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Whitepaper

V1.8.4

14. January 2018



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2. Abstract

The Blocklancer whitepaper will introduce and elaborate on the many features and novelties the platform will introduce to the freelancing world. Furthermore, we will look into our Initial Coin Offering (ICO) round details and delve into our ideas and ambitions for the future of the Blocklancer platform and ecosystem.

The Blocklancer platform is intended as a means to revolutionize the process of freelancing and improve the cooperation between the freelancer and the Client. It is going to solve many issues involved in the Freelancing process, including but not limited to:

- refusals of payment for the agreed-on amount of money for a project,
- fake or undeserved reviews, and
- the uncontrollable influence and abuse of power of a central authority figure

3. Distributed Autonomous Job Market (DAJ)

It is our belief that a completely self-regulatory system is the best solution for a Freelancer platform such as Blocklancer. Therefore, we have created a new form of job market: The Distributed Autonomous Job Market (DAJ for short).

DAJ is our vision of the job market of the future and our proposed solution for many of the underlying problems currently faced by freelancing platforms. Most of the decisions made on our platform are in the hands of the Tokenholders, which means that there won't be one single authoritarian instance with an uncontrollable amount of influence on the market. This effectively puts the power in the hands of the Tokenholders, giving Freelancers and Clients a fairer way to transact.

The Tokenholder Tribunal, which will be explained in detail further below, is one example of a decentralized, self-regulatory system for settling disputes between Clients and Freelancers.



4. Market and Industry

Freelancing is one of the fastest growing markets in the world¹ with the Freelance workforce being comprised of 55 million workers; comparing this number to the 30 million freelancers only 10 years ago, we can see a substantial growth in the freelancing workforce with almost double the amount of workers today. Freelancers currently represent approximately 35% of the U. S. workforce.

The whole Freelance workforce has earned a combined revenue of an estimated \$ 1 trillion¹ this past year, making up a significant share of the U. S. economy.

That's not all: The freelancing world is an ever-growing market with more and more people getting into freelancing every year. In a survey, nearly half of all the Freelancers currently active in this field of work saw an increase in demand and are expecting to raise their revenue in the coming year as well.

If only 0.01 % of the Freelancer community were to use our platform – which is feasible for our project - the amount of money in circulation on our platform would exceed \$100,000,000, resulting in a yearly distribution of \$ 3,000,000 (at 3% fees) to all Tokenholders involved in voting on the platform.

¹<https://www.upwork.com/press/2016/10/06/freelancing-in-america-2016/>



5. The Token



Name:	Lancer
Ticker:	LNC
Max supply	\$10 million USD
Platform:	Ethereum
Goal	\$1 million USD
Pricing	Power day with 12,000 LNC : 1 ETH After power day: 10,000 LNC : 1 ETH for first 10 Million Tokens Rate decreases by 1% for every 10 Million Tokens sold Minimum rate is 7,000 LNC : 1 ETH
Benefits	Blocklancers fees are distributed amongst Tokenholders LNC is a tradable token

A holder of the Lancer Token benefits from the Blocklancer platform in two ways.

- If you hold more than 10,000 Lancer Token you get access to premium features on the Blocklancer platform. After holding more than 10,000 Lancer Tokens for a period of at least 1 month your account will be automatically upgraded to a premium account.
- If you hold Lancer Tokens, you are allowed to participate in the Tokenholder Tribunal. For participating in the Tokenholder Tribunal in an honest and informed way you will be rewarded by a share of the platform fees.

The benefits of the premium account and the participation in the Tokenholder Tribunal will be delineated in the following sections.

5.1. Premium Accounts

Access to premium accounts is restricted to Tokenholders. Only Tokenholders, who hold more than 10,000 Lancer Tokens, for a period longer than 1 month get access to premium features of the platform.



This way we incentivize people, who are interested in the long-term success of Blocklancer. People, who are holding Lancer Tokens purely for speculative reasons and short periods of time, will not be able to use premium features.

With the success of the Blocklancer platform the demand for Lancer Tokens will increase, on the other hand the supply for Lancer Tokens will decrease, because premium users will not sell their Tokens, because they would lose access to the premium features.

The premium account includes features such as:

- Getting access to detailed profile statistics. Know, who viewed your profile and how you can optimize your profile appearance.
- Only allow the best rated freelancers to apply for your jobs. Your job offers will be predominantly visible to the best freelancers on the platform. Freelancers with no rating or bad rating will not be allowed to apply for your jobs.
- Your job offers will be higher ranked by our search engine.
- Your application for a job offer will be ranked above non-premium applicants.
- Get early access to new features.
- The minimum amount required (10,000 LNC) will never be reduced.

5.2. Participate in the Tokenholder Tribunal (THT) and earn your share of the platform fees

Every Tokenholder, who holds Lancer Tokens longer than 1 month, is allowed to participate in the Tokenholder Tribunal. After the ICO, everyone who participated in the pre-sale or ICO is able to participate in the Tokenholder Tribunal.

If you transfer the Lancer Tokens to another account the account will not be able to participate in the Tokenholder Tribunal for 1 month. This way the system cannot be exploited by transferring Lancer Tokens between multiple accounts. The share of the fees, the Tokenholder will get after a cycle (~2 months) depends on the number of Tokens he holds and predominantly on his activity in the Tokenholder Tribunal. This means that the Tokenholders are rewarded for their efforts in the Tokenholder Tribunal. In contrast to this, passive Tokenholders will not get any shares from distributed by our platform.



6. The Token Holder Tribunal

The Tokenholder Tribunal is activated, if there is a dispute between client and freelancer. In order to activate the Tokenholder Tribunal a small fee (~50USD) has to be paid. This way we make sure that the Tokenholder Tribunal is not abused.

Moreover, it is more attractive to activate our Tokenholder Tribunal compared to dispute settlements of conventional freelancing websites. The fees of traditional freelancing platforms regarding dispute settlements are far too high (~\$500 USD) for common disputes, which is unreasonable for most jobs.

If the activation of the Tokenholder Tribunal would be free, a rational agent would always choose to activate the Tokenholder Tribunal. Even if the agent knows that he has not fulfilled the task, he will activate the Tokenholder Tribunal, because there is a very small probability that the Tokenholder Tribunal decides that the agent is right. By introducing this small fee, we are preventing these very agents from abusing the Tokenholder Tribunal system.

