White Paper on Decentralized Online Food Ordering Platform

A next generation decentralized organization for online ordering which brings control back to restaurant owners and consumers.

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This white paper is intended to be succinct when using basic common sense rather than rigorous.

- Introduction
- Governance
- Business Model
- Roadmap

Introduction

Background on the food delivery industry

Definition: Food delivery is a courier service in which restaurants, stores or independent food delivery companies deliver food to consumers.

A prominent food delivery business model is through an online platform which aggregates restaurants, consumers and drivers all in one place such as Uber Eats and DoorDash. As is illustrated in the following diagram, food delivery platform processes food orders from the consumers and coordinate the restaurants and drivers to prepare and deliver the food to them.
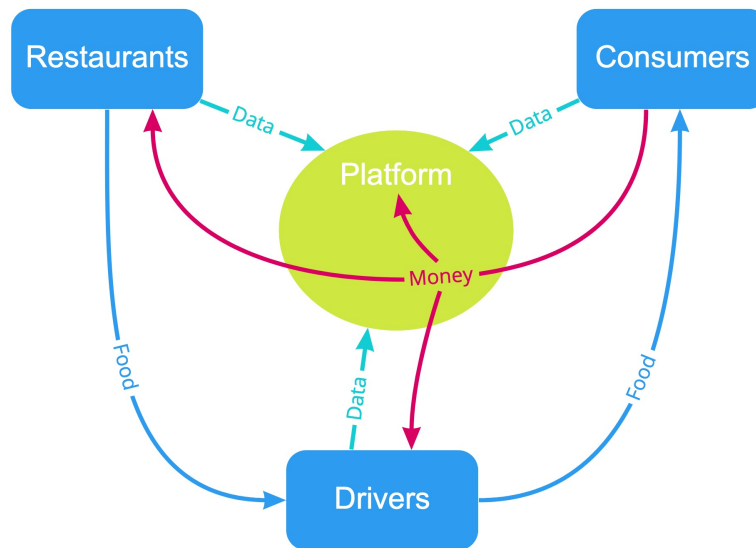
- Food delivery platforms often charge an upfront payment and lasting commission fee (5% - 30%) for their services which include the establishment of the network connecting multiple restaurants, consumers and drivers and coordination among them.

- In addition, food delivery platforms collect data (both transactional and personal data) from all the participants on the platform and optimize their business operation to cut cost.

The problems with the third-party platform are:

1. The platform's incentives are not aligned with its participants. As a result, the platform tends to exploit and extract (monetary / informational) value from its participants for its own benefit.

2. The lack of transparency in the platform's operation and data usage. As an example, food delivery platforms often pit restaurants against each other and force them to offer lower than market food prices to attract consumers.

A decentralized food delivery platform hands over the ownership of the platform to the hands of its participants resulting in perfect alignment in their incentives, that is, the value created by the participants is redistributed back to them instead of a middle man, viz. a centralized platform. By leveraging the blockchain

