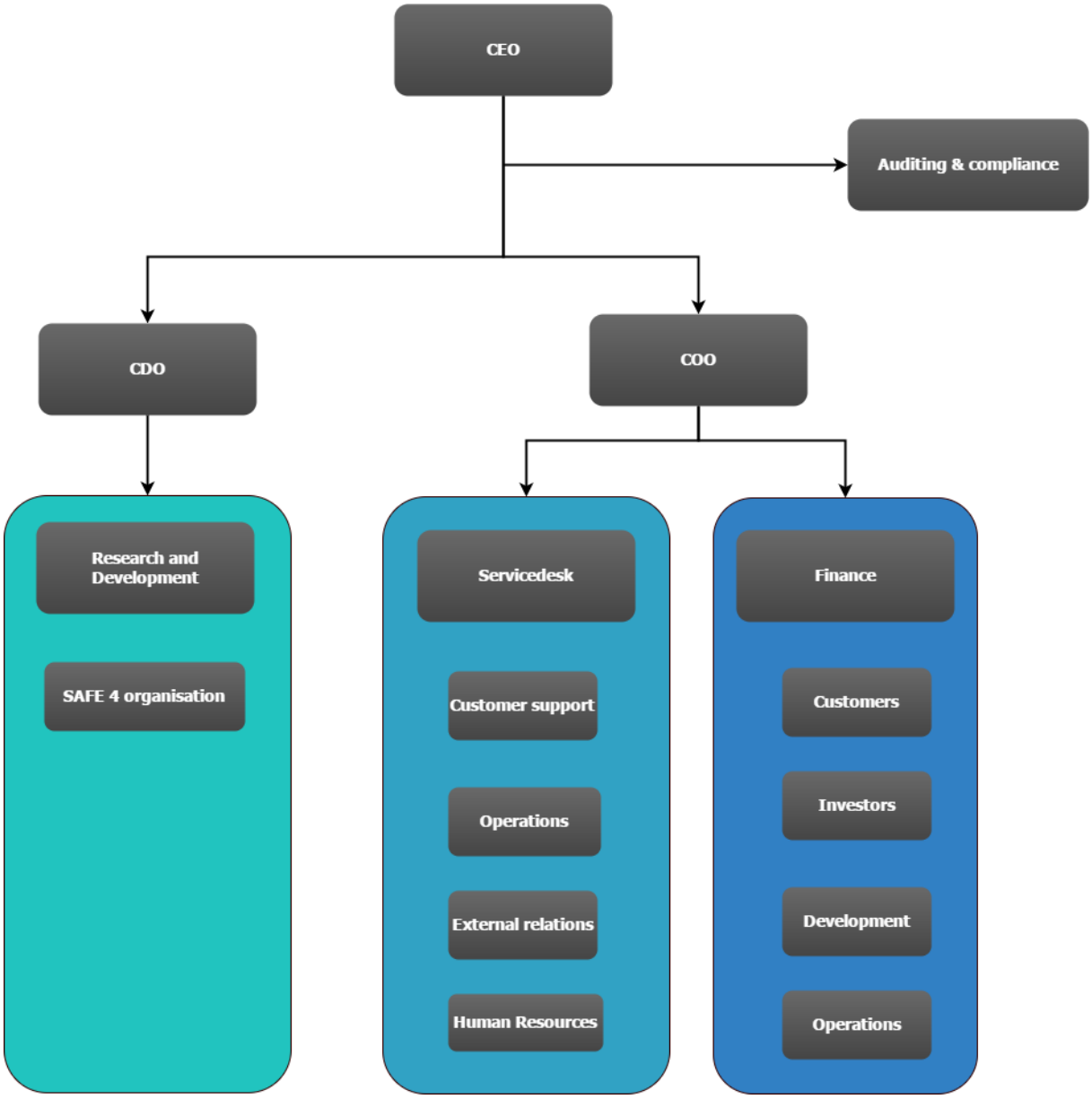
The MyBart administration portal is the place where the customer is presented an overview of deposits, sales and savings. Information can be exported to be used with popular personal administration programs. Real-time exchange with online personal administration providers is envisioned in a later stage.

4.2.7 BartCap organisation & employees

A financial ecosystem like this comprises an organisation to run, control and govern it. The general concept is to do work as much as possible digitally and only use human action where it is really needed and ads proper value.

The shape of the BartCap organisation will "grow with the flow". Taking off as a start up with a small development team. Scale-up development as funding takes the project to higher levels and progressing on the technical runway. And growing and maturing as operations and revenue grows.

When operations start the following will be in place with respect to the organisation;



SAFE organisation will comprise of the value streams to produce the components in the BartCap ecosystem. The size of the organisation obviously depends on the development needs and where we are on the roadmap.

4.2.8 BartIDM Identity and rights management system

Every role has access to the parts of the system to fulfil its duty. This goes for humans as well as for computer executed task(AI). All identities, roles, rights and access are implemented and governed by BartIDM.

4.2.9 BartCap Backoffice management system (Servicedesk, finance, control & compliance)

The BartCap Backoffice system is designed to work very tight with the core financial system. All access will be governed by BartIDM.