6.1. Process

If the dispute is activated, Tokenholders are chosen randomly to participate in the dispute settlement procedure. This makes sure that the Tokenholders cannot know a priori, in which dispute settlements they will participate. The set of Tokenholders that are chosen to participate in the Tokenholder Tribunal for a certain project will get all available information about the project.

This includes:

- the complete job offers
- Information about the history of the freelancer and the client
- The final submission and earlier submissions of the freelancer.

Moreover, the client and the freelancer have the possibility to submit a statement for the case. The Tokenholders have to study the material to make an informed decision. The decision making is binary, so that the Tokenholders can decide either in favor of the client or of the freelancer.



6.2. Calculation of the votes

The Tokenholder Tribunal is open for a certain period of time (~ 1 week) and the participating Tokenholders are also able to change their decision during this period. During this period the tally is not visible to the participating Tokenholders.

The Tokenholders can vote either in favor of the client or the freelancer. After this period, the tally becomes visible to everyone and the final decision is made public.

The settlement is done by majority vote. If no majority is reached, the involved client and freelancer have the possibility to activate another Tokenholder Tribunal.

If the Tokenholder belongs to the majority, his vote is counted as “positive vote”, whereas if the Tokenholder belongs to the minority, his vote is counted as “negative vote”.

6.3. Calculation of the distributed Fees

After every dispute each Tokenholder who participated in the dispute receives a so-called vote share. The vote share is higher, the less Tokenholders take part in the dispute.

This incentivizes Tokenholders to cast their vote on more difficult disputes (e. g. the code of the freelancer is not working properly), as this will lead to a greater share.

On the other hand, this will ensure that the easier cases are not overflowed by votes, as the share will decrease substantially with the number of votes already cast.

Should the Tokenholders vote be counted as a “negative vote”, he loses double the vote share of the respective dispute. This way we make sure that Tokenholders, who are not making informed decisions are penalized. This mechanism grants that there is the highest incentive for Tokenholders in finding reasonable decisions.

After a dispute cycle (~2 months), the share of the Tokenholders is calculated in the following way.

We calculate each Tokenholders share by multiplying the total amount of vote shares he acquired in this period with the amount of Lancer Token he holds at the end of the period. We denote the result by T.



Then we calculate the sum of all shares (from all Tokenholders during this cycle) we denote the sum by W . Now the share of the Tokenholder is W/T .

This means if $W = 100$ and $T = 10$, the share of the Tokenholder would be $100/10 = 10\%$. So, the Tokenholder would get 10% of the platform fees that were collected during this cycle.

6.4. Common disputes

On current freelancing platforms ~90% of all disputes are very easy to settle. Common dispute cases are for example:

- The freelancer disappears.
- The freelancer hadn't completed the project before a milestone/deadline.
- The client doesn't mark the job as completed. He just disappeared.
- Undeservedly bad review from client/freelancer.
- Freelancer isn't responding.

Such disputes are undoubtedly easy to rate for most people. Such situations are the most perfect use cases for the Token Holder Tribunal. On current freelancing platforms you have to pay high fees even for such easy dispute cases. Fees of up to \$ 500 are simply not worth this amount of money, as it is simpler and less expensive to hire another freelancer.

6.5. Expert Tribunal

Should the client or the freelancer not be satisfied with the decision of the Tokenholder Tribunal, there is also the possibility to activate an Expert Tribunal. The fee for activating the Expert Tribunal is about 500 USD. The Expert Tribunal is a board of experts. The decision of the Expert Tribunal cancels out the decision of the Tokenholder Tribunal. This means that if the Expert Tribunal comes to a different conclusion than the Tokenholder Tribunal, the decision of the Expert Tribunal will be applied to the case.



6.6. Double vote attacks

A major problem of all voting systems on the Blockchain so far are double voting attacks. Anybody could just vote for someone and directly afterwards send the funds to another Ethereum address and vote again.

Currently there are some implementations to tackle this. For example, the DAO prevented his users from transferring tokens whilst a tally was in progress. This is of course no option for the Blocklancer platform because then transfers wouldn't be possible far too often.

To prevent such a behavior from Tokenholders everyone must own their Lancer token for a period of at least 1 month. After receiving Lancer Tokens from another account, the receiving account will not be able to participate in the Tokenholder Tribunal for 1 month. This way the system cannot be exploited by transferring Lancer Tokens between multiple accounts.

6.7. Scalability

Every token holder has a random value assigned to his account (range = 0 - 1000). This allows us to only allow a specific group of Tokenholders to vote at a single dispute (e.g. numbers 200 - 300). One might question why that should be needed. Actually, it's quite simple. It would create a limit to the maximum number of disputes all the Tokenholders would be able to vote for, should everyone always be able to vote on every dispute. Put simply, this allows us to distribute all disputes evenly among all Tokenholders and thus allowing for an unlimited scalability. More job offers would mean a higher demand for Lancer Token and thus increasing the diversity of Tokenholders. Those could be evenly split among the higher number of disputes by automatically shrinking the vote groups (e.g. numbers 100 - 150).



6.8. Self-vote protection

Another major problem of current voting implementations is that Tokenholders would always be able to vote for themselves. Tokenholders aren't allowed to vote for themselves. But a clever Tokenholder would now just transfer his tokens to another account and thus circumvent the protection, even though he would lose some credibility and all premium features on his main account. The implemented voter groups (see 6.7.) are applicable here as well. The Tokenholder just wouldn't be ensured to be able to vote on a dispute he himself is involved in. This ensures that there won't be any planned malicious actions regarding self-votes.

6.9. Majority Overtaking

Should there be a Tokenholder in a voter group with substantially more tokens than the rest, he would be able to dominate or even overtake that voter group. To tackle, this every vote has the same impact on the final decision, independent from the number of tokens one holds. The minimum amount to be able to vote in the Tokenholder Tribunal is 5000 LNC. To ensure that nobody is able to just split up his Lancer over multiple accounts we are implementing an ID verification process (see 6.12.).

6.10. The Tokenholder Tribunal as a Game

The Tokenholders have a separate voting platform with a ranking system which ranks them by the amount of vote shares they have. This ensures a higher motivation of voting correct in the Token Holder Tribunal by granting them the incentive of social recognition. The Tokenholders will be able to reach higher levels on the platform by gaining more vote shares or badges. The Badge achievement system will be similar to those on many forums today (e.g. Stackoverflow). Where the Tokenholders receive badges for certain achievements (e.g. first vote, ten consecutive correct votes).



