



# SPARROW CHAIN

A NEW WAY OF COLLABORATION ON BLOCKCHAIN

Powered by STELLAR

Version 1.0

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This paper describes the current vision for the SPARROW Platform. While we intend to attempt to

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Please know that we plan to work hard in seeking to achieve the vision laid out in this paper, but

that you cannot rely on any of it coming true. Blockchain, cryptocurrencies and other aspects of our

technology and these markets are in their infancy and will be subject to many challenges, competition, regulation and a changing environment. We will try to update our community as

things grow and change but undertake no obligation to do so.

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References in this paper to specific companies and platforms are for illustrative purposes only. Other than the

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## **1. EXECUTIVE SUMMARY**

### **1.1.Overview**

SPARROW is a Blockchain based global collaboration platform that empowers and rewards consumers, businesses and freelancers to come together and make dream projects a reality. Millions of people around the world want to become entrepreneurs or start a side business to get freedom from their 9-5 jobs or to live a meaningful life by pursuing their passion. They have a business or product idea but do not know where to start as not everyone has the technical knowledge, finances, relevant technical or creative skills, marketing skills etc. to make the project successful and hence most ideas do not even see the light of the day.

SPARROW will help you understand what you need and connect you with curated freelancers and contributors from around the world to help make your dream a reality. All you need to do is go to SPARROW platform and type what you want to build. SPARROW will help you understand the technology that you would need, the necessary team structure, tentative cost etc. Based on this information you can create a project on SPARROW and get connected with curated Freelancers with relevant experience required to build your project. You hire the team that suites your budget and requirement and can even invite your trusted partners/friends to SPARROW to contribute additional finances or skills for your project. You would be able to manage your complete project team of freelancers and contributors form a single dashboard on SPARROW and the team can collaborate and communicate using the SPARROW Messenger.

SPARROW is a decentralized, peer to peer, rewards-based platform which takes advantage of the Blockchain and AI technology to overcome problems with existing freelancing platforms. Through tokenization, we have built our decentralized protocol called SPARROW PROTOCOL, which provides a secure and trustable smart-contract platform for all parties involved in a project, with escrow service and fast cross border payment at very low transaction fee.

SPARROW REWARDS system encourages and incentivizes user participation and dispute resolution while SPARROW COIN powers the platforms payment system in addition to crypto and Fiat currency payments options. By integrating fiat payment gateways, SPARROW aims to become a legitimate gateway of fiat into crypto, enhancing the entire ecosystem and accelerating mainstream adoption.

Unlike Freelancing Platforms, SPARROW does not act as just a market place, SPARROW is much more than a Freelancing platform or a Crowd Funding Platform. SPARROW is a global Collaboration platform where users (people with ideas), freelancers, contributors and investors come together and work as a team to make dream projects a reality.

## **1.2.Problems**

Freelancing platforms have come as a blessing for millions of Freelancers around the world as they bring together clients and freelancers from around the world on the same platform. However these platforms are not perfect and have issues of their own. There are issues with payments, lack of transparency, frequently changing platform rules and charges and Freelancers have no option but to depend on these platforms in spite of all their problems. Here are some of the main problems faced by Freelancers and Clients:

1. Act as market place:

Existing Online Platforms work as middlemen with only focus on maximizing their own profits. They are just market place where clients look to find workers who compete with each other on lowest cost.

2. No help for first timers:

New Clients sometimes do not know what they want and this results in Incomplete or poorly written job descriptions by clients. This in turn results in freelancer agreeing to do a project which keeps on changing over time and never reaches completion eventually ending in dispute or non-payment or bad review for the freelancer.

3. No way to collaborate and project manage:

Once a client finds a freelancer, the platforms objective of securing income is achieved, and the platform has no interest in helping the client and freelancer work together to make the project a success. Also Clients are unable to hire multiple workers under one contract to implement different parts of the project.

4. No quality control on workers/clients:

No proper vetting of Clients profile to make sure that the Client is reliable, trust worthy and pays on time. Same way anyone and everyone can join as a freelancer and there is no way for the clients to make sure that the person they are hiring is actually the right fit for the project, have reliable history and can deliver the work timely.

5. Unfair dispute resolution:

Platforms provide poor support for dispute resolution and charge a fee to the person initiating the dispute. In case of a dispute raised by clients, the funds of freelancers are frozen, they cannot even take out what they earned from other clients or pitch for new jobs.

## 6. High Commission Fee:

Traditional freelancing platforms require a freelancer to pay the site 20% on the first \$500 earned, 10% on \$501-\$9,999 and 5% on \$10,000 and above.

Freelancing is not an easy job and requires a lot of time and effort on the part of the freelancers who have to manage multiple projects and deal with multiple clients on daily basis. A 20% fee on each project amounts to huge earnings loss.

## 7. Centralized Control on Freelancers:

Traditional freelancing platforms are centralized and are controlled by the rules of the platforms. These rules are often very stringent and biased in favor of the platform or the clients. Freelancers are treated as expendable commodities who have to constantly strive to meet various ratings and matrices like job success ratio, jobs applied to jobs received ratio etc. Every platform has their own version of these systems which are designed to force the freelancers to just keep doing more work on their platform so that the platform makes more money and if a freelancer takes a break or is inactive for some time, he/she is demoted to lower ratings in spite of past performances. They judge the workers by their own rules without considering other factors such as quality, loyalty and experience. Moreover, offline workforces are almost impossible on these platforms.

## 8. Unfair Reviews and Ranking System:

The review system on traditional freelancing platforms is susceptible to misuse. Lot of freelancers get their friends to offer them fake jobs and write fake reviews for them. Some freelancers even use different email address to register as a user and give themselves fake reviews to manipulate their ranking. Some clients use the review system as bargaining tool to blackmail freelancers into doing extra free work or use it as an excuse to get out of project that they can no longer support financially by giving bad review to the freelancer and asking for a refund. Thus, reviews on traditional platforms are rather deceptive. Reviews are often unfair or fake due to the centralization, the platform itself may also manipulate the ranking with their own logic rather than giving the control to public.

## 9. Troublesome Policy:

One of the major problem faced by freelancers on traditional platforms is that the platforms block or suspends their accounts including their hard-earned money including the money that they might have earned from other clients or projects on every small issue or complaint by a client. This one-sided action to punish the freelancers makes the life of a freelancer even more difficult. The platform has the absolute control and the right to remove or suspend any users and there is nothing a user can do. Workers profile, business and earnings are at the mercy of the centralized platform.

#### 10. Lack of Privacy:

Due to the centralization, personal data, bank accounts, credit card detail and transactions are stored inside the freelance platforms system, it is not surprised to have privacy issue if those systems got hacked. Also, some of these centralized companies may sell your data without your approval.

#### 11. Troublesome Transaction Handling and Payment delay:

Delay in payment is also a major issue, payment to workers often take weeks to complete. The payment option is also troublesome or impossible for unbanked people in emerging market. These freelancing platforms are unwilling to support localized digital wallet since they focus on money making instead of helping the freelancers.

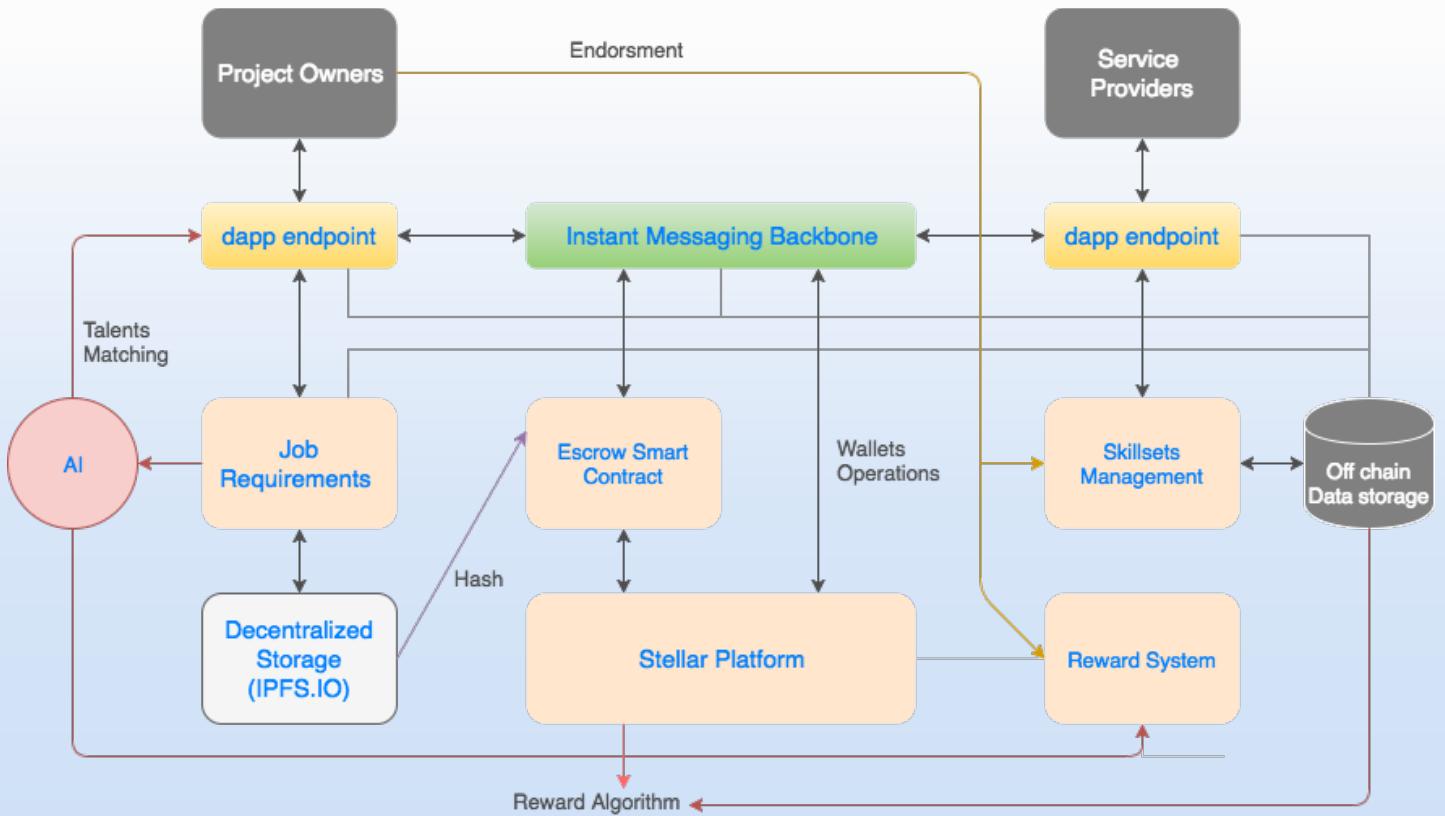
#### 12. Lack of right solution to avoid scammers, fake accounts and poor services:

