TrustLogics™

WHITE PAPER

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1. ABSTRACT

The advent of 21st century saw the widespread adoption of digitized data and centralized platforms. The many advantages provided by seamless storage and sharing of digital information quickly revolutionized the global recruitment process to great acclaim. But, unique insights provided by innovative technologies like Machine Learning and Artificial Intelligence have led several major platforms to shut down the flow of data to other applications and third-party platforms. Previously open networks became walled gardens [1] overnight.

Users can no longer freely share their information between different platforms, and are compelled to create profiles and upload their personal information on multiple networks. Their personal details and achievements are now at the mercy of such platforms whose sole aim is to tap them for monetization purposes. In other words, data hoarding is now the norm. In addition identity theft has been on the raise.

Frustrated at such an unfair, inefficient marketplace, TrustLogics^{TM} is poised to put control firmly back in the hands of the aspiring jobseeker. With a patent-pending, innovative technology, our aim is to create a decentralized ecosystem where: users can share their professional data across different platforms by setting permissions; a Recruiter can make the most of our global Peer-to-Peer Hiring Model; jobseekers can harness the power of TrustLogics^{TM} partnered Validators; and Independent Service Providers can maintain and leverage their Digital Portfolios and receive ratings for services provided.

The innovative services that TrustLogics^{TM} has in the pipeline will reduce the gap between Recruiters and Jobseekers even further by leveraging the full potential of blockchain technology. As a result, the recruitment industry, which was previously following long and tedious protocols, will be simplifying its processes to a whole new level.

2. INTRODUCTION

In a highly complex and competitive workforce placement marketplace, TrustLogics^{TM} is the missing link that not only bridges the gap between jobseekers and potential employers, but also aims to build a verification and reputation building blockchain platform for both: Professionals and Independent Service Providers (ISPs).

Given that the majority of current applications are centralized with no verification mechanism for information provided by a jobseeker, recruiters are fed with results which are arbitrary, broad and generic which means that plenty of time, energy and resources are spent on various stages of the hiring process. To ease this burden, TrustLogics^{TM} , with its patent pending platform, takes a step further and aims to build a blockchain application and become a global information gateway for workforce data, where a user can verify their personal and professional information, store it on the platform and securely share access to their data with any user or application.

By utilizing Hyperledger Fabric, Ethereum smart contracts, data encryption and ERC20 standard Tokens, TrustLogics^{TM} aims to transform the modern-day $428 billion [2] recruitment industry along with how ISPs are perceived. We aim to be a one-stop solution for recruiters, active as well as passive jobseekers, and ISPs by providing a platform to:

• Request for Verification
• Build Reputation
• Access & Maintain Verified Data
• Referral Hiring

These records will be made readily available to users, who can share them with their next employer/hiring agency with user-controlled permissions. This will not only help professionals and ISPs get more visibility and attract potential hirers, but also make an employer's decision-making process smoother.

3. INEFFICIENCIES IN THE CURRENT HIRING INDUSTRY

3.1 Overview

3.1.1 Professionals Segment

The Professionals Segment consists of salaried employees whose line of work is highly specialized, knowledge-oriented and mainly takes place in an office or a professional environment.

3.1.2 Independent Service Providers Segment

The Independent Service Providers (ISPs) Segment consists of self-employed or contractual individuals whose line of work involves manual work taking place within the confines of a service requestor's nearby environment, such as a home or other personal property.

3.1.3 Definitions:

The terms listed below have been used in our White-paper and, hence, have been defined to help you gain a better understanding of our product:

Jobseeker/Candidate – An individual who's equipped with a unique skill set and is looking for a job opportunity or change from their current employer.

Recruiter – An individual who posts human resource requirements, responsibilities & skills and works towards finding the right jobseeker. A typical recruiter analyses business gaps and searches for a candidate who can fill the gap.

Peer – Any user on the TrustLogics^{TM} platform who has an option to refer a candidate for a job posted by a Recruiter.

Validators – An organization, institute or a 3rd party Background check company which abides by government regulations and is authorized to verify and submit a certificate of a candidate about Educational background, Criminal records, Drug and Health records, and Previous employment.

Service Requester – A person who has availed services from Individual Service Providers (ISPs)

3.2 Identity and Data loss

One of the major triggers of personal and identity data loss is the hiring industry: random, unnecessary circulation of sensitive personal and professional data across unsecured networks – both online and offline – which leads to data being compromised.