6.11. Can I lose anything?

You can't have less than zero vote shares and thus you can't lose anything by voting. With that we mean you can lose neither Ether nor Lancer. By voting on disputes you can only receive, in exchange for the time you invested in making an educated and informed vote, a share of the platform fees.

6.12. Know Your Customer (KYC)

Many transactional applications require up-front knowledge concerning certain aspects of a counterparty's identity.

In many respects, the Blockchain is no different and legal entities who have a beneficial relationship with Blockchain-logic may also have the need for ensuring the Blockchain logic itself ascertains this kind of knowledge before engaging in a transactional relationship.

6.13. Preventing wrong voting

To prevent Tokenholders from voting wrong on purpose in the Token Holder Tribunal (e. g. voting in favor of their colleague) we created an environment to highly discourage such actions. If a Tokenholder has zero vote shares his votes will not count towards the end result of the dispute but he still receives vote shares for his vote. This ensures that he needs correct votes to change anything in the end results of disputes. On top of that we have algorithms in place to detect and ban users that obviously try to harm the platform. With those levels of security in place it practically becomes impossible to cast several malicious votes and thus, the Token Holder tribunal has the highest possible chance of finding a correct decision.



7. Ratings and Reviews

Freelancers and clients are able to provide feedback on each other and help others to decide which freelancers or clients to choose.

7.1. Overview

Freelancers or clients are able to rate each other on a scale of 1 to 5 stars. They can also choose to add a written review, which is optional. Every user has a summary rating which is always displayed alongside the username. Freelancers also have a separate rating for each skill (e.g. C++, Translation ...) which allows a potential client to determine the skills of the freelancers in question in more detail, making the process of finding the correct freelancer far easier.

7.2. Process

Freelancers or clients are able to rate each other after a job is completed. This minimizes the risk of people rating each other without prior knowledge of each other's skills. After the job is completed the freelancer and the client have 2 days to rate each other. After this period, both ratings become public. This ensures that nobody is making ratings just as revenge. If a negative rating of the client/freelancer would instantly get public the other party could just make a bad counter review as "revenge" and thus rendering the whole rating process pointless, because there wouldn't be a benefit in rating anybody bad, you would just lose by doing so. After the rating process is completed the new rating gets added to the summary rating.

7.3. Reviews

Both freelancer and client have the option to leave a written review which is shown in each other's profile. It is highly encouraged to leave a written review because it is far more meaningful than just a simple rating.



7.4. Disputing unjustified ratings

Should the freelancer or the client not being satisfied with their rating, they have the option to dispute the rating. The Tokenholders are then tasked to review the whole job to determine if the rating is justified or not. Should the Tokenholders come to the conclusion that the rating isn't justified, the rating/review gets removed from the client's or freelancer's profile. This way, Blocklancer ensures that ratings aren't final like on current freelancing platforms, we provide this option because freelancers or clients could lose much income by unjustified ratings.

7.5. Skill ratings

Freelancers also have a separate skill rating for every skill individually, because an overall rating wouldn't tell much about the freelancer's capabilities in certain skills. Skill ratings should rather be considered as the experience a freelancer has in a certain skills. After a successful job the freelancer receive 1 additional point in each skill, which was required for this job, if the client rated the freelancer with more than 3 stars. On the other hand if the client rated the freelancer with less than 4 stars he won't lose nor gain any points and thus the skill rating should rather be considered as experience.

7.6. Fake reviews

There are always people which try to push their ratings to make deceitful actions. Blocklancer has multiple features in place to prevent such actions.

- Reviews are only creatable after a successfully finished job. This ensures that nobody is able to just spam fake ratings on their friends profiles because they would need to pay the minimum amount (0.01 ETH) for every review they add this way. This ensures that such ratings aren't really economically interesting in the first place.



- Should a user's work quality suddenly decrease after several years, he would still have a great rating for several more. In order to solve this problem, newer ratings will have a greater impact on the overall rating, thus rendering this issue non-existent.

8. Actions in a job

Both freelancers and clients have the option to perform certain actions in a job. To make this section clearer, we split the actions up into freelancer actions and client actions.

8.1. Client Actions

- **Pick a freelancer:** After freelancers made their bids, the client is able to select a freelancer to complete the job. The client needs to have the funds to be able to pay the selected freelancer before selecting this freelancer. After selecting a freelancer, the client isn't able to withdraw those funds before completing the job.
- **Cancel a job:** If the client hasn't yet chosen a freelancer he is able to cancel the whole job. After this action is performed neither a freelancer is able to bid for this job nor is anyone able to see this job anymore.
- **Complete a job:** After the freelancer finished the job, the client is able to complete the job. After this action is performed the freelancer instantly receives his payment. The client also has the option to give a rating to the freelancer when completing the job but the written review is optional and can be left blank.
- **Call the Tokenholder Tribunal:** The client is able to call the Tokenholder Tribunal should he not be satisfied with the work of the freelancer (see 6.).

8.2. Freelancer Actions

- **Bid for a job:** The freelancer is able to bid for any job he would like to make. The bids are limited to 10 bids per week. This ensures that a freelancer isn't just making a bid for every job that is posted, but only for those he is really interested in.
- **Cancel the job:** If the freelancer isn't able to complete a job he can choose to cancel the job. After he canceled the job the client's funds are instantly unlocked and he is able to withdraw them.
- **Rate the client:** If the client marked the job as completed the freelancer is able to rate the client.
- **Call the Tokenholder Tribunal:** The freelancer is able to call the Tokenholder Tribunal should the client refuse to mark the job as completed (e.g. the client disappeared) (see 6.).

The screenshot displays the Blocklancer Alpha web application. At the top, the navigation bar includes the logo, links for 'Find freelancers', 'Find jobs', 'My projects', and 'Tribunal', along with a user profile icon and a balance of 20000. The main content area is titled 'JOB DESCRIPTION' and features a 'Dapp Developer' job listing. The job details include a summary of the role, a client profile with a 5.0 rating and 'No Disputes' status, and a list of skills (Ethereum, Web3). A table at the bottom shows the freelancer's performance and bid details.

Freelancer	Performance	Bid
@WhiplashWally	5.0 ★★★★★	ETH 30 ¹⁰⁰



8.3. Preventing Spam

Since the dawn of the Internet, spam has always been a problem for web-based platforms, and the Blockchain is no exception to this. Blocklancer integrates several measures to prevent malicious posts and spam.

