# ChainID

## Proving Who We Are

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**Team ChainID**

## Abstract

ALL of us use certificates to showcase our achievements and capabilities. Certificates tell the world about our academic credentials, professional memberships and technical skills. They open doors of opportunities for us. But the way certificates are stored and managed today is archaic. Most of the certificates are either paper-based or stored in central databases of certifying authorities. This makes them easy to be faked and difficult to share with others in the digital world. They are a relic of the analog world. With ChainID we envisage a blockchain based platform which solves the current problems with certificate management and sharing. ChainID is a way to store credentials and certificates in a fraud-free and intuitive way using blockchain technology.


# Contents

# Introduction

ALL of us are used to carrying around pieces of paper which tell about our achievements in life. Be it certificates for passing a certain examination or licenses for carrying out a particular business. These certificates and licenses signal the achievements and abilities which make them eligible for specific jobs.

Given the importance of these documents, the way we handle them currently is archaic. Most of the certificates are paper-based which need to be carried around in person. If you need to present it to any authority, you need to get it notarised which is a cumbersome process in itself. The need for notarization is to ensure that fake certificates are not produced, but the way public notary services are designed hardly ensure authenticity. And if you are required to share your certificates with somebody else over the Internet, it's a nightmare.

The main problem with sharing of certificates is that people have huge incentives to fake certificates and signal achievements which they have not accomplished. Blockchain technology is an ideal solution for such situations where the system needs to be censorship resistant and reliable without the need for parties to trust each other. With **ChainID**, we envisage a world where sharing certificates which are reliably authentic is as easy as sharing a file.

# Motivation

CERTIFICATES are a way to signal achievements and membership[1]. University degrees which are a particular type of certificate can get you the job you want, or prevent you from getting the job if you don't have the right certificates. Organizations obtain licenses which authorizes them to engage in particular activities. For example, drug companies take FDA approval for drugs which authorizes them to sell them to the general population. An FDA approval signifies that the drug has passed strict quality requirements and have proved to be beneficial in large clinical trials.

## Certificate types

Certificates can be of various types. They can either affirm your achievement or validate that you are part of a particular group.

Some of the key certificate types are:

- Academic certificates – University degrees, certificates from standardized examination like TOEFL, GRE, etc.
- Professional Certificates – Certificates for specific technical skills like Adwords by Google, Salesforce Administrator, etc.
- Certificate by an organization for membership or achievement – Certificate from PADI for being trained in diving, certificate by Fellowship of Royal College of Surgeons(FRCS), etc.
- Certificates by Authorities – Birth and death certificates, certificate of residence/ citizenship, etc.

## Current Problem

Given the importance of certificates in our lives, the way they are handled currently is very clumsy. For example, applicants who are applying for universities, still need to ask ETS (English Testing Services) to send its GRE test scores directly to universities. There is a lot of effort required in ensuring that the GRE transcripts reach the university in time. And this is just one example. There are many similar issues in other areas where certificates are involved. Some of the key issues with the way certificates are handled are:

**1. Paper-based certificates –** Most of the certificates currently rely on paper-based certificates as the final version of the truth. A lot of effort is thus wasted in effectively storing and preserving the certificates. If an original certificate is lost, getting another copy of the original certificate is generally a complex process. Since most of the communication and application nowadays is over digital mediums, people need to scan the certificate and send to the required person or organization.

**2. Certificates can be easily faked –** Paper-based certificates can easily be faked. When a paper-based certificate is scanned, the image so obtained can be easily manipulated by image editing software like Photoshop. Since a digital copy is demanded by organizations for initial screening, organizations can easily be duped by manipulated images of original certificates.

**3. Proving authenticity of copies of certificates –** Since the certificates are paper-based, proving the authenticity of copies of certificates is a challenging

task. Paper-based certificates can easily be manipulated by clever techniques in photoshop. To ensure that the certificate copy is authentic, organizations generally demand that the copies be notarized. Notaries only affix their stamp over a copy only when they have seen the original certificate. All this is an unnecessary inconvenience for a certificate holder.