The collection of personal identification details during the pre-screening stage of the hiring process is actually unnecessary, but it has gained widespread popularity because verified, shareable data through secure channels was unavailable. Sensitive information such as Social Security Number (SSN), State/National Identity card details and many more are mandatorily collected during the recruitment process, and are also at risk of falling into the wrong hands. There have already been several instances [5] of sensitive personal and professional data belonging to millions of jobseekers being stolen and misused.

3.3 Lack of Trusted Reputation

Until now, Recruiters have never experienced a comprehensive platform where they could access as well as verify a certain Professional's reputation. Although social media platforms attempted to fill this particular gap, they largely failed because they have never had a convincing solution to issues like fake reputations or endorsements.

This unverified reputation or endorsement data was fed to advanced technologies like Artificial Intelligence and Machine Learning, which attempted to provide a 360-degree view of a candidate's true skills and capabilities. But this was also foiled by the fact that there was still minimal access to an individual's verified professional details to result in trusted reputation. Hence, recruiters end up relying on erroneous probabilities and extrapolations which add to the inefficiencies of the recruiting industry.

From an ISP's perspective, trust and reputation are factors that play a vital role in enabling a successful working career – in the short as well as long-term. There are no reputation monitoring portals available to maintain a record of background verifications, reviews or feedback for such service providers. There are no technology platforms which allow users to hold, maintain, and share such information in the long run. This is precisely where TrustLogics™ is believed to be a game changer.

3.4 No Concrete Background Information

From a Professional's perspective, on average, a company spends anywhere between $35 to $100 [6] per person for a background check which involves: a background check company, educational institutes and past employers – which could typically last between 15 to 50 days.

It is said that, on average, expenses incurred by an organization to close a mid-level position is approximately $4,129 [7]. After the whole process is done, imagine a situation where the recruited candidate fails the background check and doesn't meet the company compliance-check. It not only results in loss of business, but also loss of money, employer's time, jobseeker's time, and the time as well as money spent on rehiring.

As far as ISPs are concerned, it is difficult for any Service Requestor to place trust and reliability on total strangers. In that case, background verification is of the utmost importance and mandatory in most cases. A lack of verified information may result in either limited access to new opportunities or, in other cases, a complete lack of opportunities; because a Service Requestor may consider getting the work done by reaching out to Service Websites.

Unfortunately, at present there are no such common platforms available, where an ISP can update, store, and get their personal information validated; and for a Service Requestor, to access such information and decide on the right provider.

3.5 Keywords-based Hiring

The hiring decisions of Recruiters are significantly influenced by the data contained within a jobseeker's resume. Keyword matching, a popular technique of identifying common keywords between a job description and a resume, is being liberally used by Recruiters in their pursuit to trim the field of potential candidates. This process has turned out to be very inefficient [3], leading to errors in many cases and paving the way for fraudulent practices, like the creation of deliberately misleading resumes by jobseekers. For instance:

• Incorrect education details
• Incorrect work experience and salary details
• Incorrect skills and certificates

During a nationwide survey [4] in the U.S, 58% of the hiring managers admitted that they caught a lie on a resume. As a result, honest and deserving candidates may have lost out on opportunities. By hiring the wrong individuals, organizations end up paying a penalty in terms of low employee productivity and higher re-hiring costs.

3.6 Monopoly of Service Websites

Due to the risk involved in inviting ISPs -- whose Background, Criminal and Drug Information is unknown -- home and handing them the keys to the most valuable assets of their lives, many Service Requestors prefer to visit service websites rather than directly contacting them. Hence, ISPs have no other option but to rely heavily on such websites. An average study reveals that a user overpays for a service being rendered by service websites when compared to directly hiring an ISP.

4. TRUSTLOGICS^{TM} PROPOSED SOLUTION

4.1 Current Platform

The TrustLogics^{TM} platform (which has a patent pending) is a cloud-hosted, SOA-based (Service Oriented Architecture) system and has a provision to create two different types of user profiles – Recruiter and Jobseeker. Services operate depending on the type of user, the user-defined permissions, and/or platform defaults. The platform's public beta phase was launched in December, 2017. The web and mobile apps (Android & iOS) are also available and can be accessed by visiting the official website or by downloading from the App/Play Store.