- Every profile on the Blocklancer platform gets verified. (see KYC)
- We limited the amount of jobs that can be created by a single user within a certain timeframe. (120 seconds)
- Every freelancer only has 10 bids per week. (Currently in the alpha 10 bids per day)

Those facts combined make it very hard to bombard the Blocklancer platform with massive spam. On top of that, we added current technologies to prevent users from accidentally spamming by client side checking the input of the user.

8.4. Reporting Spam

Only Tokenholders that own more than zero vote shares are able to report a job offer. After this - as with normal dispute - a single, random vote group of the Tokenholders decides about the fate of the job offer. If they come to the conclusion that the job is indeed spam, it gets deleted.

On the other hand, should the Tokenholder Tribunal come to the conclusion, that it isn't spam, the Tokenholder that reported the job loses 0.1 vote share.

8.5. Why only 10 bids?

We decided to only allow 10 bids per week to reduce the amount of bids in total. If you think about it, the chances of getting a job are always the same no matter the amount of bids. The only thing that changes, is that there is more/less competition on every job.

Another important fact of the 10 bids is, that a freelancer shouldn't just mass bid on every job. Otherwise he could just bid on all jobs and cancel those he doesn't like, thus only causing the client trouble.

9. User Profile

The user profile is a collection of settings and information associated with a certain user. The user profile is the main page after clicking on anyone's username on any site within the Blocklancer platform. It contains all the major information about a certain user such as:



- **Username:** The username a user chose when registering on the platform. It is always visible when the user is displayed throughout the platform.
- **Short Description:** A short description of the user (< 100 words).
- **Description:** The full description of the user.
- **First Name:** The first name of the User is only displayed in the profile.
- **Surname:** The surname of the User is only displayed in the profile.
- **Skills:** The skills the user has, including the rating for each skill.
- **Skill Rating:** A user receives a skill rating on every skill based on the amount of jobs he finished where this skill was required.
- **Reviews:** Reviews the user received from other users he worked with.
- **Education:** Educations are Schools, Courses or Degrees a user has completed.
- **Experience:** Experiences are prior Jobs or projects a user worked on in the past.
- **Lost Disputes:** The total amount of lost dispute cases.
- **Won Disputes:** The total amount of won dispute cases.
- **Total Disputes:** The total amount of dispute cases the user was part of.
- **Profile image:** The profile square sized image of the user.
- **Rating:** The overall rating of the user.
- **Location:** The country the user is currently living in.
- **Token Holder:** Defines if the user is a Token Holder or not.

The screenshot shows a user profile for Michael Kaiser on the Blocklancer platform. The profile includes a header with the platform logo and navigation links, a background image of a workspace, and a user avatar. The profile details are as follows:

- Username:** @Michael
- Token holder:** Yes (indicated by a checkmark)
- Location:** Austria
- Skills:** FinancialMarkets, Insurance, Nutrition, Add +
- Performance:** 0.0 Rating (0 stars), No Disputes, 0 lost disputes, 0 won disputes, 0 disputes total



10. Problems in the industry

We now discuss the most pressing concerns Freelancers face with the current market and freelancing platforms, or websites that offer jobs. An overview of the problems will be covered below:

1. Unnecessarily difficult to receive payment from Clients
 2. Clients leaving undeserving/negative profile reviews
 3. High fees on current freelancing platforms
 4. Unlimited centralized power on current freelancing platforms
- *“From my experiences on different freelancing platforms, getting paid by your Client often proves to be an unnecessary and difficult hurdle to overcome. Is there a way I can ensure that I get paid for the work I deliver?”²*

Blocklancer offers an escrow option for fixed price contracts.

After an employment contract has been made, the Client’s money is frozen until the contract is fulfilled by the freelancer. Should the Client not be satisfied with the work of the Freelancer, he has the option to ask the Tokenholders to settle their dispute and decide on who is right. The Freelancer has the same option available to him in case he received an unreasonably bad review.

Voting wrong intentionally will be penalized by losing vote shares.

²<https://www.quora.com/What-are-the-major-problems-freelancers-face-commonly/answer/Courtney-Webber-2?srid=hFUgy>



- *“Sometimes Clients leave undeservedly bad reviews for my work. While this is fortunately not a frequent occurrence, it is annoying nonetheless, because there are hardly any measures I can take against it. Is there a way to circumvent this problem?”³*

On most current Freelancer platforms, the best option is to contact the support of the platform, but this is often done to no avail. On our platform, The Tokenholder Tribunal dispute resolution process will also be applicable here as well.

- *“The fees on many freelancing sites are rather high. While I wouldn’t call them horrendous, it does make freelancing less lucrative for me.”^{4,5}*

Blocklancer only takes 3% of the employment contract’s price in fees, which makes this the lowest amount of fees on any freelancing platform on the market, giving Blocklancer a major competitive advantage to capturing market share.

³<https://hackernoon.com/why-you-should-never-use-upwork-ever-5c62848bdf46>

⁴<https://support.upwork.com/hc/en-us/articles/211062538-Freelancer-Service-Fees>

⁵<https://www.freelancer.com/feesandcharges/>



- *“One of my biggest concerns is that the hosts of freelancing websites have almost unlimited power. They can delete my account at will, and there’s nothing I can do about it. As someone who is dependent on the money I make from freelancing, you can probably imagine that this is quite a problem.”⁶*

Sadly, it happens all too often that accounts get deleted without a valid reason by single, central authorities on freelancing platforms, thus freezing all income of the Freelancer and hindering him from accepting new job offers by Clients. This problem reduces the trust in freelancing platforms because freelancers can lose their source of income at any given time, making freelancing platforms too unsecure to be a sole source of work for Freelancers. On the Blocklancer platform, this is an impossible occurrence because we don’t have a single authority but the fairly incentivized Tokenholder Tribunal.

⁶<https://www.blackhatworld.com/seo/my-freelancer-com-account-has-been-closed-with-509.639768/>



11. Blocklancer Platform Processes

In Blocklancer, we implemented a wide range of processes. There are processes for:

- offering jobs,
- applying for jobs,
- doing reviews, and
- The Tokenholder Tribunal.

In this section, we will introduce the most important processes on the Blocklancer platform.