**4. People don't control their certificates** – Paper-based certificates are not controlled by the user but by the certificate issuing authorities. When the certificate holder needs to get his certificate verified, he needs to pay a fee to the certifying authority (e.g. GRE) or needs to ask them to confirm the validity of his certificate based on their "records". Ideally, once a certificate is obtained a certificate holder must have complete ownership of the certificate without the need to pay a fee to anybody to verify its authenticity.

## How blockchain solves above problems

Blockchain technology is ideally suited for making certificates more intuitive. The blockchain is a distributed ledger to record transactions. What makes it special is that it is durable, time-stamped, transparent, and decentralized. Those characteristics are desirable for a system of reputation, which is essentially what certificates are.

Once a certificate is stored in the blockchain, it can be verified by anyone who has the address of where the certificate is stored. Also, blockchain is censorship resistant. There is no one organization which controls the data on blockchain and the data and transactions once written on blockchain can't be altered. This property ensures that the certificate on the blockchain is not a fake one. The user is in complete control of the certificate, and he can choose whom does he want to share the certificate with. He doesn't need to pay a fee to the certifying authority or cooperate with it to get his certificate verified.

The above features of blockchain are used in the design of ChainID, which is a decentralized service for storing diplomas, certificates, licenses etc. We explore the details of the design of ChainID in the next section.

# ChainID Design

ChainID is a blockchain based certificate management system where users can store their diploma, certificates and licenses. It is absolutely free for end users and large certificate giving authorities. The user can share the certificate with anyone digitally just by sharing the ChainID address where his certificates are stored on the blockchain.

Every user who wants to get a ChainID needs to register in our website with at least a name. There can be other fields which can be added like phone number, email id, postal addresses etc. The user can also add his certificates like TOEFL, IELTS and certificates by other certificate giving authorities who have partnered with ChainID. A user card corresponding to the details given by the user is created and stored in the blockchain.

**Below is a visual representation of the card.**

| **Name** | **John Smith** |
|---|---|
| Phone | 13678342618 |
| Email | John2743@gmail.com |
| Post Address | 12 Virgil Str, NY2384, U.S.A. |
| TOEFL | No |
| IELTS | Yes |
| Day Skipper | No |
| – – | – – |

*Fig 1: Card Structure*

The card size can be up to 2KB. 200 bytes are reserved for general user information like name, email, phone number, etc. The remaining 1800 bytes are for storing certificates. Each certificate takes around 100 bytes. Hence, a user card can store up to 18 certificates.

## Addresses

The user gets a unique code or **address** which he can share with others who wish to access information about the user. The user has the option of sending **partial addresses** which only has those details which user intends to reveal to the receiver. A user can send the address to anyone. The receiver of address can read the address and check the certificates (manually or programmatically) stored in the user card at that address.

The partial addresses are generated by users by selecting the fields which the user wants to reveal to a receiver. For example, if a user is applying for university admission, he can just share the partial address with his name, TOEFL and IELTS scores with the university. On the other hand, if he is applying for a diving course he can share the partial address with only his name and PADI certificate.

## Certificates

For a certificate giving authority to able to add their certificates to ChainID users, they first need to get registered with ChainID. Once they are registered, they will get access to edit only those fields which are relevant for their organization. For example, TOEFL must first register with ChainID. Once TOEFL is registered as an organization with ChainID, they can add their certificates in user cards of those cards who have taken TOEFL exam and want to get their TOEFL certificate added to their ChainID card. For this to happen, a user must send their ChainID address to TOEFL. TOEFL can then add the TOEFL exam certificate with scores in the corresponding field in the user record.

Users can also verify the email id, phone number or postal address which they have added to their user card. The users will get a verification code on their email, phone or postal address based on the detail which they are trying to verify. Once they enter the correct verification code on our website, the corresponding field will get verified and show a “verified” flag beside the field. This would create more trust among the receivers of the address as they would be assured that they are accessing verified user details.