The top features on the TrustLogics^{TM} platform are detailed below.
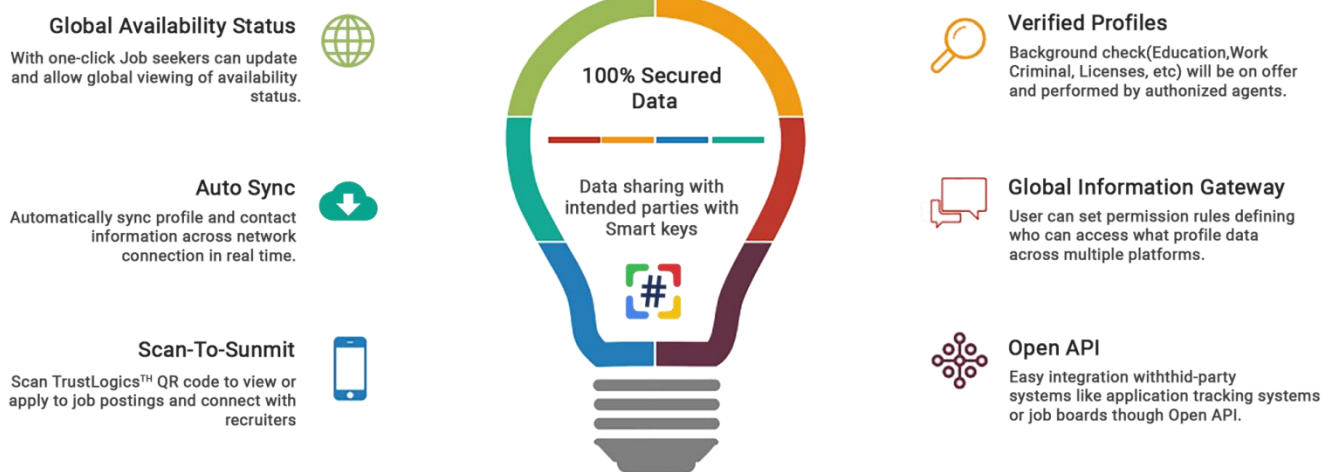
4.2 Blockchain Solution

Overview

TrustLogics^{TM} is aiming to develop a hybrid approach to its blockchain solution: a private blockchain to store and retrieve data with user-set permissions; and a public blockchain to record transactions. A REST API wrapper will be implemented on top of the private blockchain for read/write operations. Such an approach would not only help us in scaling for millions of users globally, but also be complaint with user privacy rules.

Hyperledger will serve as the private blockchain (to store data), and Ethereum will serve as the public blockchain (to record transactions). Hyperledger will be cloud-hosted on Amazon AWS with the necessary libraries and API end points.

Blockchain technology builds on some basic business concepts like: Business networks that connect business; assets flow between those business networks; transactions describe those asset exchanges; participants submit those transactions and are also the owners of the assets; contracts define the rules for transactions; and the ledger is a log of all transactions.

Blockchain technology provides a shared, replicable ledger with extremely useful attributes – consensus, immutability, finality, and provenance.

4.2.1 Why Ethereum?

Ethereum's core innovation, the Ethereum Virtual Machine (EVM), is a Turing complete software that runs on the Ethereum network2. It enables anyone to run any program, regardless of the programming language, given enough time and memory. The Ethereum Virtual Machine makes the process of creating blockchain applications more easier and efficient than ever before. Instead of having to build an entirely original blockchain for each new application, Ethereum enables the development of potentially thousands of different applications, all on one platform.

4.2.2 Why Hyperledger?

Hyperledger Fabric is an enterprise grade distributed ledger based on blockchain technologies that uses smart contracts to enforce trust between parties. All the participants inside the network hold the same blockchain data, which is immutable. Inside the blockchain there is a ledger that holds every single operation executed in the network. The source of this data is cryptographically signed and, hence, guarantees that all parties will have the same data. If multiple parties (internal/external) implement the same Hyperledger, data is synchronized in real-time. This will enforce trust between parties that do not trust each other.

Fabric Composer is an open-source framework to accelerate development of applications built on top of Hyperledger Fabric. Starts from the business level; model network assets, participants, and transactions. Applications use business centric APIs to invoke transactions that create, delete, and update assets and transfer them between participants.