11.1. Process of Creating a Job

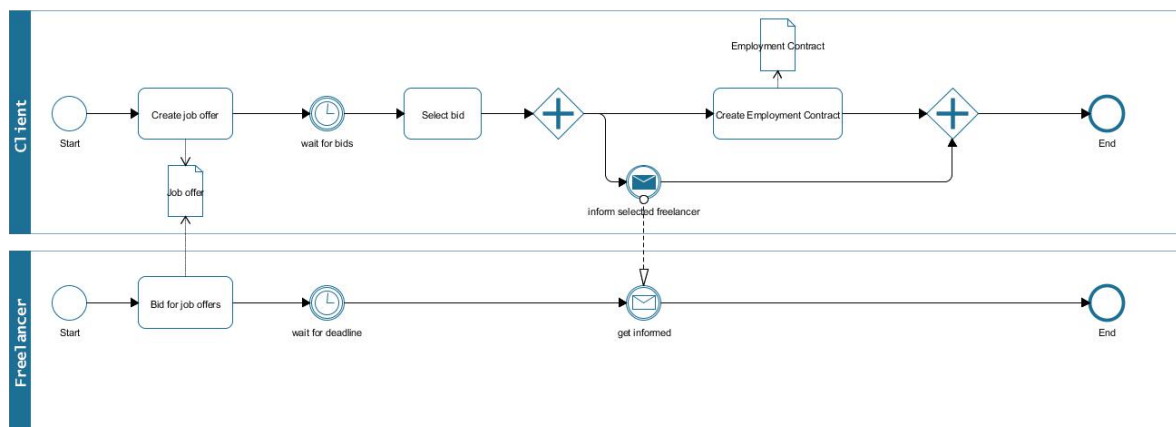


Figure1: Process for creating a job offer

The BPMN model in Figure 1 depicts the process of offering a job and bidding for the job.

- **The Client first creates a new job.**
- **The Client attaches a deadline to the newly created job** - this means the Client must select a Freelancer proposal bid before the deadline is reached.
- After Clients create a job offering, Freelancers are able to bid for the job - Freelancer bids contain the salary the Freelancer is willing to get paid for this job.
- When the Client selects a freelancer and his bid, the employment contract is created.
- The employment contract binds the salary of the Freelancer so that Freelancers are guaranteed payment.

11.2. Process of Completing a Job

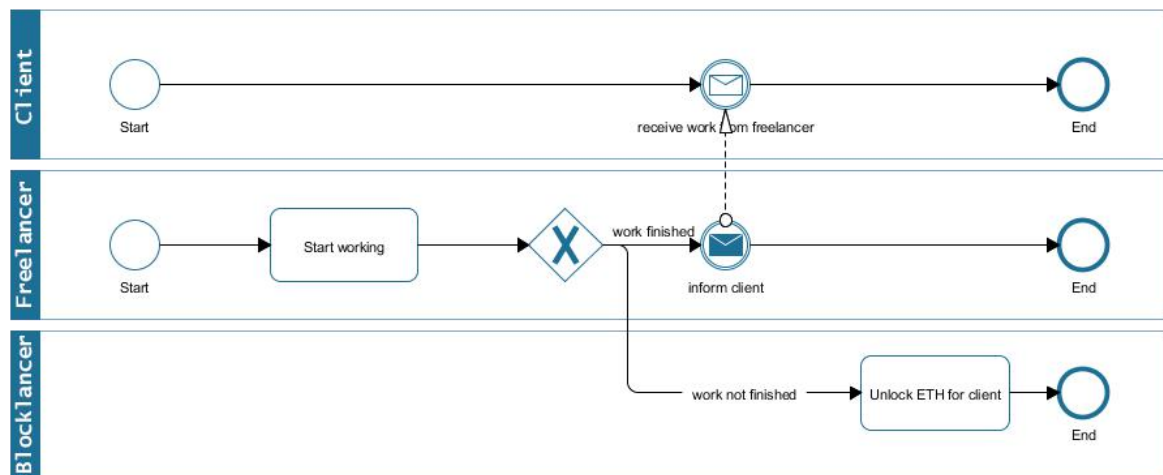


Figure 2: Process of finishing the work

Figure 2 depicts that the Client gets his Ethereum back if the Freelancer is not able to finish the job within the deadline.

11.3. Process of a Successful Project

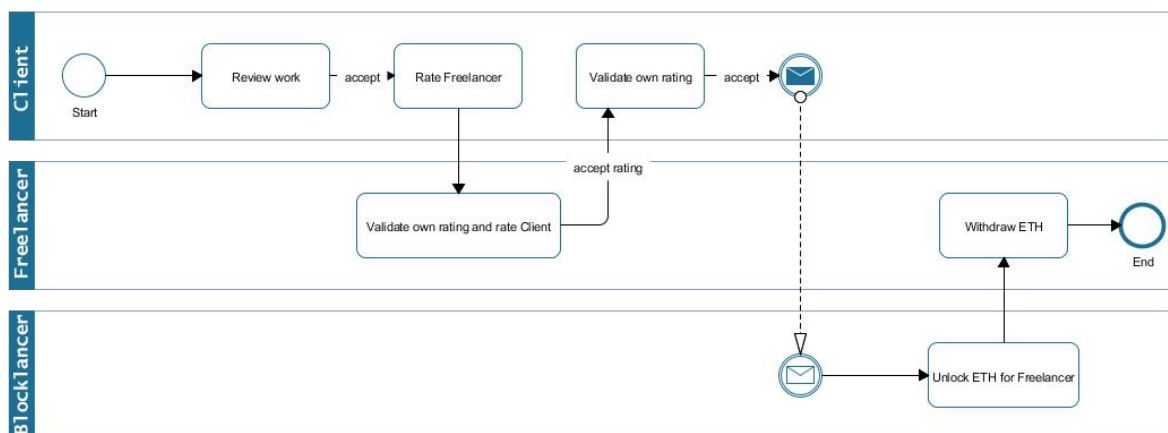


Figure 3: Process of successful project

Figure 3 shows a successful transaction between Freelancers and Clients. The Freelancer was able to finish the job and the Client was satisfied with the work. It can be seen that the Client is creating a review of the freelancer and the Freelancer is able to create a review of the Client. It is also possible to bring a bad review to The Tokenholder Tribunal. At the end of a successful project, the Freelancer is able to collect his salary.