Fake accounts are another major issue on some freelancing platforms. Scammer may open duplicated accounts and create fake transactions and reviews.

#### 13. Very transactional- No incentive to perform, stay active and contribute:

The existing Freelancing platforms are only focused on making more money by keeping freelancers who do more work and removing others. Their approach is more of a punitive one rather than of incentivizing the community to act fairly, stay active, contribute more.

## 1.3.Solutions



### 1. Decentralized Platform:

A blockchain based decentralized platform will solve a most of problems faced by existing freelancing platforms. Decentralization makes all the users of the platform equal stake holders and puts the control in the hands of the community to ensure that all decisions are taken based on consensus for the greater good of the community. This will take care of issues related to unfair policies, unfair control on freelancers by the platform and data privacy.

### 2. Collaborative freelancers network:

A collaborative platform ensures that all parties involved in a project work together efficiently as a team to achieve the success of the project. The client, can form a team of multiple freelancers working on different aspects of the projects and the whole team can coordinate with each other from a single project dashboard. Everybody is aware of their roles, deliverables, timelines and overall progress of the project.

### 3. Smart Contract:

Smart contracts are immutable programs that execute when certain conditions are met. These “smart contracts” can be scripted with a predetermined set of instructions or custom instructions on the virtual machine which will then be executed in an immutable and transparent fashion. Smart contracts can be verified quickly and cheaply and are fully transparent. Logic can also be coded into smart contracts in the form of Turing-complete computer code or a sequence of transaction with signatures.

Doing so enables something revolutionary: a fully decentralized program. In such a decentralized crypto-graphically secured network, it's economically impossible to prevent the execution of the smart contracts, especially when copies of the code are verified and executed among millions of computers.

When employer, employee and contributors agree to work together on a project and agree on some terms such as salary, deliverables and time period, a smart contract would be created between all the parties.

The client has to deposit funds for the project to start and this fund can be transferred and locked to a multi-sig escrow smart contract from employer. The involved parties can agree on some conditions such as recovery period, number of account signatures and payment logic. With Smart Contracts acting as the bridge between employer and employee, we can provide cross-border low transaction fee payment, unbiased rating and high scalability in a trustworthy, transparent and extremely secure manners.

### 4. Unbiased review, reward system and redemption program:

Ideally, an Oracle can indicate whether a work is done properly and trigger the smart contract automatically. However, in the real world, not every task can be measured by Oracle, trust of people will be always needed to confirm smart contract transactions. An unbiased and trust worthy review system is very important to make the platform reliable. SPARROW review system is linked to SPARROW REWARDS TOKEN which is created on Blockchain and ensures that the users of the platform have enough incentive to work honestly as a community to keep the platform trustworthy. All the users of the platform can earn SPARROW REWARDS TOKEN by contributing to the system by doing various activities like giving honest comments/feedbacks, like or dislike proposals/ job descriptions/ clients/ workers, offering free jobs, participating in dispute resolution, performing screening of profiles of clients/freelancers etc. Users can redeem these SPARROW REWARDS TOKEN for various physical products on our redemption program or spend them on the platform for better placement, more jobs, proof or skill, posting jobs, sending proposals, participating in dispute resolution, exchange for free services etc.

## 5. Trust:

You may trust someone you know for years but it is very difficult to trust a stranger who is living in another country. Smart Contract helps in ensuring trust by locking funds to release them on meeting specific milestones and incentivize people by reward system.

## 6. Instant Messaging:

A good communication and seamless integration are very important for workers to collaborate with each other. Service like Github, Basecamp and Slack are great solutions for efficient collaboration. By combining Instant Messaging and Smart Contract we enable a new type of application. For example, user can send fund to another user as simply as sending a text message. Multisig Smart Contract can be easily forwarded to multiple parties inside a chat room.

## 7. Stellar Platform:

Stellar is an open-source protocol for exchanging money. Servers run a software implementation of the protocol and use the Internet to connect to and communicate with other Stellar servers, forming a global value exchange network. In Stellar, smart contracts are a sequence of transactions, of which Stellar has many built-in types. Smart Contract on Stellar platform is done by using executing sequence of built-in "Operators", which control accounts weight and Trust.

Each server stores a record of all "accounts" on the network. These records are stored in a database called the "ledger". Servers propose changes to the ledger by proposing "transactions", which move accounts from one state to another by spending the account's balance or changing a property of the account. All of the servers come to agreement on which set of transactions to apply to the current ledger through a process called "consensus". The consensus process happens at a regular interval, typically every 2 to 4 seconds. This keeps each server's copy of the ledger in sync and identical.

Currently, Ethereum suffers from slow transaction time and high gas fee, which is not a good solution for micropayment application which require fast and low-cost payment.

## 8. Cross-border payments with low cost:

By using Stellar as our blockchain platform, payment in SPARROW platform will be fast (3-5 seconds) and with extreme low transaction fee (0.000001 XLM), also with the existing Stellar Decentralized Exchange Network (SDEX), it's easy to convert between other cryptocurrency or fiat currency as payment.

## **1.4.Use Case Stories**

### **1. Sunita | House Wife | Hyderabad, India:**

Sunita had a dream to start her home cooked meal business but she did not have any relevant technical knowledge about how much it will cost, what she needs to build the website for her business, how to reach customers and start taking orders. She was looking for someone to guide her or just give her the right direction but had no luck. Luckily for her, a friend recommended SPARROW and her life changed for good. SPARROW helped Sunita identify that she needs a web developer to build her website, a graphic designer to take care of the creatives and digital marketing guy to help her reach the customers.

SPARROW also helped her understand how much freelancers typically charge for these works and presented her with the list of top performing freelancers in the relevant categories as per her comfortable price range. Sunita shortlisted her team within a week and went ahead to build her successful business website in 2 months' time with the help of the graphic designer and web developer team mates. She started reaching out to college students staying in hostels with the help of her digital marketing team member and started getting orders. Sunita is now a successful entrepreneur.

### **2. Alice | Marketing Manager | Singapore:**

Alice wants to start an online business to sell Coffee bean in Singapore, she knows a little bit about webpage design, but she decided to hire someone to do it. In the early stage she didn't want to rent an office space and hire full time staff, so she decided to hire some freelances. She login to SPARROW and input following keywords: build web page, Web programming, Html, css, Online shop, Sell coffee bean, Singapore. Instant she find a list of freelancers who can do related tasks. Which include:

David, Frontend web designer

Frank, Web Administrator

Dan, Nodejs programmer

Alice look at the biography of each of them, that include an hourly rate, job description and review from other users. Alice can even see their previous money transaction history on the Blockchain. Alice use the build in chat room to talk to them, now she understand more about the skillset , timeline and the cost. While the whole development could cost her 10K USD, she only have 5K. Knowing she need an extra 5K for the project, she talks to her best friend Bob, who agreed to co-own the project by supporting her with the extra 5K. Bob also invited Charlie who is also willing to invest 3K more to facilitate the project.

Alice, Bob and Charlie co-signed an escrow smart contract on sparrow, each of them deposited some Sparrow coin to the smart contract. They also agreed their weight in the smart contract which they have equal weight to vote on fund release and fund recovery. David , Frank and Dan are invited to the project too, they look at the escrow contract forwarded by Alice with how much deposit inside. They also understand the right of each parties inside the smart contract. Via the Instant messaging system they all agreed to kick start the project, a final project specification is created on IPFS.io (A decentralised storage system) and hashed to the same smart contract.

Finally , the system assigns another party Judy, who is an active user and totally neutral to this project. Her role is to act as dispute resolution. From this point the project is started, Alice will manage the complete team through SPARROW platform and David, Frank and Dan would be continually given out new update on the development. Few thing will happen throughout the whole project:

Fund release: Alice, Bob and Charlie may release SPARROW COIN locked in the Escrow account to the freelancers on reaching milestones as per the agreement.