4.2.3 Token Type?

Considering benefits like interoperability with decentralized applications on Ethereum and other compliant tokens, we choose to develop TrustLogics[TM] Tokens using ERC20 standards. See more details about the ERC20 standard at: https://github.com/ethereum/EIPs/blob/master/EIPS/eip-20.md

4.3 Business Cases

4.3.1 Verified Profile Status

Jobseekers can use their TrustLogics[TM] Tokens to place a request to get any of their information like Education, Past Employment, Criminal& Drug information verified. Suitable Validators will be notified of the request. After successful completion of the background check process, jobseekers will be notified of the results. Post-acknowledgment, the allocated TrustLogics[TM] Tokens are transferred to the Validators.
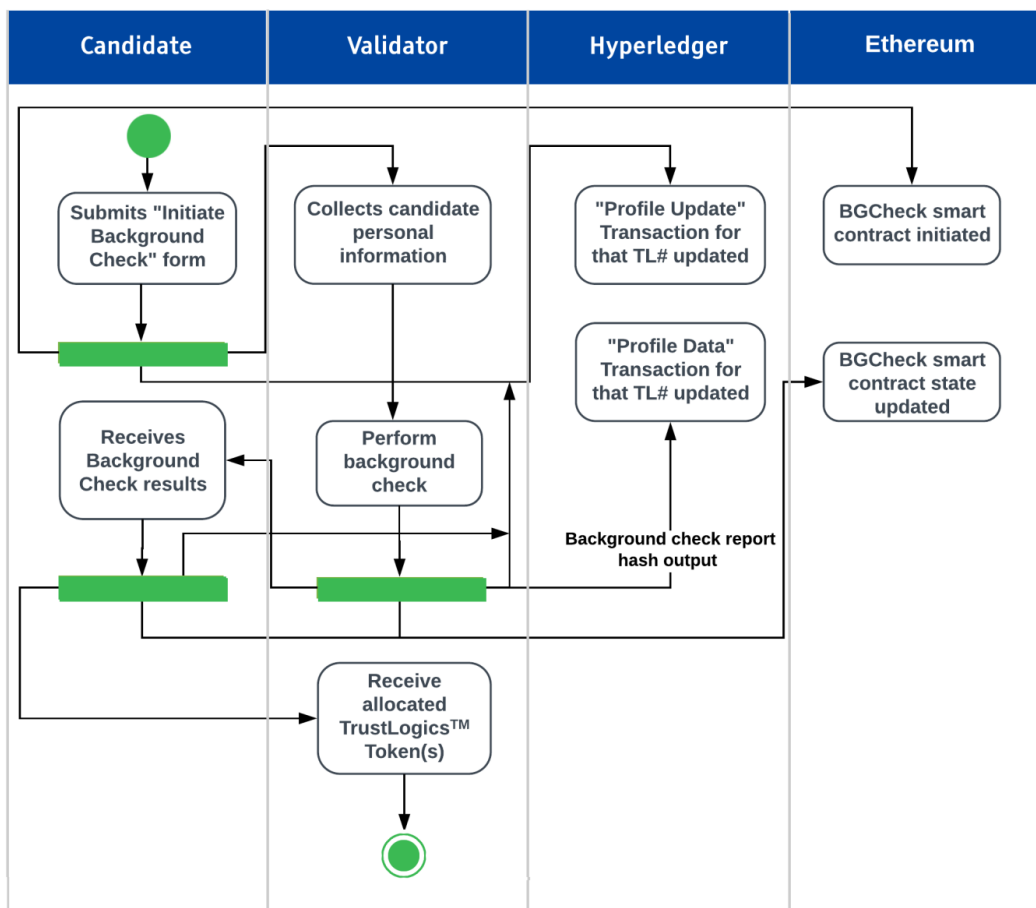
4.3.2 Peer-to-Peer Hiring Model

