Blockchain-based Recruitment and Background Verification Platform
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1. Executive Summary

CVerification is a blockchain-based recruitment and background verification platform. It solves multiple problems. On one hand it provides a modern, distributed and secure system, on which every user can store a verified testimony of his professional achievements and share it with all potential employers. On the other hand, it provides employers with the ability to accept new recruits based on verified information, effectively eliminating the need of background check services.

This way the employers can make informed and safe recruitment decisions and identify the best qualified candidates before going ahead with the selection process. The platform allows businesses to safeguard their organization and applicants to improve their application credentials.

On top of this CVerification offers powerful tools for corporations and recruitment consultants which will make possible the efficient search for potential candidates and the successful analysis of different markets and industries revealing important insights about the relevant employment market. Apart from CVerification there will be also third service providers which will be able to develop analytics tools, integrate them in the platform and profit.

CVerification has the potential of making the whole industry of background check services obsolete by optimizing the existing HR processes and contributing to the society. This industry achieves combined annual revenues of $2bn. However, the market of CVerification is much bigger.

CVerification is the next generation background check platform. It is blockchain-based which makes the secure and direct exchange of employment and educational references in an ecosystem with three main parties possible: previous employers and educational institutions, applicants and potential employers. Apart from employment references the core functionality of the CVerification platform will include the verification of academic degrees, certificates, diplomas, professional certifications and licenses.

1.1. The Market of Background Check Services and its Current Inefficiency

Currently there is no centralized or decentralized service offering comprehensive employment background screening which is simultaneously fast, fully automated and cheap. On the contrary - the existing solutions are slow, require the involvement of multiple personnel and do not even
guarantee successful background screening that could allow companies to hire with confidence. Those solutions also do not guarantee the security of the sensitive applicant’s data.

Nowadays, the exchange of employment references between applicants and their previous employers, and subsequently between applicants and the companies where they are applying for a position, has been a standard part of the hiring process. Not only is this cumbersome for all parties involved, it also leads to a higher risk of information being falsified and manipulated. A dishonest applicant can modify/manipulate the content of the employment reference before using it in his/her application to present himself/herself in a better way than other competing parties and sway the employer into favoring him.

Potential employers do not have a lot of options dealing with this problem – they can either check the genuineness of the documents by contacting the previous employer directly or use a service provider. Often references are left unchecked due to the following reasons:

- Both processes are expensive!
- Both processes do not guarantee feedback from the previous employers!
- Both processes do not guarantee the quality of the feedback!

“63% of applicants provide false information on job applications to potential employers, according to leading candidate due diligence company, HireRight”²

“A 2014 poll from CareerBuilder found that 58% of hiring managers caught applicants exaggerating or fudging details about previous roles, skills, or awards. And entry- or mid-level workers aren’t the only ones guilty of fibbing. Top execs have done it, too.”³
1.2. The Market Niche of CVerification

The second part of the problem is the lack of a modern platform that could provide the high security standards, ease of use and management capabilities that every applicant needs. Even though other solutions for managing online CVs have been developed and in use by the large public, not even one can fulfill all of the above conditions and provide its users with a way to prove the authenticity of their achievements.

1.3. The Solution

CVerification is the next generation recruitment and background verification platform. It is blockchain-based which makes possible the secure and direct exchange of employment references in an ecosystem with three main parties: previous employers or educational institutions, applicants and potential employers. The use of client-side encryption guarantees that applicants have full control over their employment references and can authorize previous and potential
employers to respectively upload and download them. Every reference stored in CVerification’s system is intrinsically saved and protected from any form of tempering, due to the underlying properties of the blockchain. Thus, all parties can blindly trust each other and the genuineness of the exchanged documents.

1.3.1. CVerification’s Proposition

CVerification is a blockchain-based platform where employers and educational institutions can upload genuine employment references of leaving employees upon authorization and download the genuine employment references of applicants when the applicants authorize them to do so. CVerification enables applicants to receive their employment references without the risk of loss and authorize potential employers to get access to their employment references. Applicants will be also able to backup their credentials, to apply with their verified credentials and to monetize their profiles by making them public which will indirectly also increase their chances for finding their dream job.

Furthermore, the platform will offer the following services for employers and recruiters: conducting candidate search, usage of analytics tools. Third service providers will be able to integrate analytics tools as well.