## Fraud resistance

A violator can create a ChainID address with the same name as the account he wants to defraud, he could send a request to certifying authority to add the certificate. But as the user controls which ChainID address they send for a particular application, he will face no inconvenience. It is like having multiple LinkedIn accounts with the same name. There can be multiple such accounts, but when a user needs to share his credentials with someone, he will always send the correct address. Thus, even though ChainID is an open system, it is stable under attempts to fraud by creating multiple addresses with the same name.

# Use Case Scenarios

IN this section, we will elucidate the use of ChainID in the scenario of signing up for a dive trip. PADI or Professional Association of Diving Instructors[3] issues certificates of diving proficiency of users. A PADI OW certificate confirms that the individual has been trained to dive in Open Waters. When registering for a trip, the user can either directly visit the office or register via a website. The following scenarios can arise.

## When visiting office in person

***1. Client has a smartphone***

He needs to start an application Chain ID to display the QR code with his address. The executive at the office scans the QR code with a smartphone. The application finds a user card and shows on the screen whether the client has OW certificate or not.

***2. Client does not have a smartphone but has a business card with QR code.***

He needs to show the business card to the executive. Executive scans the QR code with a smartphone. The application finds a user card and shows whether the client has OW certificate or not.

***3. Client doesn't have either a smartphone or a business card but remembers the address.***

He needs to write down the address. The executive enters it in the mobile app. The application finds a user card and shows whether the client has OW certificate or not.

## When registered on the website

When signing up for a dive trip on the organizer's website, there is a field asking for a "Chain ID address". When the address is entered, the web application finds the user card in the blockchain and checks whether the field "PADI" has an OW value. If there is an OW value, the website allows the client to sign up for a trip. If there is no OW value, it shows a message that a certificate is required for the trip and offers alternative ways of verification.

The sign-up site usually has a form to be filled out with following fields:

- Name
- Phone number
- Email
- Postal address

Although these items do not need to be verified, they just need to be entered and it takes time. The script on the website can simply take all this information from the user's card and fill out the form automatically.

## Example of using Chain ID for employment

The candidate looking for employment leaves his CV with Chain ID address in the labour office. The employers working with labor office can now quickly check the facts contained in the CV like whether the candidate has a "Microsoft Business Applications" certificate, etc. Based on these criteria checks using ChainID, the employer can more effectively shortlist candidates for interview.

Thus, we can observe how use of ChainID greatly simplifies cumbersome processes like looking for employment and registering for a dive trip. There are many such use cases where ChainID platform would prove extremely valuable.

# Components of ChainID



## User Application

The User Application will be used by the users to create new ChainID addresses and update their details in the user card.

***The user application can be a web or mobile based application which will enable users with the following functionalities:***

- Create new ChainID addresses and add personal details in them
- Send the ChainID addresses to certificate giving authorities like TOEFL, so that they can update the users certificate
- Display user card details of an address by querying the blockchain
- Share the ChainID address using QR codes which can be shared and printed

## Business Application

The Business Application will be used by businesses to check the validity of the certificates presented by the users through their ChainID addresses. This will be primarily used by the business executive to verify the details when the ChainID is presented by the user.

***The business application should enable the following functionalities:***

- Read the address shared by the user and access the user details. Access the address by QR code also.
- Only the certificate relevant to their organization is accessible to the business executive. For example, if a person is registering for a diving course, only the certificates relevant to diving like PADI certificates should be accessible to the executive.
- Confirmation of certificate availability is communicated to both user and executive. A sound based “beep” signal could be used.
- Record all the ChainID addresses accessed by the business application so that it can be reviewed in future. For example, there could be a setup in which a periodic email is automatically sent to the center head in a diving center. This would enable him to monitor if the front desk executive is checking the certificates of every applicant or not.

## Business Widget for the website

The business widget in the website will enable quick registration of users on the website if they provide their ChainID address. This feature will only be available to businesses which have partnered with ChainID.