Non-crypto payment: some tasks may require non-cryptocurrency payment due to reasons like the receiver is not ready to accept cryptocurrency as payment (for example Frank need to pay for a web hosting 3rd party). This payment is also supported in SPARROW.

Token Burn: The system will burn some of the Sparrow Coin inside the smart contract regularly to produce the secondary token called SPARROW REWARDS. SPARROW REWARDS act as reward points and will be used to incentivise each parties for their involvement and activity. This is also important for the neutral party Judy to receive some SPARROW REWARDS since she will not be getting any payment in the whole project if there is no dispute.

### 3. Richard | CEO | Canada:

Richard is the CEO of a small startup that has built a messaging app for comic enthusiasts. He wants to add some new features in the app like new camera filters and animated stickers but does not have the relevant team in-house, he also does not want to spend too much and decided to out-source the work to freelancers. However, Richard wanted the work to be delivered as per strict timelines as he wanted to showcase the new and improved app features in the upcoming global conference to attract investors and users. SPARROW helped Richard find the best freelancers for this job within his budget and Richard was able to create a smart contract which released payment based on achieving specific milestones in specific time. Richard was able to effectively manage the entire work through SPARROW. The smart contract ensured that the team delivered every module on

time to get their payments for reaching the corresponding milestones. Richard was able to get his product ready in time and his presentation in the conference was a big success.

4. Art | Graphic Designer | Nigeria:

Art struggles to find clients willing to pay him in Bitcoin or crypto currency, which he prefers due to his country's volatile fiat currency. He lists himself on SPARROW and is able to receive payments in SPARROW COIN and other crypto currencies.

5. Rajesh | Android Developer | India:

Rajesh is developer from Hyderabad India and he wants to reach a global client base but doesn't want to pay high commissions to traditional platforms. At the same time, he is looking for payments in local fiat currency (INR) as local regulations do not allow his bank to accept money from crypto wallets. Rajesh lists himself on SPARROW and instantly finds himself having access to global projects and clients. He builds his reputation on the platform by contributing and earning SPARROW REWARDS which gives him even more exposure to higher paying Jobs. He is also happy as he is able to receive his payment in fiat currency while avoiding the high transaction charges and service charges he had to pay while he was working on a traditional freelancing platform. He is also able to redeem his SPARROW REWARDS for discount coupons and physical products through SPARROW REWARDS PROGRAM.

## **2. SPARROW PLATFORM**

### **2.1.Collaboration Platform:**

Unlike Freelancing Platforms, SPARROW does not act as just a market place, SPARROW is much more than a Freelancing platform or a Crowd Funding Platform. SPARROW is a global Collaboration platform where users (people with ideas), freelancers, contributors and investors come together and work as a team to make dream projects a reality.

1. More than a Freelancer Marketplace: SPARROW encourages users and freelancers to create business together rather than merely have an employer and employee relationship. This can be achieved by Token Burn and Reward System.
2. More than a Crowdfunding Platform: An idea starts with funds deposited to smart contract and finding local people to execute it. We encourage collaboration to create business. SPARROW encourages users (people with ideas), future entrepreneurs and clients to reach out to other contributors on the platform who might be interested in supporting new projects with funds. SPARROW also allows users to invite their trusted friends on the platform to contribute funds to their project. Contributors become a part of the project and are kept aware of the progress at all time through the SPARROW platform.

### **2.2.Features:**

1. Decentralized:

SPARROW is a decentralized platform which means that the platform is not controlled by the company, its controlled by the community of users including clients, freelancers and contributors. All the users of the platform are equal stakeholders and decisions are taken based on consensus for the greater good of the platform.

2. Collaboration:

SPARROW encourages clients, freelancers, contributors and investors to collaborate and build a business together rather than have just an employer-employee relationship. Effective collaboration and communication creates a feeling of being a part of a team and encourages brain storming, creative thinking, better results and better products.

### 3. Peer to Peer:

SPARROW is a peer-to-peer platform where clients choose & interact directly with the person who will be providing the service instead of a third-party. Using smart contracts, the platform will provide a trustless, secure and fast payment service.

### 4. Service Agnostic:

SPARROW is suitable to a vast array of different services from professional licensed services to casual per-hour services. SPARROW will include features that will make it flexible for mobile services, brick-and-mortar services, one-time jobs and recurring jobs.

### 5. User Generated:

SPARROW's content is primarily user-generated & rapidly scalable. Freelancers add listings themselves and can request further services, skills and licenses.

### 6. Self-curating and Self balancing:

SPARROW is a true meritocracy and is thus self-curating. Freelancers with good reviews will see more exposure and therefore more work. Good freelancers will see high demand and can afford to start charging higher rates. SPARROW automatically assesses and ranks providers based on their SPARROW REWARDS that they earn on the platform by contributing on the platform and performing specific tasks.

### 7. End to End:

SPARROW is an end-to-end solution providing discovery, engagement, booking, collaboration, job tracking, payment, receipt issuance and review capture. SPARROW also includes free instant messaging, free voice calling and a free quote & invoice service.

### 8. Smart with AI and machine learning:

The worst experience with hiring services is usually caused from hiring the wrong service. SPARROW would be using the thousands of job requests processed in the platform, together with the listed skills and descriptions, to train ML algorithms to better match job requests with the right providers and to extract the right information from users easily. Users will simply ask the platform for help, and the right providers are immediately notified. This vastly improves the experience of the platform.

9. Chat bot engagement:

SPARROW would be using a smart chat-bot to engage users and providers to extract the right information from them to enable the platform to serve them more effectively. The chat bot service can be used to collect job requirement from the users/clients and pass it on to the AI platform to match the requirement with the right solution and provide it to the user/client. The chat-bot can also be used to handle queries, send project updates on regular basis as well as helping freelancers manage their schedule.

10. Text messaging:

SPARROW will have a media-rich messaging service native to the app which will allow clients and freelancers to work together more effectively.

11. Multiple payment options:

SPARROW will support multiple payment options like SPARROW COIN, Crypto Currencies, Fiat Currencies as well as payments using SPARROW REWARDS earned on the platform.

12. Productivity Features:

The platform will have a host of productivity tools that will make team management easy and help teams coordinate efficiently. Some of these features are:

1. Group Calendar
2. Task Management
3. Video Conferencing
4. Voice Conferencing
5. File Sharing
6. File transfer
7. Invoicing
8. Pay slips
9. Reports

13. Bonus Rewards:

To ensure best performance by the freelancers, SPARROW would award SPARROW REWARDS to the Freelancers in addition to the money that they earn from the client based on the client's feedback. This would act as additional incentive for the freelancers.

### **3. SPARROW PROTOCOL**

Sparrow Protocol follows the best engineering practices to ensure they are interoperable, cost efficient, seamless and trust less. It is designed to act as an abstract layer on top of the complicated blockchain logic and our backend services. It ensures data integrity and user friendliness for dapp development. It also act as a bridge between the blockchain networks, microservices and 3rd party services. There are many parts under the hood:



#### **3.1.PAYMENT GATEWAY:**

By using Stellar as Blockchain platform, we enable fast transaction (3 -5 seconds transaction time) with extremely low transaction fee (around 0.00001 XLM per transaction). While we encourage our users to use our own Token as payment due to the fast transaction and low transaction fee, we also support other payment options such as Paypal, Credit Card and Wallet money transfer.

#### **3.2.INSTANT MESSAGING BACKBONE:**

A good communication and seamless integration are very important for workers to collaborate to each other. Service like Github, Basecamp and Slack are great solutions for efficient collaboration. Nowadays people are pretty much very familiar with Instant Messaging system and it became a most effective communication tools when multiple parties are involved in different location.

Instant Messaging and Smart Contract can work very well together and we enable a new type of application by combining each elements. For example, user can send fund to other user as simply as sending a text message. Multisig Smart Contract can be easily forwarded to multiple parties inside a chat room. 3rd parties links, proof of work in form of photos or videos. Fund release can be done easily by executing Smart Contract. Dispute resolution will also become very easy by checking the messages history.

### **3.3.REWARD SYSTEM:**

To build a good platform we need loyalty and active usages. A platform without positive usages and full of scam will be a complete failure. We understand the importance of motivating good users by giving them some incentives.

By letting our users to earn rewards by different kinds of user interactions such as likes, comments, votes, profile verification, skill endorsements, scammer report...etc ,we create a fair systems which can keep user active while prevent scammers. User acquisition and affiliation can also be done by giving out rewards.

Reward can also benefit and encourage dispute resolution by letting users to earn extra rewards if they participate in a project as a moderator.

Reward in Sparrow will be in a form of our secondary token Sparrow Reward (SPR), which will be covered in section 5.

### **3.4.SKILLSET ENDORSEMENTS:**

Skillsets Endorsements is important to keep a high quality services on Sparrow. Freelancers on Sparrow can endorse themselves with max 10 skillsets, with each endorsement paired with a numbers, such as

#### **ANDROID PROGRAMMING (100)**

Initially when someone endorse themselves, the number will be zero. In order to increase the number associated with the skillsets, the freelancers need to do below:

1. Endorsement from other on their profile page.
2. Endorsement from others via an IM message.
3. Dispute Resolution.
4. Completion on projects for your skills.
5. Give out consulting service for free and ask people to endorse.
6. Attract people to look at the their profile by giving out comments.