11.4. Process of a Token Holder Tribunal

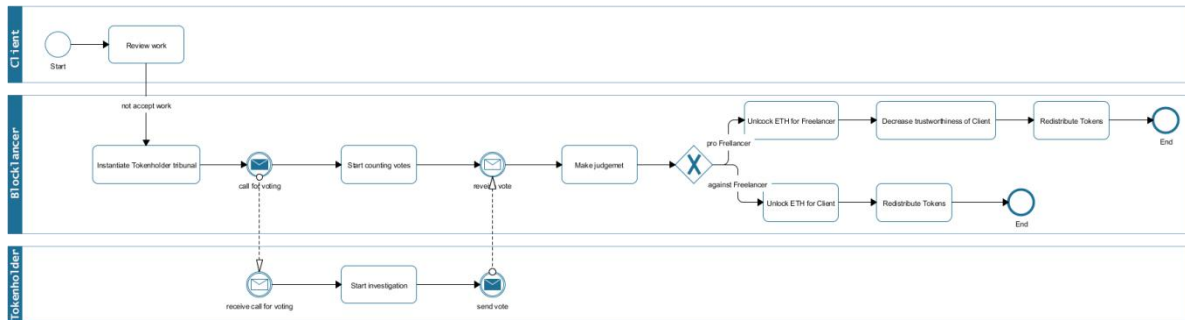


Figure4: Client is not satisfied with work

Figure 4 shows what happens if the Client is not satisfied with the Freelancer's work. The Client is then able to initiate a dispute resolution with The Tokenholder Tribunal. The Tokenholders are voting to determine whether the freelancer was able to accomplish the task or not. The Tokenholders analyze the job offer and the Freelancer's submitted work to decide if the Freelancer was able to sufficiently fulfill the job offer.

Decision making is done by majority vote. Majority vote represents the truth on the Blocklancer platform.

- If the majority decides that the contesting of the submitted work was unreasonable, the freelancer is able to withdraw his salary and the trustworthiness score of the Client is decreased.
- If The Tokenholder Tribunal decides that contesting was the right thing to do, the Client will be allowed to withdraw the frozen Ether.



12. System Architecture

Blocklancer is the first decentralized and serverless job market. We accomplish this by combining existing technologies like Ethereum and IPFS. Because the Blockchain technology is still in the architecture building phase we also implement our own, proprietary solutions.

12.1. Core Architecture

Blocklancer is composed of three main components:

- 1.) **Ethereum:** Ethereum is the backbone of Blocklancer. The smart contracts are implemented for Ethereum in the Solidity programming language. Ethereum is needed as the distributed ledger of Blocklancer, allowing the community to verify transactions within the ecosystem.
- 2.) **InterPlanetary File System IPFS:** IPFS allows distributed storage of files. Because it is too costly to store all the data in the Ethereum Blockchain, the main part of the data is stored in IPFS.
- 3.) **Database:** Because we want to grant a great user experience, querying for job offers must be extremely fast. A main problem with the Blockchain technology is that querying the data is far too slow and expensive. Therefore, it is needed to somehow save the data in a database that is query-able. A portion of the funds raised through the Blocklancer ICO will be used to develop or collaborate with other projects already developing this solution.

Currently Blocklancer has a cooperation in this area with the Ties Network. The partnership creates major synergies with the decentralized autonomous business model Blocklancer is built on and ultimately allows for greater scalability.

12.2. The Tokenholder Tribunal Architecture

The automatic dispute resolution process is a core feature of Blocklancer. It is used for deciding if the employment contract was fulfilled by the Freelancer and if a given rating (from the Client or the Freelancer) is justified. To accomplish this, Blocklancer uses a completely distributed Tribunal Architecture. In Blocklancer, the truth is considered a Schelling Point. In



this scheme, a coordination game is setup and participants are voting in an economically incentivized way. Voting in accordance with the majority is incentivized, whereas voting in accordance with the minority is penalized. This scheme is considered robust and is also used by other big projects (Augur). The Tokenholder Tribunal mechanism is implemented in a way that is exchangeable and extendable, allowing for a smooth and uniform process across a wide variety of situations.

12.3. Database

At the moment, it is not recommended to store huge amounts of data on the Blockchain. Storage on any Blockchain (including Ethereum) is extremely expensive and inefficient. IPFS, on the other hand, offers a cheap storage solution, but there is no possibility to index the data to make it query-able. For storing data (user profiles, job offers, etc.) we use IPFS. We also introduce standardized formats for saving this kind of data, making it more efficiently accessible. The files are uploaded to IPFS and the hash needed for retrieving data stored in the Blockchain. By doing so, everyone has access to the distributed data.

12.4. Database Queries

For querying, an index service is needed. Theoretically, it is possible for all users to have their own indexing service running locally. Because we believe applications are generally accepted by users as long as the user experience is excellent, we think that currently the best solution is to offer a centralized, high-performance indexing service to Blocklancer users. Displaying just relevant jobs to the freelancers is a complicated task that needs sophisticated knowledge in Information Retrieval Systems. High precision of the retrieved documents is very important for job markets. We believe that in the near future, there will be new solutions for accomplishing indexing and querying on the Blockchain. As mentioned earlier, a portion of Blocklancer ICO funds will potentially be used to create the necessary solutions in order to create the most efficient Blocklancer platform processes.



The querying syntax is similar to SQL and the retrieved results contain IPFS hashes ordered by their relevance score.

12.5. Proof of Resolution

The Tokenholder Tribunal is using the Proof of Resolution (PoR) Protocol as its base layer.

A simple explanation of Proof of Resolution is comparing the Tokenholders to miners in Proof of Work:

- The **Difficulty** is the amount of votes,
- The **Rewards** are the amount of fees and
- The **Hashrate** is the amount of tokens held by a given Tokenholder.

Please see the Yellowpaper to find more information about the implementation of the system.

13. Blocklancer Alpha release

The Alpha version was closed and only accessible for whitelisted and trusted Pre-Sale investors under portal.blocklancer.net. We decided to keep the Alpha release closed at that moment, because there were competitors, who might copy our User-interface and the whole Web3 implementation. We worked many weeks conceptualizing and programming it so we did not wanted to take the risk that anybody is using our hard work for his own benefits.

13.1. Early Beta Release

The currently publicly available version is the open Beta. After reaching the beta phase we decided to make the platform available for everyone to test.

We made multiple improvements to the platform which can be read up in our regularly released Dev Diaries which can be found in our Medium Publications.

The mission of this development stage is to further improve the platforms usability and to further improve the security.



13.2. Is the Early Beta Version Already a Useable Application?

The Early Beta release already supports all functionalities of a freelancing common platform.

You can:

- Create a profile,
- Create jobs/gigs,
- Bid on jobs/gigs,
- Select a freelancer for your job/gig,
- Pay the freelancer after the work is done,
- Start a dispute and
- Vote on disputes.

The Beta version is currently running on the Ethereum Ropsten Testnetwork.