The platform will introduce a feature which will give users with verified credentials the chance to endorse each other. In contrast to the popular professional social networks this service eliminates the risk of falsified endorsements from manipulated profiles.

In the following stages of development the CVerification platform will partner with industry leading solution providers in the fields of Human Resources Systems and Applicant Tracking Systems and will offer integration support.

The product portfolio of CVerification will be gradually expanded with the development of new products, e.g.:

- Criminal Background Checks
- Identity Checks
- Drug & Health Checks
- Driving Records
1.3.2. Benefits of CVerification

Both employers and applicants benefit from the usage of CVerification.

Benefits for employers:

- **Save** money and time from background and reference checks and from exchange of references by mail/email.
- Receive verified references **immediately** upon authorization by the applicant.
- Make their hiring processes **easier**, because nobody needs to compare references.
- Increase the **quality** of the background and reference checks, because they get access to more references through the platform than when they gather the information themselves or with a service provider.
- Take hiring decisions based on **verified** information.

Benefits for applicants:

- **Save** money and time from sending and storing their employment references.
- Give access to verified references **immediately** upon authorization.
- Make the application **easier**, because there is no need to structure and format the files before giving access to them.
- Increase the **quality** of their application which leads to a competitive advantage over other applicants.
- Apply with **verified** references.

1.3.3. Is the use of CVerification optional?

No. Because if some applicants don’t use it and exploit it, the others will!

Obviously there will be applicants who will not want to register and participate. This will lead to „self-selection“ (self-selection vs. hidden information) which makes the platform even better.

„**Typically, individuals with different privately-observed characteristics (good candidates vs. bad candidates) will have different preferences over available two-dimensional options (participation vs. no participation).**“5
2. Business Model and Use Case Scenarios

We differentiate between three types of users of CVerification in the top layer – employers/educational institutions, applicants and recruitment consultants. CVerification offers different features to these three user groups which are presented in the following use case scenarios. In this section we also discuss the business model. All business aspects of each use case scenario are shown in each use case.

The business model of CVerification is aligned to our vision for a future with autonomous ecosystems free of charge for the end users.

Our business model accommodates our beliefs as follows:

- CVerification in contrast to other endeavours in this field is not under the control, influenced or partnering with corporations in the background check industry. We improve the currently inefficient processes in this industry without taking into consideration any external factors caused by partnerships with corporations which are stuck in their outdated revenue models and without the aspiration to help these organisations to stay in the business at the expense of end users. Indirectly this will increase the speed of delivering information to corporations which leads to a better product even from the perspective of corporations. With this approach we distance ourselves from the competing projects in this field.

- We build a system which offers all core features free of charge for the end users and only corporations bare the costs of the usage of CVerification. In contrast to competing endeavours in this field we have recognized the fact that our system creates efficiencies for corporations. Furthermore, we believe that this makes the system more user-friendly and this will result in a higher acceptance. Corporations paying for our services will pay a fraction compared to using the services of traditional background check service providers. Due to the higher acceptance by end users and respectively the positive network effect corporations will prefer our service over competing projects in this field.

2.1. Use Case Scenarios for Employers and Educational Institutions

The following use case scenarios are relevant for employers and educational institutions.

2.1.1. Uploading Genuine Employment References and Educational References

Corporations and educational institutions can save time and money by uploading references of leaving employees and successful scholars after preceding authorization by the leaving employees/scholars directly on CVerification instead of sending them by mail.

Moreover, as a side effect they save a lot of resources in their HR departments, because the latter will be contacted less often by companies conducting background checks and will not need to cooperate with them. This could lead to a substantial expense reduction.

Considering the fact that the fee for uploading references will be partially reimbursed to the originator of the reference in the form of a voucher which can be used for a payment in the process of downloading references makes the process of uploading references even cheaper than the traditional process of issuing references and sending them by mail.
Monetary Outcome:

Corporations and educational institutions will be charged a minimal fee for each document uploaded on the platform. The fee prevents misuse of the platform. 30% of the fee will be retained by CVerification and 70% of the fee will be reimbursed to the issuer of the uploaded document in form of a voucher which can be used to purchase other services on the platform like downloading documents, searching and analysing.

2.1.2. Downloading Genuine Employment and Educational References of Applicants

Employers can download the original employment references of their job candidates. Although this feature is most relevant to employers, sometimes it could be beneficial for educational institutions or recruitment consultants.