4.2.10 BartCentral

BartCentral has two functions. It is the middleware to offer support to the “backend” systems and connection with 3th-parties. So, it does all the centralised “work” that is not done in the blockchain. It is split up in a core part and an external part. It also performs transaction analysis, fraud analysis, trend analysis, statistics and more.

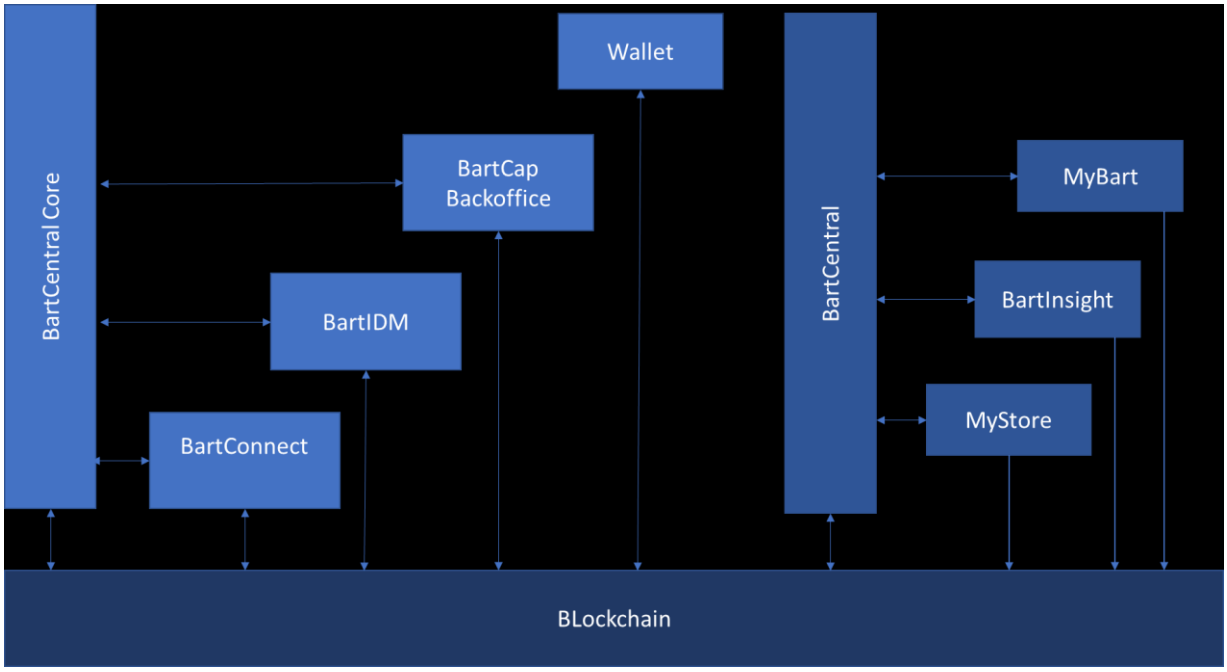
4.2.11 BartInsight public information system

BartInsight is envisioned to provide the public with inside information on the organisation, market cap, transaction volumes and more. All this in real-time. In a later stage BartInsight will offer more market specific insights that are offered as additional services to third parties (Marketing, insurance etcetera).

4.3 PROCESS DESIGN

4.3.1 Communication between entities in the system

The components in the system communicate with each other as indicated in in this scheme;



Processes in the system are partly derived from this scheme. As much as possible functionality is available by communicating with the blockchain directly. Other functionality is offered by communicating with BartCentral. Each component will comprise several use cases.

These use cases will be the basis of the process defined in the organisation. This is not further explained in this whitepaper.

4.4 BARTCAP ORGANISATION

BartCap as an organisation is part of the BartCap ecosystem. With increasing customer numbers, the BartCap organisation will grow. To properly organise this growth there is a trajectory envisioned defining the shape (and size) of the organisation at each stage so it can fulfil its purpose in the most efficient way. Benefits of this approach are no lag/downtime, proper time for schooling/adapting/promoting employees, guaranteed regulatory compliancy and continuing top notch service levels.

Another novelty is that from the start the system is designed as such that roles in the system are plug and play. A human executed role can be taken over by software(AI/bot) modules at any given time if security and business cases support this. The human employee is than free to pick up another role that at that time truly requires human insight and execution.

4.5 GOVERNANCE AND AUDITABILITY

As BartCap discourages criminal activities, we find the need to provide permissioned functionality that can be used to give insight at individual level. BartCap also finds individual privacy a matter of great importance. This means that insights can be given only after court orders issued to BartCap. A BartCap management representative then will be allowed to give temporary access to the sought-after information to a dedicated and named governmental investigator.

Events as such are fully logged and will be made publicly available (at a later time) along with other corporate and monetary statistics.

4.6 INFORMATION SECURITY AND PRIVACY

A system in which personal data as well as financial information resides requires utmost security. Not only in computer programs, smart contracts, cryptography and systems maintenance but also organisational processes, decentralised processes and physical security.