Recruiter posts a new job opportunity and declares a bounty to close that position. Suitable peers will be notified of the post, who can then refer others within and outside of the TrustLogics[TM] Ecosystem. After successful closure of the position, TrustLogics[TM] tokens are distributed among all the participants involved. This process is quite effective and reliable, as costs are involved only upon closure of a certain opening and referred candidates are more trustworthy [8]
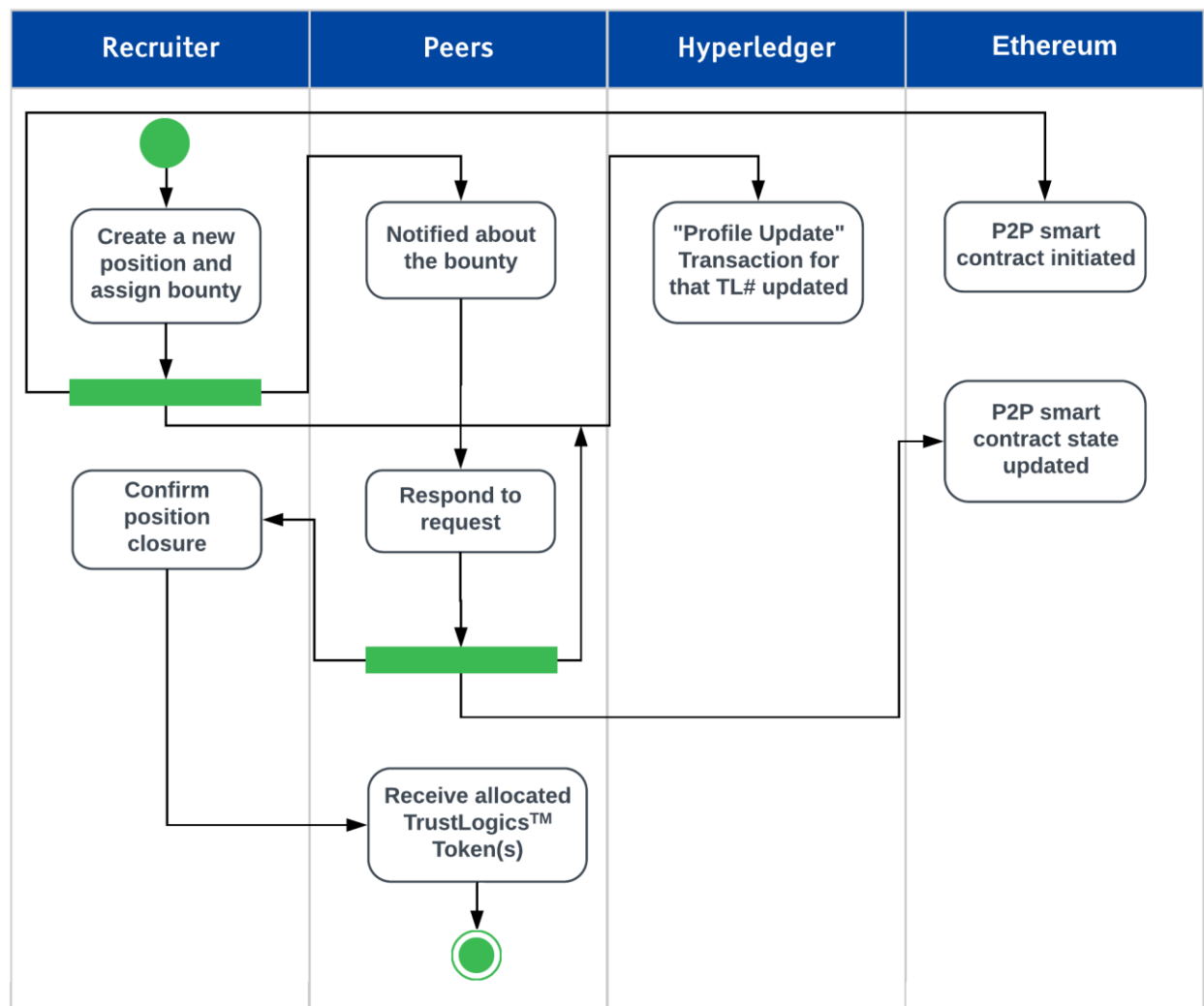
## 4.3.3 Digital Portfolio for Independent Service Providers

ISPs can choose to get any of their background information like Criminal, Drug and Work History verified by placing a request through their TrustLogics[TM] Tokens. Suitable Validators will be notified of the request. After successful verification of the background check process, validators are transferred allocated TrustLogics[TM] Tokens. Once an ISP fulfils the needs of a Service Requestor,