With this feature CVerification helps employers to make informed and safe recruitment decisions, sorts out the unsuitable candidates before going ahead with the selection process and allows businesses to safeguard their organization.

All of this is offered by CVerification with a much higher quality and for a fraction of the expenses associated with background checks performed by own HR employees or third providers.

On top of this authorised employers can read the personal endorsements about the candidate written by his previous colleagues or associates for free upon a payments of the downloading fee.

Monetary Outcome:

The monetary outcome depends on the applicant’s privacy preference of the respective document.

The party downloading the document will be charged a fee for this service.

If the profile of the applicant with all documents associated with the profile is private, but the party downloading the document is authorised by the applicant to do so, the party downloading the document will be charged a fee paid in CVER tokens which will be fully retained by CVerification.
If the profile of the applicant with all documents associated with the profile is opened to the public by the applicant, the party downloading the document does not need an authorisation to download it, but will be charged a fee for this service. 30% of the fee will be charged by CVerification and 70% will be paid out to the applicant who is the owner of the profile.

2.2. Use Case Scenarios for Recruitment Consultants

The following use case scenarios are relevant for recruitment consultants.

CVerification enables talent scouts to search for candidates based on different criteria and key words in profiles and/or references. CVerification will offer also analytics tools which analyze public references and deliver insights about candidates or about the market.

These features could be relevant to employers and in some cases to educational institutions too. Only references disclosed to the public by their owners can be found or analysed.

The candidate search engine and the analytics tools are based on machine learning.

**Monetary Outcome:**

The candidate search engine and the analytics tools will be offered to users with a premium account. These users will be charged a monthly or an annual fee for the premium account which will be paid in CVER tokens. This account will give them the right to use the candidate search feature and the analytics tools for free.

CVerification retains 30% of the revenues associated with the premium accounts and distributes 20% of the revenues associated with the premium accounts equally among the users with public profiles who have more than 2 verified references. 50% of the revenues associated with the premium accounts will be equally distributed among the users with public profiles and public references who have more than 2 verified references.
2.2.1. Conducting Candidate Search

Users of the candidate search engine pay for this service a fraction of the fees they would pay on a job portal and in return they get much more precise information which has never been accessible on job portals. With CVerification they will have a broader pool of candidates with public profiles and more information about them, because many of them will give public access to their references which will make the search results more precise.

2.2.2. Use Analytics Tools of Service Providers

In contrast to the candidate search the analytics tools are developed with the aim of giving market insights to researchers, corporations and talent scouts. With the analytics tools of CVerification they will be able to answering market, industry and company related questions.

Examples for market related questions:

- How often do employees change jobs on average?
- Are there regional factors influencing decisions concerning a job change and are there preferred cities?
- How long do students look for a job after graduation?

Examples for industry related questions:

- Which industries have relevance to our industry and which industry offers lateral entry employees to our industry?
- Which companies are preferred by employees in our industry?
- How long on average do employees of a given company stay in this company?
- Are there any seasonal tendencies in timing when employees change their job in our industries and can we allocate marketing and recruitment investments more efficiently?
- Which universities do employees of the competitors graduate?

Examples for company related questions:

- Which universities do employees of the competitors graduate?
- Which competitors attract our previous employees?

2.3. Use Case Scenarios for Applicants

The following use case scenarios are relevant for applicants.
2.3.1. Receiving Verified Employment References

By authorizing previous employers or educational institutions to upload his/her employment references and educational credentials and link them to his/her profile, the applicant gets a fast, easy and secure access to his/her employment references and educational credentials. What is even more important is that these documents are verified by the employer/educational institution. If a potential employer conducts a background check, the applicant is not dependent anymore on his/her previous employer. Even in case of loss of the employment reference or educational credential or inability to verify it, the previous employer cannot influence the application, due to all of the information being securely saved on the blockchain.

Monetary Outcome:

Applicants receive employment references and educational credentials for free.

2.3.2. Backup Verified Employment References

Building out the CVerification infrastructure will not only ensure the references are never lost or damaged, but applicants will also keep access to them as fast as possible with a global presence. All documents will be stored for ever after the upload on a blockchain-based, end-to-end encrypted, distributed object storage. Each file is shredded, encrypted and spread across the network and only the applicant and parties authorized by the applicant have access to their employment references.