The nice thing of being a new corporation the truly great opportunity to create all this in an integrated, end-to-end, modern technology fashion. There are no mastodons, ego’s or corporate silo’s complicating things.

Access to information and performing operations will be implemented on an identity-time-place-role based system. This not only applies to employees and possible subcontractors but also to program code like smart contracts, servers, distributed apps and AI.

5 TECHNOLOGY

This chapter describes the technology to be used by BartCap.

> It is the idea that counts but technology is key. And perfect execution.

The BartCap ecosystem comprises several technologies.

5.1 USE OF BLOCKCHAIN TECHNOLOGY

BartCap will be implemented for a large part on Ethereum. Ethereum is a blockchain technology that allows programs “smart contracts” to be stored and run on the blockchain. Data is stored on the blockchain as well as any modifications to the data. The Ethereum blockchain comprises thousands of nodes that can be connected to, together these nodes form a giant computer cluster.

For comprehensive understanding of the BartCap system and the way this technology is used it is imperative that the following statement is completely understood.

> Using smart contracts on Ethereum means that contract execution is decentralised but control over the smart contracts is centralised.

What does this mean?
It means that BartCap as owner of the smart contracts can execute special functions to configure specific behaviour and execute special tasks.

How will BartCap put this to use?
BartCap can upgrade parts of the smart contract and implement governing functions like for example freeze individual funds and correct malicious transactions.

How much of the system will be put in blockchain?
As much as is sensible. The more business logic is put in the blockchain, the lighter a back-office implementation can be. But changing business logic in the blockchain is something that you do not want to do too often.

Have other blockchains been considered?
No other blockchains have been considered for the ICO, Ethereum is perfect for that. We have been looking at IOTA because of the possibility do redirect the cost of transactions from the client to other systems; in our case being servers from BartCap. There are currently no Smart contracts and EVM in the IOTA implementation, lacking the power we like to have. Having said this, IOTA is still considered for products and services in the future roadmap.

Will customers see the blockchain?
Customers will not see the blockchain with the systems offered; blockchain is the underlying technology that is used. Having said this, the blockchain part can be observed using blockchain explorers.

5.2 BARTCONNECT

BartConnect, the smart device for the merchant is the heart of decentral operations. For security reason only minimal information is disclosed about the technology that is used and the security measures that are implemented.

This device can only be used after specific configuration and authentication of the merchant. This device communicates with the mobile phone of customers to send or receive units, depending on the transaction. This device will buy barter units from BartCap using predetermined mandated bank account(s) or sell back units to BartCap after witch money is transferred to a predetermined merchant account.

5.3 PORTALS

MyStore Merchant and MyBart Customer's administration portals and the BartCap backoffice management system will be build using the same technology stack.

The portals will be written in Javascript JS2015 with Web3J in combination with the frontend framework React. Connection with several services are envisioned, depending on needs and added value.

5.4 CUSTOMER WALLET / DAPP

The customer Wallet will be build using the React native framework in combination with JS2015 and C++/objective-C/swift. The Dapp will be developed in such a way that some logic can be shared. Web3JS will be used to communicate with the blockchain.

5.5 BARTIDM IDENTITY AND RIGHTS MANAGEMENT SYSTEM

BartIDM will be implemented using the B3RIM suite. B3RIM is an Identity and Rights Management system that is based on the blockchain and governs right on assets, where an asset can be a human, a computer system or an (AI) program.

BartIDM will be used by the BartCap backoffice management system, BartCentral and the software components in the Ecosystem. BartIDM also handles rights in relation to version management of components. This effectively means that obsolete, outdated or compromised software is actively denied access to the BartCap system by all other components.

5.6 BARTCAP BACKOFFICE MANAGEMENT SYSTEM (SERVICEDESK, FINANCE, CONTROL & COMPLIANCE)

BartCap Backoffice comprises several modules to implement the needed functionality. These will be written in C++, Javascript and Web3J. Access is granted on base of the rights connected to the role and account in BartIDM.

5.7 BARTCENTRAL

BartCentral will be written in C++, Javascript and Web3J and SQL. BartCentral will be a backend system for the largest part. MySQL/MariaDB will be used and in the future modules for enriching data might be developed using specifically with Microsoft SQL/BI. In general logic is written in such a way that it is agnostic for the underlying database engine/platform. Dedicated systems will be

integrated for analysis purposes. For data storage several technologies are available or in development; swarm, IPFS, Hadoop, NoSQL. At a later stage a decision is to be made. The business logic is agnostic of the technology chosen to implement.

5.8 BARTINSIGHT PUBLIC INFORMATION SYSTEM

BartInsight will be a separate product that will read from the designated smart contracts in the blockchain to display information and use API calls to read from the central system BartCentral for enhanced and aggregated information. It will be written in Javascript and Web3J and SQL. It is likely that new technologies will be added

5.9 LICENCING

Where open source is used In the BartCap products the original products will be mentioned in accordance with the licencing model. Some products will be developed as open source from the start whereas others will be contributed in a later stage.