***The functionalities such a widget will enable are:***

» Prefill data in application and registration forms by accessing relevant details from ChainID user card. For example, if a user is filling her university application form and he enters his ChainID address in the business widget on the website, all his details like name, address and contact details will be automatically pre-filled so that he can proceed to the next step.

» The widget activity details like user access data, result of interaction, etc. are logged. This log can be analysed to gather insights about user access patterns and use of ChainID addresses.

» The data in the business widget is obtained by accessing APIs exposed by the ChainID server. All the communication takes place over secure protocols like HTTPS so that there is no risk of sniffing attack by hackers and rogue elements


## ChainId.org website

The ChainID website will be the default website where users can come for registration, adding new details and accessing details from other ChainID addresses.

***Key functionalities of ChainID website are:***

» Registration of new user cards with option to choose unique addresses which are easy to memorize

» Access to QR code corresponding to user address which could be shared with others and scanned by smartphones

» Verification of primary details like email id, contact number and postal address –Users can get their details verified by requesting verification code for a medium and then verifying it on the website. For example, a user can request verification code for his email id. Once he gets the verification code, he enters it in the website and then his email id is shown as verified. A "verified" flag is shown beside the email id of the user in the user card.

» Adding existing certificates in the user card – Users can also add their certificates which

they obtained before they registered for ChainID address. They can just use the option to add existing certificate and then chose the certificate they want to add. A request will then go the certifying authority who can check their own records and approve the request by the user. For example, if someone took a TOEFL exam before they created their ChainID address, they can add their existing certificate on the website. A request will then go to TOEFL, who would then check the validity of the certificate added–and approve or disapprove it.

## For Certificate provider

Certificate providers are an important part of the ChainID ecosystem and their participation is essential for the success of our platform. To enable this, we want to make their onboarding on the platform as frictionless as possible. While we will be contacting big certifying authorities to become part of the ChainID ecosystem, there would also be ways in which they can register themselves on our platform.

***Functionalities in Certificate provider portal:***

- Create certificate provider account
- Confirmation of certificate provider status–This is done by asking certificate providers to upload relevant documents on the portal or getting documents from them by regular mail. Once the documents are verified, the certificate provider accounts are given privileges to issue certificates and add them to particular fields in ChainID user cards.
- Service user request for attaching certificates in their ChainID user card–The certificate provider portal provides option to attach certificates to specific fields in the user card when a user requests.
- Manage ChainID tokens - Since smaller certificate providers are charged a fee in ChainID tokens to be able to add certificates to users' ChainID cards, they will have inbuilt options to check the balance of tokens, buy tokens and sell tokens.
- APIs to automate the exchange of information between ChainID and certificate provider–The certificate providers can also build custom tools for interaction with ChainID service by using the APIs exposed by ChainID.

# Advantages of ChainID over current methods

CHAINID is a digital native platform for certificates which is a big improvement over the current paper-based certificate system. Being based on blockchain technology makes it resistant to censorship and immutable. This makes ChainID more trustworthy and reliable.

Some of the key advantages are:

- **Certificates on ChainID can't be faked –** Since ChainID is based on blockchain technology, certificates once stored can't be changed. The immutable nature of blockchains make it impossible for certificates in ChainID to be faked
- **Easy to store and share –** ChainID is a digital native platform. Users don't need to carry their certificates from one place to another. They can just share the ChainID address in which they have stored the relevant certificates for the other party.
- **The certificate is controlled by the certificate holder –** The user has complete control over their certificates and they don't need to pay any fees or follow up with the certifying authority to get their certificates verified. They just need to share the ChainID address where their certificates are stored.
- **Censorship resistant –** Blockchain is a completely decentralised entity which is not controlled by any one organization or entity. ChainID being based on blockchain is thus free of control by a central organization. Thus the certifying authority doesn't exercise any power over the certificates once it is added on the ChainID platform.