Endorsements is important for freelancers , because when someone create a Job Description, they may require certain skillsets with enough numbers of endorsements, and It cannot be self-generated by the user. We want to use this mechanism to encourage high quality works.

### **3.5.ARTIFICIAL INTELLIGENCE:**

Not all data will be storage on blockchain. Some data (dynamic data) will be stored on our database, some data (Static data with big size) will be stored on other decentralised storage such as IPFS.io. In order to maintain the data integrity and data decentralisation, data stored off the chain will be hashed and written on the chain.

User management, job discovery ,talents matching, user activities analysis, fraud detection, reward system are logics that needs intensive and complex data analyst techniques. We will use Apache Spark as a tool for our big data application.

The big data services layer abstract out the complexity and serve the data to Dapp and other internal systems.

### **3.6.SMART CONTRACT**

#### **1. WHAT IS A SMART CONTRACT?**

Smart contracts are immutable programs that execute when certain conditions are met. These “smart contracts” can be scripted with a predetermined set of instructions or custom instructions on the virtual machine which will then be executed in an immutable and transparent fashion.

Smart contracts are much buse smart contracts can be verified quickly and cheaply and are fully transparent. Logic can also be coded into smart contracts in the form of Turing-complete computer code or a sequence of transaction with signatures. Doing so enables something revolutionary: a fully decentralized program. In such a decentralized crypto-graphically secured network, It's economically impossible to prevent the execution of the smart contracts, especially when copies of the code are verified and executed among millions computers.

Stellar uses signatures as authorization and smart contract can be built by sequence of transaction. Transactions always need authorization from at least one

public key in order to be considered valid. Generally, transactions only need authorization from the public key of the source account.

## 2. SMART CONTRACT ON SPARROW

For every new projects on Sparrow, we will create a Stellar Smart Contract which act as an Escrow Contract to lock funds. This Escrow Smart Contract is the central element to create trust less platform and payment control and automation for all involved parties.

1. Deposit of funds : Project owner may deposit and lock some SPR on a specific account which create the smart contract to proof they he/she actually have money to pay for. Service providers can then review the smart contract and check whether the amount of deposit make sense.
2. Predefined funds distribution: The distribution of deposited funds can be predefined and the transaction can be signed upon mutual agreement. Funds recovery mechanism can be also defined in the smart contract.
3. Co-own a Project : Project investors can also deposit funds to the smart contract, where they maintain a right to move the funds if necessary.
4. Multisig smart contract : When a Smart Contract need multiple signatures , it can be passed around in a group chatroom which people involved in the same project can sign it.
5. Time bounded contract : Time bound can be defined to control funds use base on time.
6. Pre-signed transaction: Stellar Smart Contract support pre-signed transaction, which mean an owner can pre-sign some transaction and send to a particular trust counterpart, who will store the transaction and execute the transaction on behalf of the signer.

## **4. DISPUTE RESOLUTION :**

Dispute resolution is very important in any freelancing / collaboration platform. While the Smart Contract can guarantee funds distribution and transaction transparency, there will be always case of dispute. For example, let say Alice and Bob both agreed on a web development job, Alice wrote a detail Job description, stored in ipfs.io and hashed to the escrow smart contract. Bob read the job description and both of them agreed on funds deposit, funds recovery mechanism and payment time.

While Alice can ensure the quality of work from Bob by inspecting the work progress and release more funds by milestones, eventually Alice found that Bob's work didn't up to standard and full of bugs, which is not acceptable. Now, since Alice already transferred some funds to Bob, the outstanding amount of funds is locked with a time bound:

Project initial stage:

Alice --> Deposit 100 PRC  
A non-refundable kick starting fee  
A locked funds and to be release to Bob upon 3 milestones Recovery Time bound: 6 months later.

Project Start:

Bob receive the 30% kick starting fee

Bob completed milestone one:

Bob --> Released a demo  
Alice--> Release a portion of funds from the 70% locked fund to Bob

Bob completed milestone two:

Bob-->Release another website feature, with some source code on Github  
Alice --> Release a another portion of funds from the 70% locked fund to Bob.

Bob didn't fulfilled the requirement, work done previously become no value:

Alice --> Don't know what to do since most of the money already deposited to Bob.

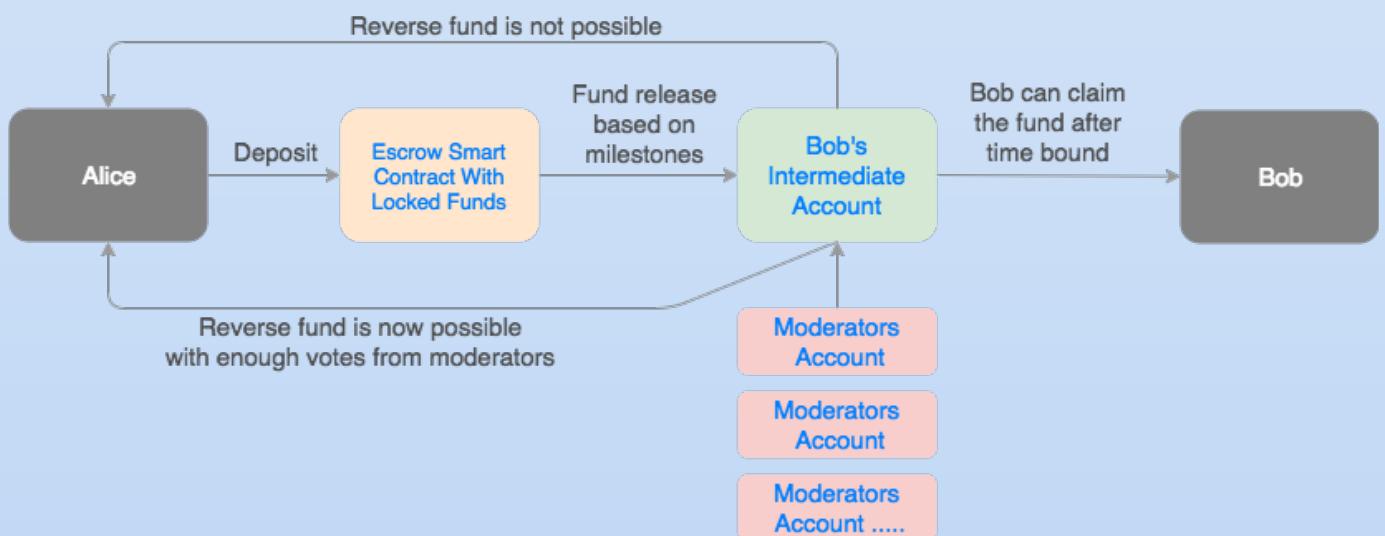
## 4.1.SOLUTION: MODERATORS

Moderators are a group of Sparrow Users who are outside the scope of the project Smart Contract. When dispute happen, someone in the project (Alice for this case) can submit a dispute resolution request on Sparrow, Sparrow will then use Big Data to find 15 most suitable moderators from Sparrow Users Database according to their skillsets.

Those 15 moderators will be asked to co-sign a unique transaction account which can reverse some of the funds from Bob. consider below Smart Contract structure.

By introducing two more accounts : An Intermediate Account and Moderator Account, fund can be reversed within a defined period of time. In case of dispute, Alice will need to submit a dispute case to Sparrow system, Sparrow AI will assign 15 moderators who are granted the right to review all the message history (un-encrypted only) and related transactions.

The moderators need to look at all the available information such as messages log, job description, hashed data in decentralised storage and finally give a vote on the Moderator account. By default , 60% of vote is needed in an order to give Moderator account enough weight to move the funds from Bob's intermediate account back to Alice. If there is not enough signatures in Moderator account before the time bound, Bob will be able to claim the funds from the intermediate account.



## **4.2.What if there is no outcome of the dispute resolution through community? Or if there is no yes or no answer to the dispute?**

The power of blockchain come the trust from the community without a centralized middleman. In case there is no outcome (less than 60% votes), dispute resolution will be cancelled and funds will distributed according to the predefined rules inside the smart contract. So it is important for our AI to do few things :

1. To learn the pattern of successful project and failed project, and give users hints when the system detect similar pattern
2. To carefully pick right moderators when dispute happen. This can be done by selecting users with similar skillsets and higher reward points. The AI will also make sure the moderators have not involved in any part of the project (plus no existing transaction history between project owners).

## **4.3.How can I start working as a moderator?**

Anyone can become a moderator by simply enable it in the account setting and deposit a certain amount of SPC to their account (this is to prevent scammer).

## **4.4.What will I gain by working as a moderator?**

Moderator need to vote up or vote down any dispute case without knowing other's moderator's decision. (To make sure it will be fair). By default the system will reward anyone who participated in the dispute resolution process by distribute SPR to them. Reward will be equal no matter what is the outcome. Beside the SPR, 10% of funds (SPC) will be distributed to moderator who picked the right vote after the dispute resolution

## **4.5.Can moderators be bribed or persuaded to be on my side?**

It will be very unlikely since the moderators will be anonymous, also the AI will ensure the moderators do not have existing relationship with parties involved in the project. It can be easily done by checking transaction history on the blockchain.