We are collecting the feedback of our registered and trusted contributors to further improve the platform.

14. Blocklancer is more than a freelancing platform

Blocklancers main architecture allows it to integrate far more platforms into its ecosystem.

Everything is split into easily exchangeable modules

The main modules are:

- **Tokenholder Tribunal:** Disputes on the various platforms are sent to the Tokenholder Tribunal
- **Account, Profile, Balance:** The Profile of each user is accessible by every platform and thus removes the need to create multiple profiles.
- **Fee Pool:** All the fees collected throughout the Blocklancer eco-system are sent to the Fee Pool.
- **UI/Platform:** The Web3 implementation allows us to interact with the Blockchain in a convenient way.



This allows us to only change the User Interface/Platform and exchange it with another one if needed. With this concept we are able to make – as an example - a tutoring platform with minimal work involved because we are able to reuse the critical parts and build something else on top of it. This means that we can build a tutoring platform with a Tokenholder tribunal and the same accounts used on the Blocklancer freelancing platform with only a fraction of the work.

Another huge advantage of this concept is that we are able to just “transfer” all users to a new platform. This in turn reduces potential inhibitions of users to use a new platform. After all he can just start using it with minimal or no work at all involved.

14.1. How it works

As seen below, the Token Holder Tribunal is the core of the whole Blocklancer eco-system by providing a decision making automation for the various platforms which are dependent on it. Should there be a dispute on any of the platforms, it immediately gets sent to the Token Holder Tribunal which in turn provides a solution for the dispute.

The platforms represented by A, B and C are other platforms besides the Blocklancer platform. Those platforms are all sending their collected fees to the Fee Pool, which in turn rewards the participating Token Holders after a certain amount of time.

The THT and the Reward Pool are decoupled from the Blocklancer platform and can be accessed via an API.

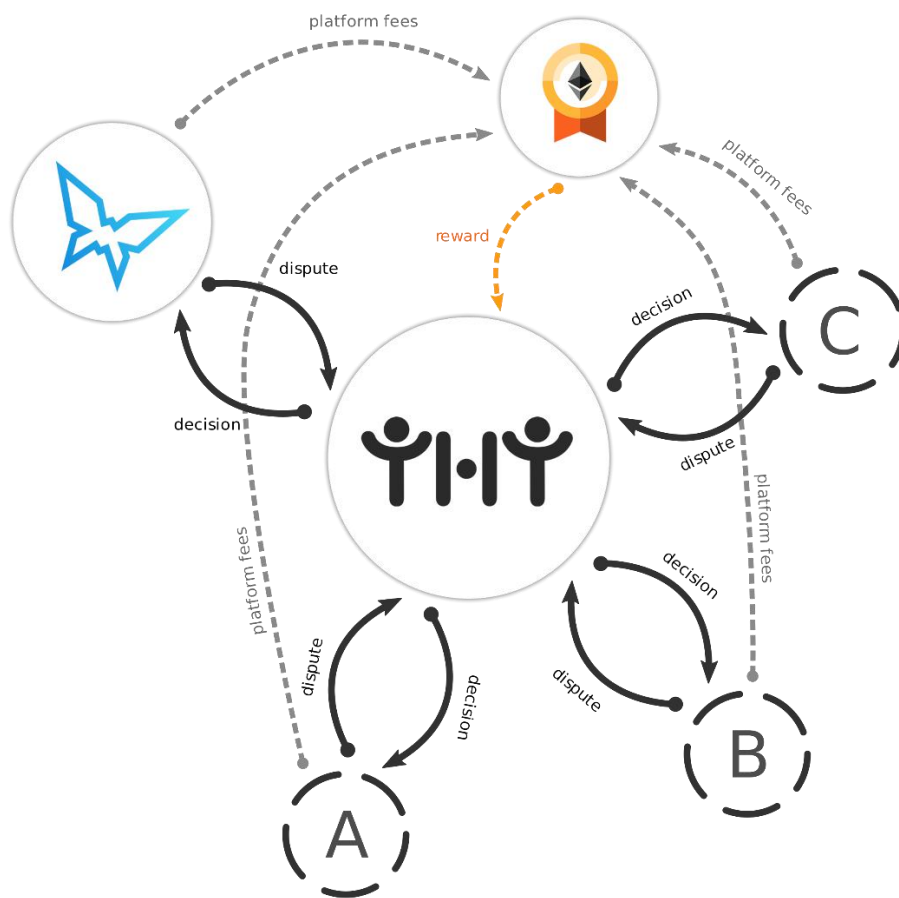


Figure5: Blocklancer Eco-System

14.2. One Profile/Balance for all Platforms

This concept allows for a completely new form of platform. With current systems, if a project decides to integrate a new market into its platform, their usability and overview suffers. Such a platform gets confusing for a new user very quickly. There are just too many options and finding the right one often proves difficult. For example, if a user just wants to tutor, he gets irritated by all the freelancing options available. On the other hand, if someone wants to tutor and freelance at the same time, he really appreciates it, if he doesn't have to create a new



profile and doesn't have a separate account balance for both platforms. To give everyone what he expects and wants, Blocklancers concept allows to just create more and more separate platforms for the user.

14.3. The Tutoring platform: Blocktutor

A possible platform we could add after the Blocklancer platform launch is a platform for tutors. The choice is quite obvious, if someone thinks about it. Freelancers often possess skills, which they might be willing to teach to somebody else for an adequate compensations. For example, an author, who writes English texts, is definitely able to teach someone English. If he currently doesn't have a job as a writer.

Moreover, it allows us to bind even more people to the Blocklancer system, not only freelancers. This is giving us a huge scaling advantage against the competition.