# Market Size

CHAINID can be used to manage certificates issued by any type of organizations. It can be academic institutes like universities, professional testing services like TOEFL, GRE or professional organizations like PADI which issues diving certificates. Although it can also be used to manage birth and death certificates issued by govt authorities, our focus would be on capturing the aforementioned markets first.

| Type of certificate | Issuing Organization | Issued per year |
|---|---|---|
| Tertiary education Diploma | Universities and other higher education institutions | 15.0 |
| Diving Certificate | Professional Association of Diving Instructors (PADI) | 0.9 |
| IELTS Certificate | International English Language Testing System (IELTS) | 2.0 |
| Cambridge English Language Assessment | Cambridge English Language Assessment | 4.5 |
| | **Total** | **22.4** |

*Fig 2: Issued certificates for key organizations*

A good estimate of the market size of ChainID is the number of certificates issued by our target organizations. As shown in **Fig. 2**, at least 22 million certificates are issued by few of the key organizations yearly. The above number doesn't include certificates issued by TOEFL and technical certificate providers like Microsoft, Google, etc. If we include the previously issued certificates added by users, we believe that the number could easily reach around 50 mn.

Another way of estimating the potential of ChainID is to determine the number of people hunting for jobs every year. As shown in **Fig. 3**, popular job apps have around 78–195 million downloads. Assuming that at least 10% of users are active, there are 7.8 mn users actively searching for jobs. As each job applicant has a minimum of 2 certificates to show for, only the job market accounts for around 15 mn certificates.

| Mobile App | Reviews | Installs (in million) |
|---|---|---|
| Indeed Job Search | 550, 323 | 50–100 |
| LinkedIn Job Search | 164, 573 | 10–50 |
| Job Search, Salaries & Reviews | 62, 981 | 5–10 |
| Trovit Jobs | 67, 026 | 5–10 |
| Monster Job Search | 29, 693 | 5–10 |
| Job Today | 43, 255 | 1–5 |
| Shine | 67, 696 | 1–5 |
| Superjob | 55, 629 | 1–5 |
| | **Total** | **78–195 millions** |

*Fig 3: No. of downloads — Job mobile apps*

If we triangulate using the above 2 data points, a very conservative estimate yields a **minimum of 20 million certificates per year.**

# Monetization

The basic functionality of Chain ID is free. Chain ID is free to use for issuing organizations and certificate holders(users). Monetization is achieved through:

- In-app purchases
- Ads
- Licensing of small businesses to issue custom certificates
- Monthly fee for using business widget on website

## In-app purchase

While the basic functionality of ChainID is free, users can subscribe to a premium version which costs USD 0.99 per month. The benefits of the premium version are:

- Unlimited number of certificates (free version includes up to 5 certificates)
- No ads
- Ability to earn preset monetary bonuses for earning specific certificates

We estimate that at least 10% of users will subscribe to a premium version. Premium costs 0.99 USD per month. Hence, the average earning per user from premium subscription will be 0.1 USD/month.

## Advertisements

Free version of ChainID app will have highly targeted ads based on the certificate data which users have added on their user card. An inference can be made about the interests and profile of the user based on the certificates they have added, and we can show ads relevant to their interests and profile. For example, when a user attains IELTS with the score 5.5, advertisements for advanced English courses for further improvement of skills can be shown to him.

Our ability to accurately serve targeted ads makes us believe that we can command higher ad prices. We expect the price per 1000 impressions to be in the range of 10–40 USD. An average user will be shown about 10 ads per month. So, the earnings from advertising would be in the range 0.1–0.4 USD per user per month.

## Licensing of small businesses to issue custom certificates

Universities, important associations and big organizations can issue certificates on ChainID free of charge. Smaller providers or individuals would need to buy ChainID tokens in order to issue their custom certificates.

## Monthly fee for using business widget on website

Chain ID offers a complete solution for online user verification. Our widget integrated with a business website performs user verification and gives simple yes or no answer to the question whether the user has a particular certificate. For this service, business would need to pay a monthly fee in ChainID tokens.

## Expenses for incorporation of user data into ETH blockchain

Chain ID service is free for Chain ID users. But Ethereum transactions are not free and we compensate our expenses of incorporating user data into blockchain by earnings from advertising and other avenues as discussed above in Monetization section.