Monetary Outcome:

With CVerification applicants backup employment references and educational credentials for free.
2.3.3. Applying with Verified Employment References

Applying with verified employment references raises the chances of the applicant to get hired. It speeds up and improves the application process because it eliminates the need of a background check. Sometimes this can be crucial, especially in case of a quick hire for which a background check is needed, but time is of the essence.

Applying with a verified employment references passively increases the applicant's chances by incentivizing the employer to choose him over other applicants, who do not provide verified references. This happens due to reasons such as:

- Background checks are cost intensive – usually companies outsource the process to third parties, which charge high fees. In some cases, the background check could even end up without any results, because the previous employers are not obligated to give information about employees or their references to anybody in a timely manner.
- Background checks cannot fully verify the content of the references, because it does not get 100% compared to the original document. The company conducting the background check usually does not receive a copy of the original reference.

Monetary Outcome:

Applicants will be able to attach a link/QR code to their job application or they will be able to send an email from the platform in order to inform a potential employer about their profile on CVerification. This features will be free of charge.

2.3.4. Monetizing Own References by Disclosing them to the Public

CVerification allows applicants to disclose their profiles and/or their employment references and educational credentials to the public. By doing so they grant access to everybody who is interested in their profile/documents. This could be an employer or a talent scout looking for talents like the applicant. They will be able to search for fitting references based on different criteria and applicants increase their chances of being contacted by their dream employer.

Monetary Outcome:

On top of this they can earn CVER tokens by doing so, because CVerification retains 30% of the revenues associated with the premium accounts and distributes 20% of the revenues associated with the premium accounts equally among the users with public profiles who have more than 2 verified references. 50% of the revenues associated with the premium accounts will be equally distributed among the users with public profiles and public references who have more than 2 verified references.
2.3.5. Publishing and Receiving Personal Endorsements by/from Previous Colleagues or Associates

Employers try to identify team players who are competent and loyal to their colleagues and associates. These qualities are not always described objectively in the employment references. CVerification offers a solution to this problem and introduces a feature which gives users the opportunity to be assessed by their previous colleagues. Upon authorisation these colleagues can write a short resume about the respective user and their collaboration and publish it on the profile of the user. The user cannot modify any of these resumes and they are fully objective. The user who will be assessed authorises the potential resume writer to write a resume about this person.

To prevent manipulation and fake publishers only users with at least one verified employment reference or educational credential will be able to be authorised by a user to publish an endorsement about him/her.

**Monetary Outcome:**

A small fee will be transferred to CVerification and CVerification will retain 30% of this fee. Upon successful publication of the resume/endorsement the writer will be paid out 70% of the initial fee in CVER tokens which he or she can use for incentivising another colleague of him/her to publish a resume/endorsement about him/her.

### 2.4. Use Case Scenarios for Third Party Developers

Our vision is that as time passes and our user base grows and changes, so will our platform. We will provide a powerful open API, which will enable third party developers to rapidly develop new intelligent services and utilize the hidden potential of the user’s data. The best part about it – the users have complete ownership and control over what and with whom they share. Both
the third party developers and the sharing users will receive a part of the generated revenue, as a reward for their participation on the platform.

**Monetary Outcome:**

The services offered by third service developers will be used mainly by recruitment consultants, employers and educational institutions. The third service developers will be able to set their own prices in CVER tokens for the usage of the services developed by them. CVerification retains 30% of the revenues associated with the service and if the service uses information made public by the users, CVerification will distribute the half of the retained revenue among these users.
3. CVerification Architecture

3.1. Architecture

The CVerification ecosystem will be built in 4 layers.

Illustration 3: Platform Layers

3.1.1. Top Layer - Native Client

The first layer is represented by our web and mobile apps that will provide the users with an easy and intuitive way of requesting, downloading, uploading and verifying references. The apps will mask away the interactions with the blockchain so that everyone can enjoy the benefits without having to deal with transactions, costs, gas prices, encryption and digital signatures. All of this will be taken care of and augmented by the middle layer.
In the top layer corporations and individuals will be able to exchange references and perform various tasks which are described in the business model section and depicted in the following graphics.

Main Features:

Illustration 4: Main Features
3.1.2. Middle Layer - Services

The CVerification services layer will offer additional services on top of the CVerification base layer.