technology, all the participants of the platform can also participate in the governance of the platform effectively and efficiently. The blockchain technology can also provide unprecedented data transparency and security, which leaves each individual participant's data in their sole discretion.
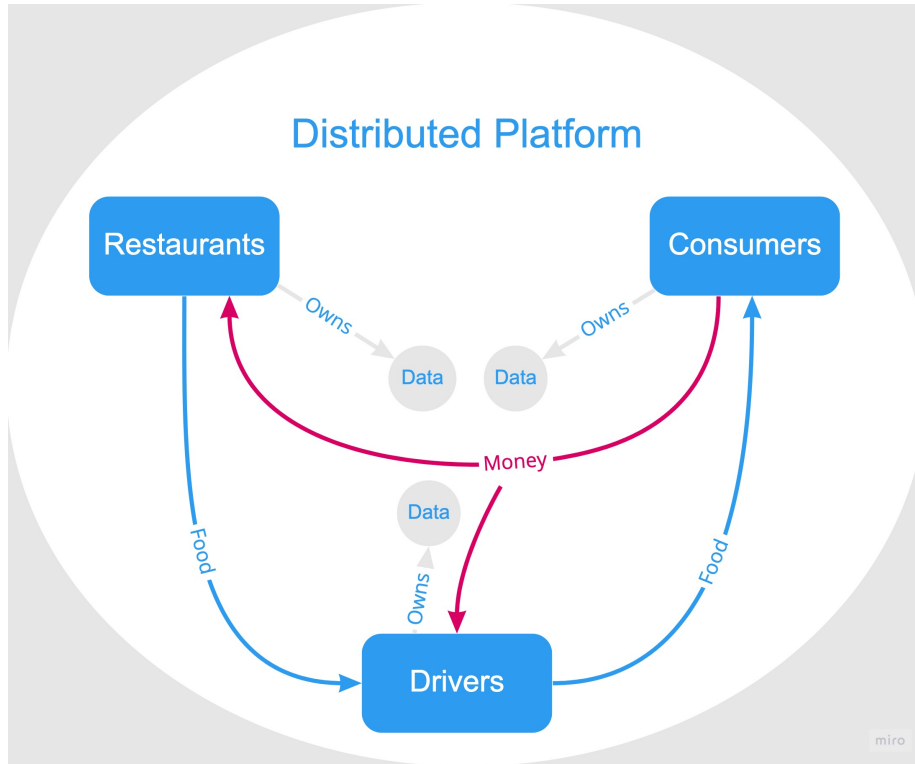
Governance

The Guiding Principles for Governance

1. Alignment of incentives between the governing body and the governed
2. Practical efficiency
3. Competency
4. Self-Improvability

The Governing Structure

The governing structure proposed in this white paper is a **D**ecentralized **O**rganization (DO) or **D**ecentralized **C**orporation (DC[1]) which lies between a **DAO (DAC)** and a **boring old organization (corporation)** as described by

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[1]Note some literature refers to Decentralized Community as DC, which is not the case here.

Vitalik Buterin[2]. The subtle difference between a DAO and DO is in the word 'autonomous'. A DAO makes decisions for itself while in a DO the humans are the ones making the decisions. It is worth pointing out that the DO proposed here is a little different that it is the humans and the automation combined that makes the decisions.

The proposed governing structure draws inspiration from political systems and consists of 3 bodies:

1. The **constitution**, which is a an aggregate of fundamental principles of the organization and automated regulations. It might happen in practice that some regulations or principles can not be programmed as automation or the incurred cost is unreasonable, in which case, there can be an additional set of regulations or principles written in human language. The guiding principles are as follows

    1. The constitution are designed to change and evolve through *proposal approval process.*

    2. Constitution is designed to be automated as much as possible with also practicability in consideration.

    Implementation draft: The automated constitutional rules are smart contracts on a blockchain and the ones in human language can be stored as a reference on the blockchain to a file on IPFS.

2. **Stakeholders** are people and financial institutions or entities that hold financial stakes in the organization. e.g. individual or institutional investors, restaurant owners who invest in the organization, etc. Stakeholders participate in the following organization events:

    1. **Election**. The stakeholders elect the president of the organization at a predetermined interval with voting power / weight proportionate to their stakes. To encourage participation, every stakeholder has the obligation to vote directly or delegate his/her stake to another stakeholder who is willing to delegate, otherwise, the stake will be slashed. (The stakeholder who is willing to delegate can delegate the total of his/her own stake and the stakes delegated to them from other stakeholders to another stakeholder who is open to delegate)

    2. **Proposal approval process**. Both stakeholders and governing body can sponsor a proposal which goes through a consensus based decision making process[3] where it will be debated openly, amended accordingly until a consensus is reached to either approve or reject the proposal. There is no limit to the scope of the proposal being it a budget bill to the executive, amendment to the constitution or even an organization reform.