According to Ethereum documentation, it costs 68 gas per byte of non-zero transaction data[2]:

$$G_{txdatanonzero} = 68$$

In addition, we bear the cost of 21000 gas per transaction:

$$G_{transaction} = 21000$$

Therefore, the cost of arbitrary data storage in the Ethereum blockchain can be calculated as:

$$(21000 + 68 \times size\_of\_txdata\_in\_bytes) \times gas\_price$$

Gas price controls how much we spend on a transaction. The higher price we pay, the faster the data is incorporated into the blockchain. Currently, gas price at 3 Gwei guarantees a transaction completion within minutes. So we set ***gas_price = 3 Gwei*** (Gwei is 0.000000001 of ETH). We use price of 1 ETH ~ 300 USD (at the time of writing).

Therefore the cost of incorporating user data in a case of 1 KB user card:

$$(21000 + 68 \times 1000) \times 3 = 267000 \text{ Gwei} = 0.000267 \text{ ETH}$$

$$0.000267 \text{ ETH} \times 300 \text{ USD} = 0.0801 \text{ USD}$$

For 2KB user card, the cost would be:

$$(21000 + 68 \times 2000) \times 3 = 471000 \text{ Gwei} = 0.000471 \text{ ETH}$$

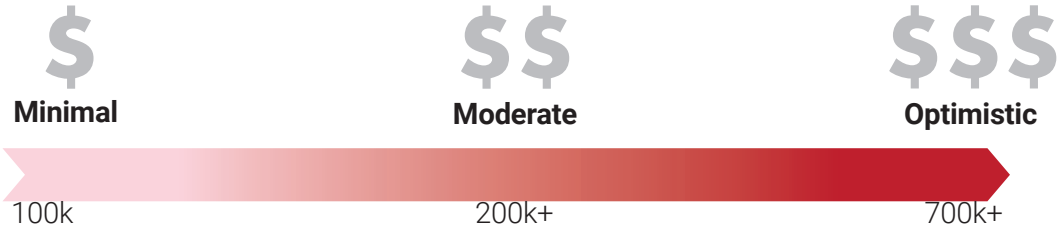
$$0.000471 \text{ ETH} \times 300 \text{ USD} = 0.1413 \text{ USD}$$

Thus the cost of incorporating user card in Ethereum blockchain is capped at around USD 0.15

In the conservative scenario, we estimate income per user as 0.2 USD per month, thus this cost will be completely compensated within 23 days after user registration. In an optimistic scenario where we estimate income per user per month as 0.5 USD, this cost will be compensated within just 9 days. Therefore, the cost of data incorporation into the blockchain per user is not significant comparing to the income per user.

# Roadmap

THE roadmap we will follow for ChainID project will depend on the amount of success we have in the Crowdsale.




## $ Minimal Crowdsale result (100,000 to 200,000 tokens sold)

In case of minimal Crowdsale, we will focus on the basic features of the project. This would include:

» 1. User application
» 2. Business application
» 3. Business website widget
» 4. Chain-ID website
» 5. Basic functionalities for certificate providers

We have explained the details of each of the functionalities in ChainID Components section.

## $$ Moderate Crowdsale result (200,000 to 700,000 tokens sold)

In case of moderate Crowdsale success, we would implement the functionalities in minimal The Crowdsale **plus** the following two functionalities:

**1. Support for partial addresses –** users can create addresses which point to user cards only having specific certificates obtained by the user. The user can choose which certificates they want to share for a particular application, based on what is relevant in that scenario. For example, suppose there is a user who is very active in outdoor sports and has a diving certificate issued by PADI and certificates of completion of various marathons. When he is applying for a technical job, he may create a partial address which only has his technical certificates and not the certificates related to diving and marathons. Thus partial addresses give users the flexibility to control the certificates which they share with different organizations. The process of creating a partial address

is similar to creating a new address. Initially, the user will type an address he prefers. ChainID system will check if the address is available and validate it. If the address is not available there will be an option to try another address.