The middle layer makes a platform out of CVerification. This is what differentiates us from all the rest and creates a dynamic ecosystem around our core functionality. Our vision is that as time passes and our user base grows and changes, so will our platform. We will provide a powerful open API, which will enable third party developers to rapidly develop new intelligent services and utilize the hidden potential of the user’s data. The best part about it — the users have complete ownership and control over what and with whom they share. Both the third party developers and the sharing users will receive a part of the generated revenue, as a reward for their participation on the platform.

Illustration 5: Additional Features

3.1.3. Base Layer - CVerification Core

The last two layers of our system are working closely together to provide the secure functioning of the system and to safeguard the users’ data.

CVerification is built on top of the Ethereum blockchain — the second biggest chain and the first to allow for development of complex distributed applications (DAPPs) via Smart Contracts. By utilizing this we can create an extensible system, which can communicate with other DAPPS and is 100% reliable.

All of our core functionality is implemented inside of a Smart Contract that will keep track of the data and the user permissions. All of the information will be encrypted and then stored on the chain, so that it is both safe and accessible 24/7. The exact mechanism of this is described in our white paper.
4. The Market

CVerification will disrupt the background check services industry which achieves combined annual revenues of $2bn.6

4.1. Industry Statistics and Market Size

Revenue: $2bn
Annual Growth: 2011-2016: 1.3%
Employment: 14,804

Largest Firms: First Advantage, HireRight, Sterling Infosystems

4.2. Industry Threats and Opportunities

- Declining unemployment is increasing the need for businesses to screen potential job candidates
- Industry operators will continue to experience a rise in regulation and oversight
- Continued labor market improvement will aid industry growth

4.3. Industry Analysis and Industry Trends

The Background Check Services industry enjoyed encouraging growth over the past five years. The industry performed poorly in the wake of the economic downturn. However, declining unemployment increased the need for businesses to screen for job candidates. In the coming years, industry operators will benefit from an improvement in the labor market. However, strong growth will be mitigated by an increase in vacancy rates, which will diminish demand from apartment leasing companies.

In 2016, the three largest firms are expected to account for close to 40.0% of industry revenue, indicating a low to moderate level of market share concentration.

Historically, industry operators required considerable expertise to conduct investigations and detailed background checks. However, the growth of online technology over the past decade has provided an opportunity for firms to enter this industry. According to the National Association of Professional Background Screeners, most industry operators are small firms focused on aggregating public records. Less than 2.0% of industry firms are large background screening providers that operate at a national or international level.

The Background Check Services industry has grown over the past five years, although it has experienced some variability. As macroeconomic conditions improved, industry revenue grew, and posted good results overall for the five-year period. IBISWorld expects industry revenue to grow at an annualized rate of 1.3% in the five years to 2016. In 2016 alone, industry revenue is expected to increase 0.3% to $1.8 billion.
5. Team

5.1. Our Mission

With CVerification we want to:

- introduce a new product which has not existed before,
- use an innovative technology based on blockchain ensuring the efficiency of the product,
- contribute to society.

5.2. Our Values

Clarity and simplicity

We strive to make our products simple to understand and easy to use by both corporations and individuals. We take extra care to think and communicate with absolute clarity, be it with our customers, our partners or internally.

No fine print

Our brand is built on principles of trust and honesty, as such our customers don’t need to worry about reading the fine print – because there isn’t any.

Serve, don’t profit

We will take into consideration the needs of all parties involved in the model and act accordingly. Our goal is to serve the CVerification community and not to profit or take advantage of it.

5.3. Our Team

The CVerification team comprises industry experts, technology and blockchain innovators and advisors who passionately believe in the huge benefits of this platform for companies and professionals. We work to influence the recruitment processes and background check services. We have amassed years of experience in technology firms and industry leading companies in the field of background check services.
1 Business.com

2 Personnelchecks.co.uk
https://www.personnelchecks.co.uk/news/posts/2014/january/63-of-applicants-provide-false-information-on-job-applications/

3 Business Insider

4 Business.com

5 Dr. Margaret Meyer Nuffield College
https://www.nuffield.ox.ac.uk/teaching/Economics/Bargaining/02_Hidden_Info.pdf

6 IBISWorld Report
https://www.ibisworld.com/industry-trends/specialized-market-research-reports/advisory-financial-services/other-outsourced-functions/background-check-services.html