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[2]DAOs, DACs, DAs and More: An Incomplete Terminology Guide
[3]Consensus-Based Decision-Making Processes

The participants of the organization are encouraged to become stakeholders. Indeed, a rational participant would want a stake proportionate to the value gained from the organization as this aligns the incentive of the organization with that of the participant's. In theory, individual participants can invest in the equities of a public traded company and take part in the company's decision making. In practice, however, retail investors can barely make their voice heard due to the inefficient voting process and the lack of transparency in the company's operation even when the retail investors collectively hold the majority of the company's stakes.

Experimental To scale, a delegation mechanism will be in place where each stakeholder can delegate his/her stake to another stakeholder as in an *election.* Only the stakeholders holding enough of the toal of their own and delegated stakes are eligible to participate in the *proposal approval process.* The eligible stakeholders will communicate and perform consensus based decision making in a public channel where stakeholders are free to change their delegation.

Implementation draft: The DO issues governance tokens as its native currency and stakeholders are reserved governance tokens proportional to their investments. A stake delegation mechanism will be in place to facilitate scalable and resilient voting and consensus based decision making, where stakeholders can delegate their stakes to other stakeholders or groups representing collective interests, through which to participate in the election and proposal approval process. Cryptographic voting system can be built on a blockchain to provide transparency and public verifiability while ensuring optional anonymity. Holographic consensus voting mechanism is another promising voting mechanism which offers both scalability and resilience.[4]

3. The **governing body**, which consists of the executive and the court.

    1. The **executive** manages the operation of the organization, which in the food delivery business include marketing, customer service, coordination of food ordering and delivery, etc, The **president** of the organization is the head of the executive and has the ultimate power over the executive's decision making including hiring, daily operation, planning, etc.

    2. The **court** interprets the constitution when confusion arises, guards the executive and stakeholders against violating the regulations or principles set in the constitution, resolve disputes within the organization.

    The governing body should be incentivized to automate their tasks and ensure the maximum transparency for the benefit of its participants. This objective is guarded by the separation of power and their balancing incen-

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[4]Holographic Consensus

tives. There should be no secrets in the governing body unless they are justified by the stakeholders.

Implementation draft: A decentralized food delivery application (a Dapp) built on smart contracts can bring transparency to its participants. Smart contracts can also be used to automate tasks performed by the executive and the court, e.g. Aragon Court for a court trial.

4. The **founding team** is a temporary constituent of the organization which lays the foundation of the organization structure and bootstraps the business. The founding team has the absolute power over the decision making in the organization and operates similarly to the *executive* in the governing body while superseding the constitution and the court. The founding team will be disbanded when the organization becomes stable and self-sufficient as is set for now at *Phase 3* in the *Roadmap* section.

Overall implementation draft: An internal blockchain is preferred whether it runs by itself or on top of another reliable blockchain such as Ethereum due to the cost. Think about all the small transactions between restaurants, drivers and consumers which when executed as plain transactions on Ethereum would incur a disproportionate expenses from the minimum gas fee. More generally, the higher the stakes on a blockchain, the more costly each transaction would become. Therefore, it is desirable to run an internal blockchain for low stake transactions or commit checkpoints infrequently on a high stake blockchain with a condensed message using Merkle proofs. To incentivize participants to hold governance tokens, a risk mitigation protocol is needed to hedge the fluctuations of the token value in fiat price.

Another Perspective:

The organization structure proposed here is inspired by political systems or more specifically representative democracy and constitutional republic. Take the U.S. government for example, the *constitution* of an organization is similar to the Constitution combined with legislation of the U.S., the *stakeholders* are citizens, the *executive* in a organization is the executive branch of the US government and the *court* the judicial branch. The only apparent missing piece is the Congress whose power is bestowed on the *stakeholders* and duties performed by the *stakeholders* through the *proposal approval process*. The *proposal approval process* seems to follow the ideology of a representative democracy and the difference lies in the consensus decision making instead of a majority voting, while the *election* is through a majority voting strictly following the ideology of a representative democracy. The rule of thumb is, when it comes to deciding on electing a human, the majority voting is used and when it comes to decision making on things, the consensus based decision making is preferred.