**2.Preset monetary benefits for earning specific certificates –** Users can specify preset monetary benefits if someone earns a specific certificate. For example, parents can incentivise their children by depositing a preset amount in a smart contract. This smart contract gets triggered when the kid earns a particular certificate and adds it to his ChainID user card. This can also be used to motivate individuals to obtain a certificate by putting money in an escrow. If the certificate is not earned by a specified time period, the money in escrow is sent to a charity.

## Optimistic Crowdsale result (More than 700,000 tokens sold)

In case of optimistic Crowdsale, we would implement the functionalities in moderate Crowdsale **plus** the following functionalities:

**1. Localization** of ChainID app and websites to Chinese, Korean and Japanese

**2. Customised standalone solutions for corporates –** As an advanced feature, we can provide corporates with customised certificates. Corporates can include their logo images in the certificate and can introduce data fields which makes it easier to integrate ChainID with their systems. This will help corporates to achieve better branding and integration with the ChainID platform.

**3. Vertical certificate system –** Certificates are a way to signal competence and achievement. In a vertical certificate system, someone who is an expert in a certain area, and can prove it by having achieved certificates from certifying authorities, can issue certificates to other users. These certificates are thus a formal endorsement from an expert in a field to another individual who has demonstrated his expertise to the certifying expert. This vertical certificate system could be enabled in ChainID platform.

# Timetable

**2018** **2019**

### Q1 2018

- Project Design
- Token Launch
- Crowdsale

### Q2 2018

- Development of ChainID internal protocols
- Development of functional ChainID website

### Q3 2018

- Private Alpha of the ChainID Protocol
- Launch of fully functional ChainID website
- Development of Android User application

### Q4 2018

- Public Beta of the main functionality
- Release of Android User application
- Development of iOS User application

### Q1 2019

- Public Launch of Live version with all main functionality enlisted in "Minimal Crowdsale result"
- Release of Business Android application
- Release of Business Widget
- Development of iOS User application
- Development of Extended functionality enlisted in "Moderate Crowdsale result"

### Q2 2019

- Public Launch of all Extended functionality enlisted in "Moderate Crowdsale result"
- Release of iOS User application
- Development of iOS Business application

### Q3 2019

- Release of iOS Business application
- Development of Extended functionality enlisted in "Optimistic Crowdsale result"

### Q4 2019

- Public Launch of all Extended functionality enlisted in "Optimistic Crowdsale result"

# Token Details and Crowdsale terms

## Token Usage

The objective of this project is to provide an easy way for people to store their certificates and degrees. To ensure that there is minimum friction in users enrolling for our services, ChainID services is free for the end user. Also, the biggest certificate providers like TOEFL and universities can use our service for free. This would enable us to achieve the critical mass needed for the service to be relevant for a large number of people.

***ChainID tokens would be needed for:***

- Smaller certificate issuers. Smaller providers would need to buy tokens in order to issue their certificates
- Also, businesses who check certificates online need to incorporate our widget on their website. For this service, there would be a monthly fee which would be paid in ChainID tokens

We expect that as more users understand the value of our platform and create their user cards on ChainID, the need of token will drive the token demand.

## Crowdsale terms

During the Crowdsale period Chain ID tokens (CID) will be available for sale. Maximum number of tokens available for sale is 7 million.

Full price of CID token is 0.001 ETH. At the current ETH price, the max cap on crowdsale is 4 million USD (estimation based on the ETH rate at the time of writing).

A minimum threshold of 300,000 tokens must be sold during the the Crowdsale for Crowdsale to be deemed successful. If this threshold is not achieved by the end of the Crowdsale period, all investors will be refunded in Crowdsale and Crowdsale will be deemed as cancelled, and all the issued tokens will be burnt. If the maximum cap of 7 million tokens is achieved before the end of the The Crowdsale period, the sale will be finished prematurely.