## **5. TOKEN ECONOMICS**

### **5.1.WHY TOKENIZE**

A well-designed token economics carefully manages the distribution of tokens and incentives across all groups of network participants (employer, provider, moderator, project investors and other parties). Our Tokens are used not only as a means of payment, but also as a means to account for judge, verify, deposit ,dispute resolution and incentivize ecosystem participation.

We introduce a dual tokens system Sparrow Coin and Sparrow Rewards which act as different roles on our system.

	Sparrow Coin (SPC)	Sparrow Rewards (SPR)
Source	Via ICO or Exchange	By Token Burn of Sparrow Coin
Supply	Limited	Unlimited
Usages	As an cryptocurrency and key to build trust	As rewards system
Tradability	Can be traded on Decentralised Exchanges	Non Tradable

## **5.2.SPARROW COIN (SPC)**

Sparrow Coin (SPC) is the native token of Sparrow Platform, it is an utility token for anyone who wants to interact with other users on Sparrow platform. Sparrow Coin is issued on Stellar platform which inherently empowered by Stellar's features such as high security , high transactions speed ,extremely low transaction cost and decentralised exchanges support.

Stellar Decentralised Exchanges support pathfinding ,When the need arises to do complicated asset conversion, pathfinding involves looking at current orderbooks and finding which series of conversions gives you the best rate. These paths of asset conversion can contain up to 6 hops, but the whole payment is atomic-it will either succeed or fail. The payment sender will never be left holding an unwanted asset.

Sparrow Coin will be used as a medium-of-exchange for all payments and hence the pathfinding must include Sparrow Coin, for example:

USD->SPC->SGD or SGD->SPC->SGD or USD->...->SPC->...->SGD. There can only be a maximum of 6 hops.

In Stellar, asset transactions, including pathfinding, are considered network operations. A contract transaction is made up of multiple network operations. A transaction median confirmation time in Stellar is 3-5 seconds. This means that on Sparrow, the entire process of issuing new assets to consumer account, pathfinding and asset arriving at destination account is confirmed within 3-5 seconds.

### **1. WHAT IS THE UTILITY OF SPARROW COIN**

#### **1. AS PAYMENT**

SPC can be bought from our token sale, Stellar Decentralised Exchange and other exchange, which mean it pegged with a market value. It act as the primary payment method in Sparrow. User can also use SPC to pay other subscription base service in Sparrow in the future.

#### **2. AS GAURANTEE AND DEPOSIT**

SPC can be transferred to Escrow Smart Contract with multisig and time bound, which mean SPC can serve as a deposit of a project. For example, the project owner can deposit certain amount of SPC to a Smart Contract, he can also subdivide how much SPC will be locked and how much SPC can be reclaimed when project fail.

### 3. AS PERMANENT RECORDS

Blockchain is basically a distribution of ledgers with consensus algorithms. All transactions in the blockchain are immutable and transparent. Users on Sparrow can check other's transaction history to ensure they have a trustworthy transaction records. Transparent payment records can also facilitate dispute resolution.

Large size, non-transactional data such as Job description, user profile pictures and user biography will be stored decentralised storage platform such as IPFS.io, and hashed to related account or transaction and eventually linked to the use of SPC.

### 4. AS AN INSTRUMENT TO ENSURE FAIR ECONOMY

By ensuring everyone to use SPC as a single token to build consensus and trust, a fair economy can be created. There will be no payment delay nor fraud money. SPC can be locked in Smart Contract which is completely decentralised without control of Bank. There won't be any value differences in causes by differences currency (For example USD and IND) since value of SPC is base on demand and supply as a global perspective. Stellar Decentralised Exchange also prevent the centralised control of large crypto exchange.

## 2. HOW TO GET SPARROW COINS

### 1. FROM OUR TOKENSALE

SPC will be issued in our token crowd sale, which can be purchased by Bitcoin or Ethereum through our crowd sale portal <http://ico.sparrowchain.com>

### 2. FROM STELLAR DECENTRALISED EXCHANGES

One of the benefits of using Stellar as our Token issue platform is the default support of Stellar Decentralised Exchange (SDEX). That means our Token can be tradable on these platforms the day after our token sale (and the lockup period)

### 3. CRYPTOCURRENCY EXCHANGES

There are thousands of cryptocurrency exchanges out there, each of them may charge differently in order to list our Token on their system.

#### 4. EARN WITHIN SPARROW

Eventually users can earn SPC directly from the Sparrow by working on different projects. Besides working on projects, Sparrow user can also become a moderator of other projects and earn SPC by solving potential dispute.

### 5.3.SPARROW REWARDS (SPR)

Sparrow Rewards (SPR) is the secondary token in Sparrow Platform. Unlike SRC, SPR is not a token for payment or transaction. SPR is a non-tradable token with unlimited supply, with a primary goal to act as a decentralized token for our reward system. SPR is important as an instrument to ensure fairness, maintain quality of works and create trust.

#### 1. WHAT IS THE UTILITY OF THE SPARROW REWARDS FOR THE PLATFORM

Reward will only be given to users who contribute to the platform. Contribution can be an comments, likes, profile verification and dispute resolution. There are many ways user can earn rewards:

1. Reward for screening of users/clients/workers profiles
2. Reward for screening of users/clients Project/Job description
3. Rewards for screening of workers proposals
4. Reward for Dispute resolution
5. Reward to encourage payment transactions
6. Reward for getting new users- referral
7. Reward for contributing to Projects with money
8. Reward for contributing to Projects with skill/work

#### 2. HOW TO GET SPARROW REWARDS

Reward will be in a form of our secondary token Sparrow Reward (SPR). SPR can be only issued by Sparrow Reward Engine (SRE), which use AI algorithms to redistribute SPR according to users activities.

Initially, Sparrow will keep a SPR liquidity (totally 1,200,000,000), which from our estimation will be enough for the first 6-9 months after our product launch. Our system will undergo a Token Burn Event when the reserved SPR cut to half (600,000,000).

Users will be defined as active and rewarded by the AI by doing below tasks on Sparrow:

1. Welcome Bonus
2. Contribution: Likes, Comments, money, work etc
3. Curation: screening of new users by community
4. Arbitration: arbitration by users and by the centralized system on request
5. Friends Referrals
6. Transaction Rewards
7. Commission Payments for jobs

Any negative actions such as spamming will be punished by being blacklisted.

### 3. WHAT IS THE UTILITY OF THE SPARROW REWARDS FOR THE USER

After accumulated certain amount of rewards (as SPR), user can use the SPR on:

1. Spend for marketing and better placement.
2. Exchange for Reward products such as coupons and vouchers offered by Sparrow.
3. Exchange for Services.
4. Posting Jobs.
5. Sending Proposals.
6. Participate in Dispute Resolution.

## 5.4.TOKEN BURN EVENT

The only source of SPR is from the Sparrow owned SPR liquidity since SPR is not tradable and cannot be bought from Exchange. In order provide a steady supply of SPR , Token Burn Event will be triggered every time the initial SPR liquidity cut half (600,000,000 SPR) due to the token redistribution by the AI.

After the burning event, the amount of SPR produced will be distributed to a master account, which will then controlled by our AI logic to redistribute the SPR to users who entitled to receive it as reward.

Initially , Sparrow owned 35% of SPC (equal to 35 m), to create SPR liquidity we will burn SPC. The burn ratio will be decreased gradually according to the Diminishing Marginal Returns formula. Existing pool of SPR will also affect the burn ratio since it is not necessary to burn SPC if we have enough SPR to serve the usage.

## **6. BUSINESS MODEL**

### **6.1.Token Sale:**

SPARROW, the company, would generate revenue via this ICO to deliver this project. The founders and the company would hold 20% of the tokens and will profit from, like any other token holder if the project succeeds. This aligns our economic initiative with the success of the project.

### **6.2.Service Fee:**

For BASIC users SPARROW will charge a total commission of 10% for a project and the same would be split equally between the clients and the freelancers. The 5% commission from the client would be charged on top of the total project amount and would be deducted at the time of depositing the amount to escrow account. The freelancers commission of 5% would be deducted once the project is complete, the Smart Contract is executed, and the freelancer is getting paid. The users have the option to opt for monthly subscriptions packages wherein they get access to special features and also pay reduce or no commission.

### **6.3.Subscription – Continued Token Demand:**

SPARROW will offer several subscription packages to the users to provide them special services at a reduced commission rate. The subscriptions will ensure continued demand of tokens on the platform. The details of SPARROW Subscription packages are mentioned below:

For the client:

	<u>BASIC</u>	<u>PREMIUM</u>	<u>ELITE</u>
<b>SUBSCRIPTION FEE</b>	Free	\$10/month	\$25/month
<b>COMISSION</b>	5%	3%	0%
<b>FEATURES</b>	Basic Features	Pay less commission  \$ 5 worth of additional SPARROW REWARDS which can be used to post more jobs, advertise your project on the platform or redeemed for coupons.	Pay 0 commission  \$ 15 worth of additional SPARROW REWARDS which can be used to post more jobs, advertise your project on the platform or redeemed for coupons.