Business Model

Lower Service Fees

In comparison to traditional third party delivery platforms, which on average collect 10% for pickup and 20-30% delivery service fee per order, decentralized food delivery offers a lower fee alternative for both restaurants and customers. This is possible because unlike other food delivery companies solely aiming high ROI for investors, with our participants also being the stakeholders by the nature of decentralization, the profit of the platform circles back to making the platform better. The operational cost of the organization is also largely reduced as a result of increased automation in business functions and lower marketing spending since participants essentially become the owners as they use the platform. With lower service fees, restaurants are prohibited to inflate menu prices from dine-in prices.

Token Incentives

Early adopters of the platform will receive governance tokens as they use the platform and with the governance tokens stakeholders will be able to share the platform's profits in Phase 2 and beyond from the value of the tokens.

Phase 1

- Incentives for Restaurants

  There will be no service fees charged from the restaurants or the consumers for any orders placed during *Phase 1*. Additionally, every restaurant will be given the option to purchase tokens starting at the private fundraising event at the end of *Phase 1* and prior to the Initial Public Token Offering (IPTO). The amount of tokens available for purchase will be granted in proportion to the restaurant's total revenue contribution on the platform.

- Incentives for Customers

  To reward early customers on the platform, these customers will be given the option to purchase tokens prior to the Initial Public Token Offering (IPTO). The amount of tokens available for purchase will be granted in proportion to the customer's contribution (ie. amount spent) to the platform's revenue.

Phase 2 & Beyond The platform will issue its own stable coins backed by governance tokens so that menu prices on the platform remain pegged to the equivalent fiat value to avoid price fluctuations for both customers and restaurants. During this phase, service fees for restaurants (currently set at 5% for pick-up) will come into effect. All service fees collected will be used for the operations of the platform, as determined by the executive led by the president of the organization who will be elected by the participants of the platform.

Roadmap

The roadmap consists of 3 phases in chronological order to achieve progressive decentralization[5], viz. Centralized Platform Launch, Decentralization of the Product and Decentralization of the Governance

Phase 1: Centralized Platform Launch

The *founding team* will

- raise capital from investors through equity financing by reserving governance tokens;

- recruit talent by direct compensation and indirect reserved governance token offering;

- build a centralized platform with the decentralization in mind focused on product / market fit and network effects;

  When building software applications, it is desirable to achieve the fine balance between the quality, speed and decentralization. In general speed > quality > decentralization, but building a decentralized application with decent quality and running it in a centralized manner in the beginning will benefit the company in the long run. This applies to the operation and management of the company as well.

- launch food pickup platform in select cities (e.g. Toronto) and beta test the platform;

- build a community of the restaurants, consumers and drivers;

- at the end of the phase, run a private fundraising from the participants of the platform who are given the option to purchase the governance tokens based on their revenue contribution to the platform.

Phase 2: Decentralization of the Product

The *founding team* will

- optionally run additional rounds of private fundraising when needed;

- build and launch the fully decentralized platform and put governance tokens in circulation;

- coordinate an Initial Public Token offering;

- invite members to participate in the governance of the organization;

- launch delivery service and test profit model such as a fixed commission fee;

- grow the community to a global audience;

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[5]Progressive Decentralization: A Playbook for Building Crypto Applications

- scale the platform to serve the global audience.

Phase 3: Decentralization of the Governance

The *founding team* will progressively hand over the power to the governing body of the organization leading to an eventual disbandment of the *founding team*. Thereafter, the first *election* will be run to elect the *president* of the organization who will then be bestowed the power on the *executive*.