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they can request a rating of their work from the latter. TrustLogics^{TM} helps ISPs maintain a Digital Portfolio which will contain all such ratings and reviews.
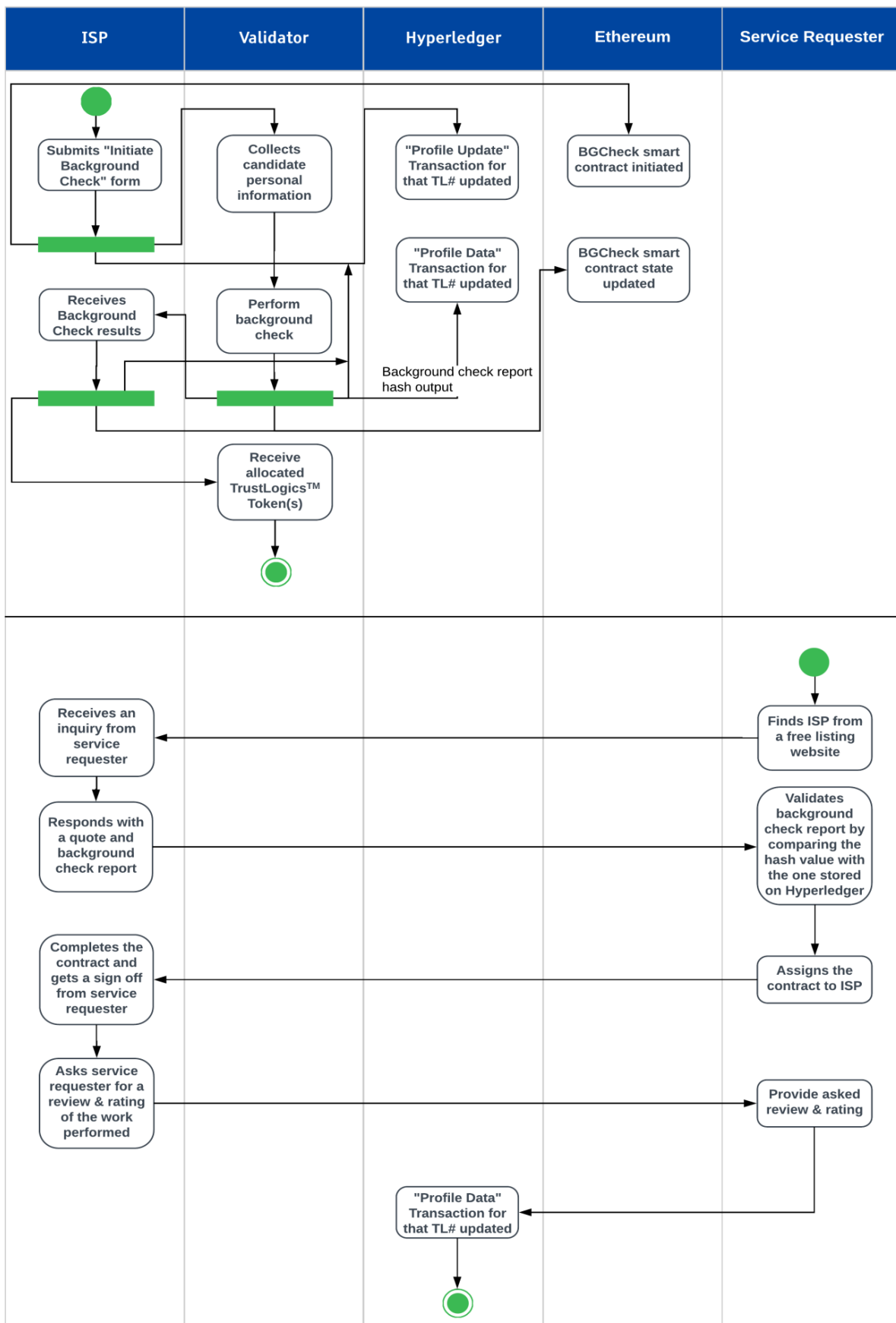
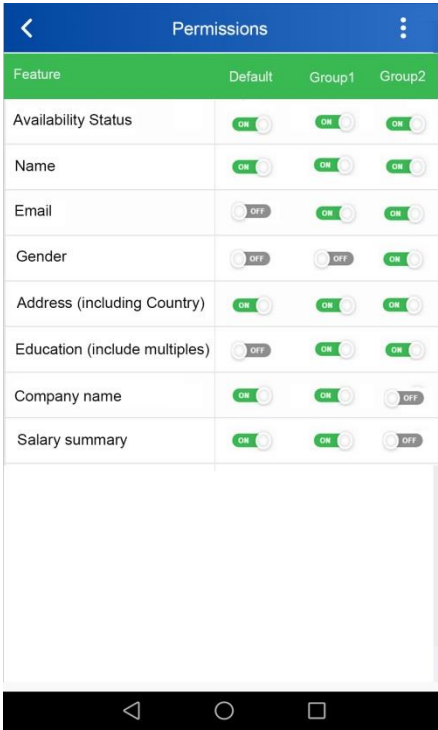## 4.3.4 Reputation Building System (RBS)