Early investors of CID token will be able to get bonus tokens. The details of the bonus tokens are given in the following schedule. Bonus will decrease automatically as the token limit at each stage mentioned below is reached:

| | |
|---|---|
| 30% bonus | for first 300000 tokens |
| 25% bonus | for next 400000 tokens |
| 20% bonus | for next 500000 tokens |
| 15% bonus | for next 700000 tokens |
| 10% bonus | for next 1000000 tokens |

### *Additional Token Allocation*

After the Crowdsale additional tokens will be issued as follow:

**If X tokens have been distributed in The Crowdsale, then extra tokens will be allocated as follow:**

| | |
|---|---|
| **0.25X tokens** | Team and Advisors |
| **0.1X tokens** | Bounty programs |
| **0.05X tokens** | Reserved for future use |

The above scheme ensures that investors in the Crowdsale will own 71% of all tokens, independent of the number of tokens sold:

Percent of Tokens owned by investors =

Tokens sold in the Crowdsale ÷ (Tokens sold +
Tokens allocated)

= X ÷ 1.4X ~ 0.71 = 71%

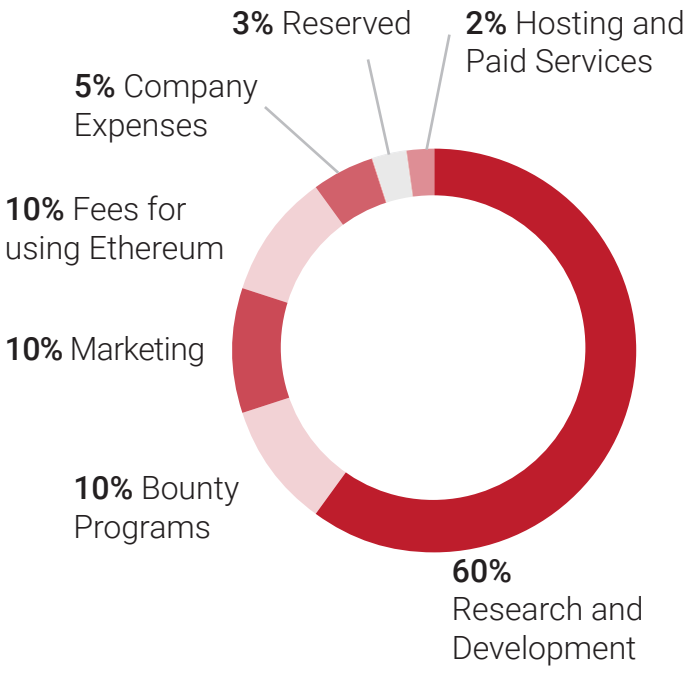
CID tokens are not-reissuable by design. After The Crowdsale ends, CID tokens will be available on secondary market only.

Low max cap on crowdsale (4 million USD) ensures all funds will be used in a very targeted way. It is well known that unnecessary large funds, collected without specific plan to utilize them, lead to inefficient funds spendings or simply mean that extra funds will not be spent at all. On the contrary, appropriate amount of collected funds ensures efficient and targeted fund usage, thus giving potential to fast return on investment.

## Use of funds raised during the Crowdsale

The proceeds from the token sale will fund the product launch, continued platform development and user acquisition. Most funds will be spent on the product development itself, with minimal use of funds on other necessary spendings:

- 60% will be used in product development itself
- 10% for bounty programs for fast user acquisition
- 10% for marketing – content creation and social media promotion.
- 10% of funds will be used for paying for "gas" as we will be using the Ethereum network for storing certificates in the ChainID platform.
- 5% is allocated for running Chain ID company (office, accounting, compliance with government regulations, audit etc)
- 2% for hosting, servers and other paid services
- 3% reserved for unforeseen expenses.



# References


**[1]** MIT Media Lab, Certificates, Reputation, and the Blockchain https://medium.com/mit-media-lab/certificates-reputation-and-the-block-chain-aee03622426f

**[2]** Gavin Wood, ETHEREUM: A Secure Decentralised Generalised Transaction Ledger, https://ethereum.github.io/yellowpaper/paper.pdf

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