	Save time and energy by having access to the most relevant and skilled freelancer profiles and proposals to select from.	SPARROW team does the work for you by pre-screening and shortlisting the best profiles for your projects. You just need to make the final selection.
		Access to business loan providers for the project
		Access to contributors who are willing to be investors
		Interviewed and given a verified tick

For the Freelancer:

	<u>BASIC</u>	<u>PREMIUM</u>	<u>ELITE</u>
<b>SUBSCRIPTION FEE</b>	Free	\$10/month	\$25/month
<b>COMISSION</b>	5%	4%	3%
<b>FEATURES</b>	Basic features	Pay less commission	Pay less commission
		\$ 5 worth of additional SPARROW REWARDS which can be used to send more proposals to clients for jobs, advertise yourself on the platform or redeemed for coupons.	\$ 10 worth of additional SPARROW REWARDS which can be used to send more proposals to clients for jobs, advertise yourself on the platform or redeemed for coupons.
		More visibility to Clients.	All the benefits of Premium
		Access to more Jobs	interviewed and given verified tick
		Reply to more job posts	higher preference
			Access to advanced tools
			Access to financial services

## **6.4.BAAS (Blockchain As A Service):**

SPARROW is building a Smart Contract platform to appraise and reward reliable online workers. Once this platform is perfected, it can be useful to many different companies working on different applications across different industries because a decentralized, rewards based, trustless system can be used to automate most traditional systems. SPARROW would make its API's available to 3rd party so that other companies can just plug in the SPARROW platform to take advantage of the blockchain without having to spend time and energy in building their own platforms. 3rd parties can just integrate SPARROW API's and focus on building their own applications on top of it. This will enable faster adoption of blockchain technology while charging a small transaction fee for the usage of its API's.

## **6.5.Advertisement Revenue:**

SPARROW will allow Freelancers and Clients to buy SPARROW COINS and SPARROW REWARDS to advertise themselves on the platform, gain relevance and power in the system and to participate in various activities. This would result in additional revenue for the platform.

## **6.6.Affiliate Revenue:**

SPARROW understands one of the biggest problems faced by the freelancers or self-employed professionals is that they have difficulty in getting access to financial services. Under Elite subscription, SPARROW would help Freelancers get connected with selected 3rd party financial service providers that will help them with credit repair and provide them access to tailor made financial services with the help of SPARROW. SPARROW would also help clients get access to 3rd party loan providers for their project to make their dream a reality. SPARROW will earn an affiliate fee for this service from the 3rd party partners and can pass on a part of the same to the users (client/freelancer) as cash back or rewards.

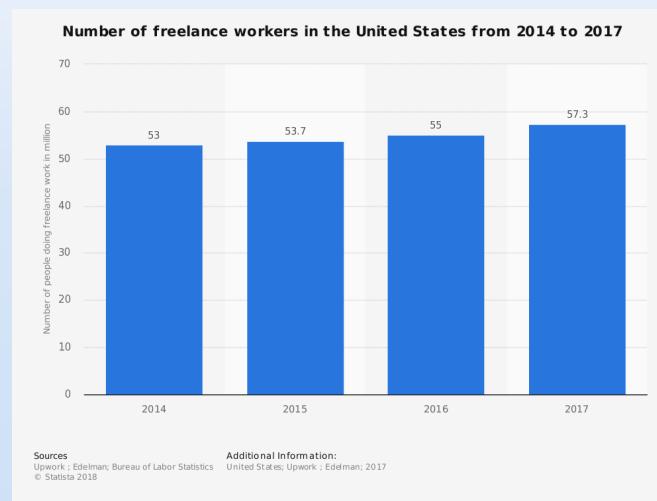
## **8. MARKET OPPORTUNITY:**

SPARROW is uniquely positioned product which is bringing together freelancing and collaboration to create a self-sustaining, utility driven ecosystem. Due to this unique positioning, there are no direct competitors for SPARROW. Let's look at the potential of the two markets where SPARROW is going to create its own niche in.

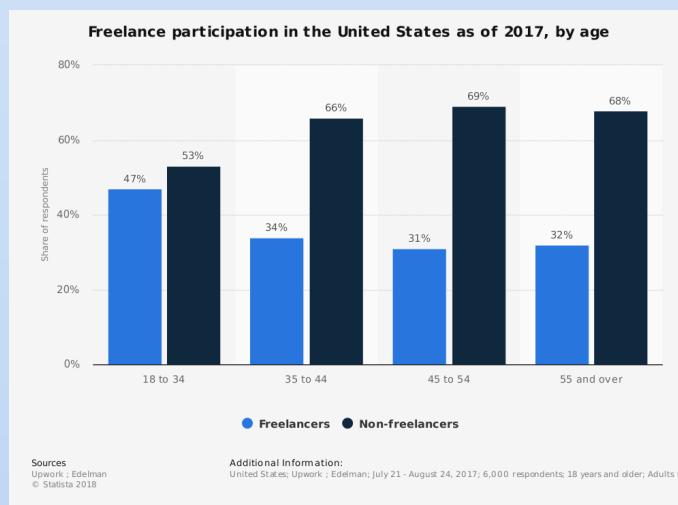
## 8.1.FREELANCING MARKET

Freelance economy, which is otherwise called the gig-economy includes services providers and self-employed people offering online or offline services like digital services, home services, delivery services to name a few.

The addressable size of global freelance economy is \$1.5 trillion with over 77 million freelancers working world-wide. Most number of freelancers are supplied by US (57 million) followed by India (15-20 million). 40% of the freelance jobs are done by Indians followed by Bangladesh, US, Pakistan, Philippines and the UK.



Today 35% of US workforce is a part of the Freelance economy and this number is expected to go up to 40% by 2020 as per the survey report released by Intuit

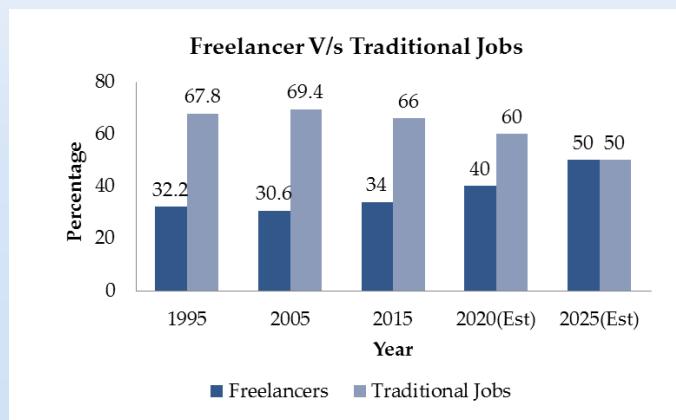


This growing trend is also visible in India where close to 15-20% of the workforce is expected to be part of it.

There are many reasons why freelancing is on the rise, better pay, freedom to choose, lack of regular jobs, shifting economic conditions to corporate downsizing and employee dissatisfaction. In countries like India, the exponential increase in smartphone ownership and mobile internet penetration are also major factors which are contributing to the growth of the freelance economy.

It is forecasted that the freelance economy will grow towards 40% of the global workforce in the next ten years, with over 200 million workers and with a total annual transaction volume approaching \$2tn.

As per the report released by Intuit, the number of freelancers would outnumber traditional job seekers by 2025.



The main impact of freelancing would be seen even in the developing countries like India, Bangladesh, Pakistan, Philippines, etc. The PayScale of regular jobs in these countries is very low as compared to the developed countries. Also, the society as a whole is still a long way from accepting freelancing as a respectable. Freelancing in these countries is still frowned upon as to be for those who are not able to secure a regular job.

This means that there is still a huge potential for growth in these countries. A large number of people who started as freelancers have now established their own companies. These people are grabbing jobs from across the world through online platforms and getting the work done by hiring local people under their company and are earning decent profits. As the stories of these successful freelancers go viral, perceptions are changing, and more people are joining this global phenomenon.

The future of Freelancing is bright as it is riding on the shoulders of highly focused and productive individuals who have an incentive to work efficiently. These Freelancers are not burdened with the baggage of traveling through traffic and long elevator queues or distracted by office gossips and frequent coffee/smoking breaks etc. hence they work with a much better frame of mind and are more focused on the job at hand. Many large organizations have data to show that

productivity of their remote workforce is up to 15% higher than the regular office-based employees. Freelancers are, after all, micro-entrepreneurs, responsible for getting work, managing clients, networking and promoting themselves. Freelancing is a boon to the industry and all the reasons stated above indicate that the freelancer economy will remain to be on a rise in the coming years benefiting both, the employer and the employee.

## **8.2.COLLABORATION SOFTWARE MARKET**

Collaboration broadly means working together in different set ups. In this age of technology, collaboration means a setup that facilitates online communication between two or more people to work on the same project. They can communicate with each other and work as a team to achieve their goals even if they are not present in the same location.

In the current corporate structure, diversity, distribution, time zones, cultural differences and hierarchical reporting lines all make teamwork hard.

A collaboration software enables companies better manage projects, streamline their business processes and boost productivity across the board. These tools help teams be more effective at working together and ensures that information and updates are available to all at any time. Management is able to see if the work is being completed as desired and where the bottlenecks are, thereby helping the business move faster.

The collaboration software market is hard to ignore as it produces business services used by companies of all sizes on a daily basis.

This market is currently controlled by players like Microsoft, CISCO, Citrix Systems, Oracle, IBM, Box, Dropbox, Slack, Team Viewer, Evernote, Google, Survey Monkey and is expected to grow at a CAGR of 10.3% and is expected to grow from \$ 4.78 billion in 206 to \$ 8.96 billion by 2022.

This growth would be driven by rising smartphone and internet penetration, increasing bring your own device (BYOD) at work trend, increase adoption of DevOps collaboration and SMAC ecosystem in IT & Telecom sector, increasing outsourcing of projects and growing collaboration between technology providers and original equipment manufacturers.