Individuals can assign a bounty for building their reputation about Education, Previous Employment, skills, achievements, etc. TrustLogics^{TM} platform will choose the participants and send notifications about the opportunity and assigned bounty. Based on a proprietary weighted algorithm, participants who confirmed the request will be accordingly rewarded with TrustLogics^{TM} tokens.
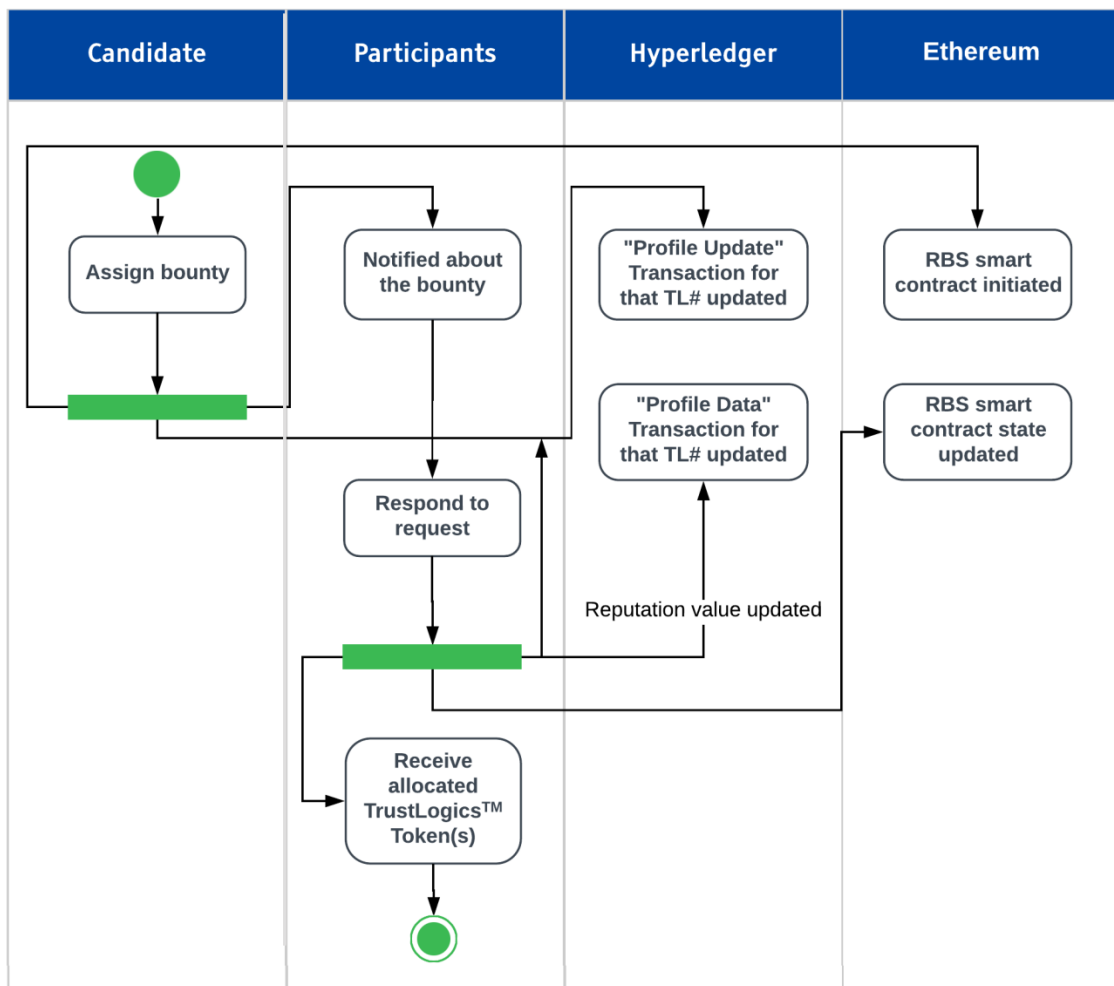
5. UNIQUE VALUE PROPOSITION

5.1 Data Protection

At TrustLogics^{TM} we value user data privacy. We built this platform to ensure that any third-party application gaining access to data is completely dependent on user-defined permissions. In the current public beta release of the platform, Jobseekers can place their network users (e.g. Recruiters) into different groups and assign separate permissions to every group. Basically, the display of individual components of a jobseeker's profile can be enabled/disabled for one or more recruiters. Recruiters will only see the data that has been made visible for them by jobseekers.

5.2 Global Information Gateway

The biggest recruitment tools and platforms in the world no longer operate with the spirit of sharing data with other platforms or third party players with the help of APIs. The Internet's founding principle – data and ideas being freely exchanged – is under threat. Recruiters and Jobseekers are signing up on an endless number of job portals with the expectation that their recruitment process will, someday, miraculously get easier and smoother. But it is not. It is repetitive, time consuming, costly and insecure. Even after landing a job, they are inundated with calls and follow-up interviews. On the other hand, despite spending tremendous amount of time and money on enhancing reputation on one intermediary Service Website, ISPs find it impossible to transfer their hard-won reputation to a slew of other websites in a legitimate manner.