15. Comparing Freelancing Platforms

	Blocklancer	Freelancer	Upwork
Fee for Clients	0 %	3 %	2.75 %
Fee for Freelancers	3 %	10 %	20 %
Money Withdrawal	Immediately into your Ethereum wallet	2.75% fee for money withdrawal Additional 5% fee for currency conversion Up to 3 days	\$ 0.99 fee Up to 4 days
Decentralized	✓	✗	✗
Protection from	✓	✗	✗
Censorship			
Secure payment	✓	✗	✗
Decentralized voting system	✓	✗	✗
Privacy	✓	✗	✗



15.1. Comparison with Ethlance

	Blocklancer	Ethlance
Gas costs	Just for crucial parts (contract creation)	Pay gas for everything (profile creation etc.). Each time you create or modify your profile you pay for it.
Fee	3 %	0 %
Token holders earn fees	✓	✗
Decentralized	✓	✓
Protection from Censorship	✓	✓
Secure payment	✓	✓
Decentralized voting system	✓	✗
Privacy	✓	✓
Integration with other services (LinkedIn, etc.)	✓	✗
Tradeable Token	✓	✗
Browser	All browsers supported	Works best with Chrome (MetaMask)
Usability	Very easy to use. Works similar like other freelancing websites. You can create detailed profile with education and experience history (similar to LinkedIn).	Very special. You need experience with Cryptocurrencies. No detailed profile possible (Just some sentences).
Business model	Revenue model with fees and ad network	No business model
Performance	fast	Very slow
Goal	Mass adoption	Niche



15.2. Spendings

35% of the funds raised will be used to improve the Blocklancer platform. 10% of the funds will go into general administrative purposes, 40% is reserved for marketing expenses in order to improve the reputation of our platform; increase Freelancer-Client platform user-base; and to increase acceptance of crypto currencies. 3% will be used for our IT infrastructure and 2% for all the necessary software licenses. The last 10% is meant as a reserve for miscellaneous expenses along the way; a financial buffer, so to say.

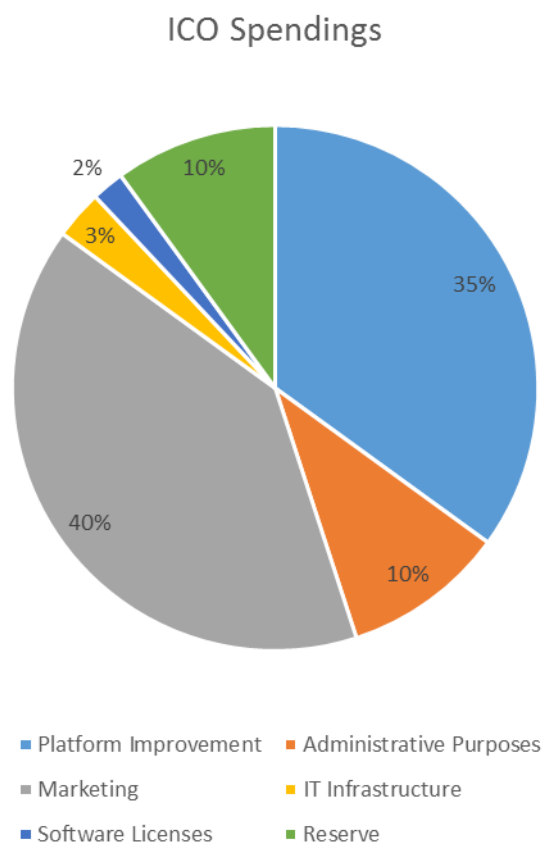


Figure6: ICO Spendings



16. Future

Our main goal is to become the biggest player in the freelancing market, but in order to achieve this, we need the funds earned from our ICO to finance the marketing for our project and to invest into further development and improvement of our platform. We want to get our name out there, so that we can reach not only the technically versed but the casual people also. Mass adoption is our ultimate end goal.

For ease of adoption, we want to make the platform as easy and intuitive to use as possible. Simplicity is one of our core principles because reaching the masses is only possible with an easy-to-use interface. The experience of using Blocklancer should be one without any unnecessary hassles.

For the end of this year, we plan to include an anonymous decentralized storage and a communication network for the projects on the Blocklancer platform.

As mentioned earlier, our long-term goal will be to connect our Blocklancer platform to real world services and to make it accessible and usable for everyone.

We have also conceptualized our platform to be an easily extensible base layer for others to use in their own projects.



17. Short Term goals:

Milestone	Date
Releasing Alpha-Version	October 2017 (after pre-sale)
Bringing early adopters to the platform	Q4 2017
Integration with 3rd parties (LinkedIn)	Q4 2017
Being traded on exchanges	Q4 2017 / Q1 2018
Reaching out to the masses of freelancers	Q4 2017 / Q1 2018
Looking for partnership to also accept fiat money	Q1 2018
Releasing Beta-Version	Q1 2018
Releasing Final Product	Q2 2018
Becoming mainstream	2018

See below for the big picture of our project.



18. Roadmap





19. More information regarding Blocklancer

First of all, thanks to everyone who came this far despite the size of this whitepaper. Considering the size of the current whitepaper, which is already longer than the whole US constitution with all 27 amendments, it's not a minor task to go through it all.

For all those which still want even more information, we have multiple more sources for you, so you can learn about the Blocklancer platform in even more detail.

- The [Manual](#) is intended to be a small overview of what you can do on the Blocklancer platform, but as it stands now, it already is quite big with 25 pages, and it is still growing. There are many more features which aren't covered or aren't covered in full detail, but we will add them and all the features we are going to add in the future. We also consider creating, alongside the full manual, a Quick Start Guide which only covers the most essential features of the Blocklancer platform.
- The [Yellowpaper](#) (18 pages) is intended for those of our community members which want far more in depth knowledge about our platform, regardless of complexity. It will explain the implementation and processes in far more detail, so there won't remain any unanswered questions. It's definitely not intended for the average user.
- The **ICO Paper** does what the name suggests, it explains the whole ICO process. We decided to remove the ICO part from the Whitepaper, because the Whitepaper should be more about the platform in general.
- The [Business Plan](#) (20 pages) - also known as the Mission Statement - is a formal statement of our business goals, reasons they are attainable, and plans for reaching them. It also contains background information about our organization and the team behind it.



All sources combined you're looking at more than 100 pages of information regarding the Blocklancer platform. Some might argue that this is too much, but we believe that all contributors should be able to get as much information as they want and therefore we split them up into multiple documents so everyone is able to read as much as they like.

20. Contacts

contact@blocklancer.net

<http://telegram.me/officialblocklancer>

<https://discord.gg/Jw4wCsm>

<https://bitcointalk.org/index.php?action=profile;u=1034225>

21. Social Media and other information channels

<https://www.facebook.com/blocklancer>

<https://www.reddit.com/r/blocklancer>

<https://twitter.com/blocklancer>

<https://plus.google.com/u/0/108214824905426550934>

<https://www.youtube.com/channel/UCz-V-K4sNbGqSc2NSo3euLQ>

<https://github.com/Blocklancer/Blocklancer-Contracts>

<https://bitcointalk.org/index.php?topic=1974481.0>

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<https://www.linkedin.com/company/18154739/>

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