## **8.3.CONCLUSION**

SPARROW is one of a kind platform which is catering to two different markets and creating a unique bridge between them. On one side SPARROW is addressing the issues with the existing Freelancing platforms and on the other side it is making collaboration tools available to previously ignored new entrepreneurs, small & medium enterprises and startups. This unique positioning helps SPARROW provide

value to its customers, create its own niche with no direct competition and take advantage of the growth in the market.

## **9. TOKEN SALE**

### **9.1.TOKEN DETAILS**

- Total Supply: 100,000,000 SPC

### **9.2.PRIVATE PRE-SALE**

- 33% Discount
- \$1,000 minimum
- Accept BTC, ETH, XLM and fiat
- 1 SPC = \$ 0.20

### **9.3.PRE-ICO**

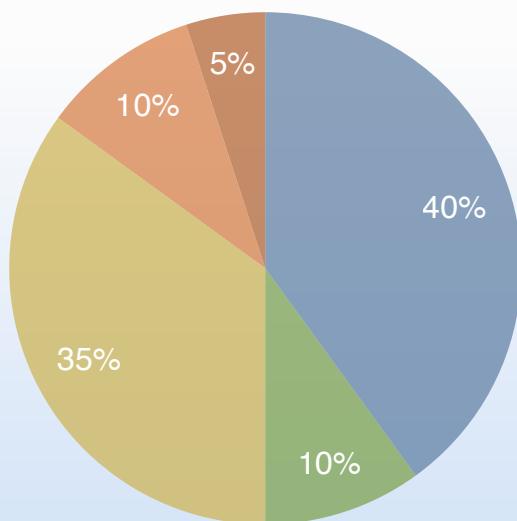
- 17% Discount
- \$ 100 minimum
- Max Allocation: No Limit
- Accept BTC, ETH, XLM and fiat
- SPC = \$ 0.25
- Pre ICO-Soft Cap: 100,000 USD
- Pre ICO-Hard Cap: 2.5M USD
- KYC is required

### **9.4.ICO**

- Pre-exchange Discount
- \$ 100 minimum
- Max Allocation: No Limit
- Accept BTC, ETH, XLM and fiat
- 1 SPC = \$ 0.30
- ICO-Soft Cap: 500,000 USD
- ICO-Hard Cap: 12M USD
- KYC is required
- Tokens sent to participate Stellar Wallet within 24 hours after ETH contribution.
- Exclusion: Citizens/Residents of United States of America, People's Republic of China and South Korea

## 9.5.TOKEN ALLOCATION

● ICO ● Pre ICO ● Company Reserved ● Advisory  
● Other



## 10.Development Outline

Oct 2018 Finish main ICO

Q1 2019

Phase I : Protocol Implementation

- Private TestNet ready
- Early TestNet API
- Basic Escrow Smart Contract
- Payment gateway alpha release

Q2 2019

Phase II : Core Feature Implementation

- Skills Endorsement logic
- Reward System
- Basic AI algorithm
- Instant Messaging Backbone
- Dispute resolution ready

Q3 2019

### Phase III: dapp Development And Product Launch

- MainNet launch
- dapp ready (Web and Mobile)
- Token burn logic

## **11. MARKETING PLAN**

A comprehensive marketing plan is very important for any product to be successful. You might have the best product in the world, but it can still fail if no one knows about it. It is especially tricky for products where users are the content creators. You are faced with the chicken and the egg problem. Freelancers would not use a platform where there are no clients offering projects and vice versa. You need a critical mass of both the employers and freelancers at the same time for the platform to work. These are two very different target groups which must be acquired at the same time. Since the value of the token is directly proportional to its utility, and the utility is proportional to the network of users active on the platform, marketing the project and achieving the critical mass quickly is of the highest importance.

The SPARROW team has extensive past experience of building huge user base for products and using this experience we have planned a comprehensive marketing campaign. This will include the following channels all at the same time:

### **11.1. MARKETING STAGES**

#### STAGE 1:

The first stage is targeting the people who are already aware of blockchain, crypto currencies and freelancing. Crypto currency users are more eager to try out new stuff, mainstream users are not. That's why we want to have a pool of freelancers, employers and contributors before targeting the mainstream users. This is a very targeted approach and will help us acquire initial set of quality users who would be interested in engaging and experimenting with a new platform built on blockchain technology which is doing things in a new and improved ways.

## STAGE 2:

Once the platform is active with initial set of crypto, blockchain and existing freelancer platform user and we are sure that the platform is stable, easy to use and ready to for the main stream users, we go ahead and start targeting them. We will do this because it is hard to switch them from their comfort zone to a new product, so we want to have the platform active before even trying to approach them. With many of them we might just have one shot and it would be hard to make them revisit if they didn't like it the first time. So only when we have a robust ecosystem of crypto-oriented freelancers and employers will we start marketing to the mainstream users.

## 11.2.MARKETING CHANNELS

SPARROW team comes with an experience of over a decade in marketing and user acquisition wherein the team has successfully acquired and retained millions of active users for mobile and online products. We would be employing the below mentioned channels for user acquisition and we confident that our experience and the existing network of partners will ensure success of the SPARROW platform:

1. Social Media & Digital Marketing
  - a. Facebook: We would be targeting fans and followers of existing crypto-related and freelance related group pages in addition to the regular users falling in different target group. We would be optimizing the Facebook ads for high click through rate (CTR), so that the cost per click (CPC) becomes lower with time. In addition to regular Facebook ads, we would be posting Facebook video ads with short (1-2min) episodes that highlight key features of the SPARROW platform and the problems that they solve. Such video ads would be released on regular intervals with the goal to educate and attract new users to the SPARROW platform.
  - b. YouTube: YouTube is the second biggest search engine after google and we will utilize it to the maximum. In addition to videos on Facebook, we would be releasing the videos for story telling on YouTube as well. We will also select and employ a handful of influential and carefully selected bloggers and influencers within each target demographic to promote SPARROW with professionally made videos that highlights why a particular feature is beneficial for their followers.
  - c. Snapchat: We will work with featured content providers on Snapchat like Mashable and Cosmopolitan. These content providers, appear in all users' home screens and we will select different messages and features for each target demographic and tailor the messaging accordingly.

- d. Tumblr and Pinterest: Tumblr and Pinterest are powerful platforms which are driven by content designed and selected by users. These platforms accumulate information about the users interests and learn about their tastes over time. We would be creating our own "story board" across different categories backed by carefully designed images to convey our message. These images would also be used on Facebook and YouTube.
- e. LinkedIn: We would be running LinkedIn marketing campaigns targeting anyone who is involved in crypto, crypto freelancing, general freelancing and has skill set in demand on the network as well as startup owners, small and medium enterprise owners who would be interested in hiring freelancers.
- f. Reddit: We would be running Reddit ads on all subreddits for getting jobs for crypto. This is the smallest reach, but most targeted auditory.
- g. Other Social Media Platforms: Twitter and other social media platforms would also be used in coordination with the different marketing and PR firms that would be hired by SPARROW for our campaigns.
- h. Organic Content Marketing: Content marketing is the most effective way of creating organic user acquisition channel. We would be employing creative content writers to create SEO friendly content for on page and off page, blogs, social media as well as for email marketing.
- i. Google AdWords: We would also be employing google AdWords ads on google search targeting 1000s of long tail key phrases related to crypto, online freelance work, finding freelancers (for employers) and other freelance-related stuff. Having 1000s of long tail phrases allows for much lower cost per click (CPC) with the benefit of getting very targeted traffic.

## 2. Mobile Handset Brand Partnerships:

Mobile phones have made the life of everyone easy. Now you do not have to sit in front of a computer to be connected and work with your team, your mobile phone keeps you connected at all the time on top of this the number of people using internet on their mobile phones has been growing worldwide at an exponential rate and SPARROW will take advantage of these fact. The team will take advantage of our past experience and partner with Mobile handset brands to make SPARROW platform available to millions of existing and new mobile phone users through the SPARROW mobile application. We would be able to directly reach millions of mobile phone users by following the below strategies:

- a. Preloads: SPARROW mobile application would be preloaded millions of new mobile devices manufactured and shipped to market every month. This way the app would be available to the users as soon as they open their phone.
- b. Software Update Packages: SPARROW will work with mobile phone manufacturers to make the SPARROW mobile app a part of their Firmware Over the Air (FOTA) updates that they push to old devices in the market on regular basis. This will help SPARROW to reach the existing old users of mobile phones.

### 3. Events & Networking Activity:

SPARROW would extensively participate in Trade fairs, Events and conferences to reach out to young entrepreneurs, startups, co-working spaces and their communities to reach people who would be interested in using a collaborative platform like SPARROW to build their extended team or manage their existing ones through SPARROW collaboration platform. We would also be doing on ground events and participate in college fests to attract fresh graduates who might be interested in using their skills to earn money as freelancers or use the SPARROW platform to convert their fresh ideas into reality.

### 4. Telemarketing:

Lead generation through telemarketing would be a big contributor for user acquisition for SPARROW. The team would reach out to companies looking to hire temporary workers or freelancers to generate and follow leads. The telemarketing team would do cold calling, warm calling, do primary research, do user survey and provide tele support.