In such a grim backdrop, TrustLogics^{TM} is stepping in to disrupt the status quo. A permission-based, blockchain platform can result in a significant development: Unimpeded flow of a

Professional's or an ISP's career landmarks, reputation, and verified qualifications to external platforms or users after being provided the required permissions.

6. REFERENCES

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[3]HireRight. "2017 Employment Screening Benchmark Report." https://www.hireright.com/benchmarking, accessed 10 March 2018.

[4] CareerBuilder. "Fifty-eight Percent of Employers Have Caught a Lie on a Resume, According to a New CareerBuilder Survey." 7 August 2014. http://www.careerbuilder.com/share/aboutus/pressreleasesdetail.aspx?sd=8%2F7%2F2014&id=pr837&ed=12%2F31%2F2014, accessed 2 January 2018.

[5] Chief Chepree. "Jobstreet Data Breach: How To Find Out If You Are Affected." Lowyat.NET. 31 October 2017. https://www.lowyat.net/2017/146552/hibp-verify-jobstreet/, accessed 16 February 2018.

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[7] The Society for Human Resource Management. "Average Cost-per-Hire for Companies Is $4,129, SHRM Survey Finds." 3 August 2016. https://www.shrm.org/about-shrm/press-room/press-releases/pages/human-capital-benchmarking-report.aspx, accessed 5 February 2018.

[8]Stephen V. Burks, Bo Cowgill, Mitchell Hoffman and Michael Housman. "The Value of Hiring Through Employee Referrals." The Quarterly Journal of Economics. 8 February 2015.http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.705.6430&rep=rep1&type=pdf,accessed 15 March 2018.

7. TERMS & CONDITIONS

PLEASE READ THIS NOTICE VERY CAREFULLY. IF YOU ARE IN DOUBT AS TO THE ACTION YOU SHOULD TAKE IN RELATION TO THIS DOCUMENT, PLEASE CONSULT YOUR LEGAL, COMMERCIAL, FINANCIAL, TAX OR OTHER PROFESSIONAL ADVISORS AS APPLICABLE.

IMPORTANT NOTE: The Token sale company discussed in this White-paper is not responsible for any direct or consequential losses or damages that may arise directly or indirectly from: (1) Reliance on any information contained in the White-paper and all associated materials, including this document; (2) Any omission or inaccuracy errors that may be present in the information relayed; (3) Any action resulting from such information.

This White-paper is a summary of the TrustLogics^TM current business model, technology, and an introduction to TrustLogics^TM token sale for development of TrustLogics^TM blockchain features and targets. TrustLogics^TM will conduct its token sale to raise funds from TrustLogics^TM current and future users for development and commercialization of the products and services described in this White-paper.

Information contained in this White-paper is of descriptive nature and not binding. This White-paper includes market and industry information and forecasts that have been obtained from internal or publicly available surveys, reports and publications. Such sources are believed to be reliable, but

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The TrustLogics™ Utility token sale involves and relates to the development and use of bleeding-edge and experimental technologies that may not turn out as expected or be brought to completion as specified in this White-paper. Regulatory measures, investigations or actions may impact TrustLogics™products and services and limit or prevent them from being developed or implemented. The TrustLogics™ business model may change due to new regulatory and compliance requirements from any applicable laws in any jurisdiction.

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TrustLogics™ tokens do not represent equity, shares, royalties or rights to capital, dividends, interest, profit or income in the entity that issues tokens or any other entity in any jurisdiction. TrustLogics™ tokens are not designed or intended to perform or to have a particular value outside the TrustLogics™ ecosystem. TrustLogics™ tokens shall not be used or purchased for speculative or investment purposes.

8. LEGAL

You acknowledge and agree that there are risks associated with purchasing, holding, using and disposing of TrustLogics™ Utility Token in connection with the services, stores and the TrustLogics™ project itself, as disclosed and explained in this document and in the Terms and Conditions of Token Sale Agreement.

Any person purchasing TrustLogics™ products, services or TrustLogics™ Tokens (the "Purchaser") expressly acknowledges technical and market uncertainties which are inherent in any business development projects as presented in this document and that this project, therefore, may not come to a final realization as planned or may have to be abandoned, or the rights or Purchasers who are TrustLogics™ token holders may vary significantly from those listed in this document.