### 5. Print Marketing:

Effective and creative print marketing will also be a key to SPARROW's business success. Print media plays an important role and SPARROW will promote itself with creative print media using Company Flyers, Poster Advertising, Promotional Gifts, Advertising on public transport, Information Brochures, Print Media Advertising, Calendars and Desk planners, Vehicle Advertising etc.

### 6. Marketing Agencies:

SPARROW will select and engage some of the top PR, communication, marketing and specialized technical firms to ensure a successful token sale and subsequent launch of the SPARROW platform. SPARROW will collaborate with agencies in every country we launch our services so that they bring their local market knowledge and build a strong local internet marketing strategy together with the SPARROW team.

7. Referrals:

SPARROW is building the next generation decentralized collaboration platform on blockchain that enables the users to manage their work life more efficiently. The core of the strategy is to go through word of mouth and social sharing. Users of the platform would earn SPARROW REWARDS for inviting new clients and freelancers on the platform.

8. Airdrop:

Airdrop of SPARROW COIN (SPC) to all Stellar addresses with non-insignificant balances. This will give them some reputation to start and will also make them check what is this token about. This has a huge reach, but not targeted at all. However, everyone from those is involved in crypto, and might need job done at some point. So, when they do, they will be aware of our existence.

## **13.TEAM**



Mandeep Singh Josan  
**Founder & CEO**



Michael Wong  
**Co-founder & CTO**



Vivek Giri  
**Business Operations**



Kranthi Vemulapati  
**Legal Advisor**



Richard Cheung  
**Advisor**



Pradeep Kakkireni  
**Sales & BD (India & SEA)**



Varun Mantena  
**Freelance community building**



Swarup Karavadi  
**Technical Advisor**



Krishnendu Ghata  
**Tech Operations**



Keith Chan  
**Lead Software Development**



Island Kon  
**Blockchain Advisor**



Mike Yeung  
**Frontend Engineer**

## **14.DUE DILIGENCE**

### **14.1.Token Sale Risks**

- Tokens:

SPARROW COINs are not securities, equity or profit-share mechanisms. Token sale participants should understand the risk of purchasing tokens and read this SPARROW whitepaper in full before participating. Participating in the Token Sale is subject to the SPARROW Token Sale Purchase Agreement. SPARROW staff are available to answer any questions at support@sparrowchain.com.

- Technical Risk:

The SPARROW COIN contract is based on the STELLAR. All efforts will be made to ensure the contract is free from technical bugs but once submitted to the Stellar network, it is unable to be modified. Participants should be intimate with Stellar and blockchain technology to understand these risks. Participants should understand the risks around private key storage and transmission.

- Hackers and criminal intervention:

The SPARROW COIN contract address will be made available via <https://sparrowchain.com>. History has shown that sometimes criminal elements attempt to take over computer and email servers in order to trick people into sending money to the wrong address. This may include social engineering. SPARROW will implement all best practice security measures to thwart potential attacks. Participants must make all reasonable efforts and follow all instructions from SPARROW to ensure they are dealing with the correct contract address. Participants should not use any smart-contract address published outside of <https://sparrowchain.com> as it could be a scammer pretending to represent SPARROW. Participants should follow all security best-practice procedures as directed by SPARROW.

- Tax & Regulatory risk:

The token buyer must conduct their own due diligence to ensure that they comply with all local laws regarding cryptocurrency, tax, securities and other regulations in their jurisdiction. The SPARROW COIN Sale may in the future be subject to further regulation.

- Refunds:

Refunds are not permitted. Sales will be final once transacted.

## **14.2. Company Disclosure**

- Entity:

Sparrow Private Limited owns all the intellectual property of the SPARROW platform and is a privately-owned company, registered in Singapore and compliant with the Monetary Authority of Singapore. Sparrow Private Limited was founded in 2018 and has no public financial information available. However, it has received funding from private investors.

- Key Shareholders:

The Sparrow Pte. Ltd. founding team are the principle shareholders of the company owning 100% of the total shares on issue in the company.

- Assets:

The Sparrow Pte. Ltd. owns all intellectual property rights to the SPARROW brand and platform (to the extent possible), including trademarks, software, media and content copyright.

- Backgrounds of Directors & Managers:

Background information on the directors and managers of Sparrow Pte. Ltd. is provided in the White Paper available on <https://www.sparrowchain.com> website.

- Litigation Disclosure:

Sparrow Pte. Ltd. is not involved in any litigation at the date of publication of this document.

## **15.LEGAL**

### **15.1.Transparency:**

SPARROW's transparency policy refers to the availability of the project information to the general public and clarity about internal decisions. We aim to maintain an active dialogue with the SPARROW community and we will publish all relevant information.

### **15.2.Compliance:**

It is the intention of the SPARROW team to make the SPARROW platform available worldwide. We believe this will require a solid compliance system that is of international standard being upheld and will involve the following:

#### **1. Know-Your-Client and Anti-Money Laundering (KYC/AML):**

It is now a global concern in relation to the risks of money laundering. Both international and local legislations and regulations have been put in force over the last decade to ensure such risk is minimized. Many professionals have a certain level of KYC/AML obligations that they must comply with. This includes carrying out a background check against clients and counterparties. We therefore aim to implement a KYC/AML verification system that SPARROW COIN purchasers must complete before activating the token for use. By doing this, users of the SPARROW platform can freely utilize the SPARROW platform and the collaboration platform without having to worry about exchanging SPARROW COIN that has any risks of being obtained from an unclear source.

It is currently anticipated that all users will need to submit identity and proof of address documents for the satisfaction of the Company's KYC/AML team. Upon reviewing the KYC/AML documents, we may require additional documents to be provided if we have any concerns. This may require documents such as bank statements or professional reference letters. Whilst tokens would have been issued to users upon us receiving user's contribution, the tokens will not be active until all KYC/AML checks are cleared. Inactive tokens cannot be used, exchanged or transferred to any other users until being activated through clearing the verification system.

#### **2. Data Protection:**

We believe privacy is important for SPARROW in order to maintain a healthy and trustworthy decentralized platform for all the users to sell and purchase services securely. All personal information collected will be securely protected by SPARROW to protect the privacy, confidentiality and security of all users. We will only collect information from users when they register on SPARROW, order services from us, subscribe to our newsletter or subscription packages, or complete any application form to us, submit a query or request to us or when users receive work from us via our collaboration platform. Most of the time, we will collect information directly from users but there may be occasions where the data is collected through a third party, such as representatives, agents or contractors. The standard types of information we collect are identity information, contact details, usernames and passwords and records of communications. We would only use the information for the sole purposes of verifying the users' identity, determining the users' eligibility, answering any queries a user may have with us, providing services and updates to the users, processing transactions, improving our services and to comply with all legal and regulatory requirements. All information would only be passed on to third parties with the users' consent.

### **15.3. Standard Community Guidelines:**

SPARROW aims to deliver an open communication medium and collaboration platform where users will feel safe whilst using the platform. Therefore we intend to develop a set of Community Guidelines ("Guidelines") that will be updated from time to time to regulate the types of behaviour and activities that are permitted within the SPARROW platform. These Guidelines aim to promote users' safety, encourage respectful behaviour, keeping account and personal information secure and protecting users' intellectual property. By installing and setting up an account with SPARROW, users are deemed to have agreed to comply with these Guidelines. There may be reporting systems implemented where users can report the activities of other users to bring our attention to unacceptable behaviours within the community. Unacceptable behaviour will include actions such as using violent language, making disrespectful comments, making racially or sexually abusive regards, compromising the security of the SPARROW platform through the use of a virus or obtaining other users' personal information through fraudulent actions and offering illegal goods and services on the platform. We intend to continually review and keep these Guidelines up-to-date to include any actions that are socially or legally unacceptable.

These Guidelines will also be supported by restrictions and penalties and will be enforced by our team upon discovery of violations, where users are required to accept and agree to prior to using their accounts. For example, there may be restrictions as to the users' age before certain contents become accessible. We may also temporarily or permanently restrict the users' activity, suspend the users' account or even remove a user from the system. We may, from time to time, remove chat contents, offers for goods and services and even users from the system. However, the sole purpose of these Guidelines is to ensure that the

SPARROW platform remains safe and healthy but in no way is it intended to have any element of regulations or restricting users' freedom within the SPARROW platform.

## **15.4. Intellectual Property:**

The SPARROW Intellectual Property ("SPARROW IP") includes systems and methods for collaboration, communication and the purchase of goods and services using cryptocurrency. The SPARROW IP also includes user interface design that both controls and executes system functions. Some of the SPARROW IP includes the following features:

1. New and novel interface design;
2. SPARROW COIN
3. SPARROW COIN with design
4. SPARROW REWARD
5. SPARROW REWARD with design
6. SPARROW COUPONS
7. SPARROW COLLABORATION PLATFORM on Android, iOS, windows and web.
8. The secure use of cryptocurrency to purchase goods and services;
9. Payment to different team members in a project in different currency formats as per their preference.
10. Voice calling features that allows the participants to seamlessly call, text message, file transfer and file sharing at the same time.
11. Split screen technology that allows users to conduct video calls, text messaging simultaneously, file transfer and file sharing at the same time.
12. Shared Team Calendars Email to message capability.
13. Send and receive communications, documents, files, photos, videos, and other data to non-users of the application over Internet.
14. Feature to invite and allow non-users of the platform to participate and collaborate in projects on the platform.