Dype's mission is to re-invent idea of trust in online marketplace through an open-platform

#### **Problem statement**

The advent of the internet and mobile broadband enabled billions of people to connect simply through online. Through this vast connection, people are now able to buy and sell items with just few clicks.

Initially, when online marketplace first started, it was in very small scale. Most people who went online, who were also programmer, was making transaction to buy used computer parts and trust wasn't much of an issue. Most of the early marketplace were open platform where it just connected buyer and seller and gave responsibility to individuals for making a transaction.

As the internet started to get more adapted, online transactions were increasing exponentially. However, naturally, as the network grew, there were more incentive for people to cheat for their own interest, which created less trust.

With this lack of trust, there emerged online marketplace that acted as 3<sup>rd</sup> party to intervene the transaction between buyer and seller. Now, instead of having to trust random people in internet, you can trust these company for making transaction online. However, in return of that trust, they become centralized authority.

Best example of this is Craiglist and Ebay. Transactions on craiglist is done on local scale as they meet up to trade and transaction between money and item isn't done unless both party is satisfied. On the other hand, transactions on Ebay is mostly done on country scale which requires a lot of trust as transfer of item isn't instantaneous. This requires Ebay to facilitate the transaction between buyer and seller.

Despite 3<sup>rd</sup> party intervention, online marketplace fraud still costed 20billion dollars in just U.S alone. To prevent this, 3<sup>rd</sup> party monitors our data and privacy very closely. And as transaction online continuously grows, responsibility, accountability and liability for these platform also grow massively. which in return, only hurts consumers as it means more internal regulation, censorship, higher fees, and data monitoring.

Blockchain and cryptocurrencies have number of unique properties that can address a lot of problems of online marketplace. These includes, peer to peer transaction, which allows transaction to be done directly without intermediaries; distributed governance, which ensures that no single entity controls the network; and incentive structure, which incentivize users of good-behavior while de-incentivizing bad-behavior.

## **Introducing Dype**

Built on blockchain technology, Dype's mission is to re-invent idea of trust in online marketplace through an open-platform. It is clear we need an online marketplace that isn't intervened by 3<sup>rd</sup> party, while ensuring safety of transaction where there is no trust established. Dype has a three parts to ensure our mission:

- 1. It is built on Ethereum blockchain that utilizes security of smart contract
- 2. It has an incentive system that highly discourages bad users from abusing the system
  - 3. It is governed by community that has decision on future upgrade

Along with these three parts, our end goal is to show the world that blockchain technology isn't all about cryptocurrency nor something average people will never interact with. Internet was called fad until people interacted with real application, and despite the fact that we can't live without them, most of them still doesn't understand how the underlying technology of TCP/IP works. We will be providing the application layer where average people would see power of decentralized movement and how it can dramatically change their lives for the better in smallest application of buying and selling things online.

### Underlying protocol

Dype is built on Ethereum blockchain for multiples of reason. Ethereum blockchain is most widely-adopted cryptocurrency that allows smart contracts to execute on its blockchain. To build decentralized application, underlying protocol must be decentralized without any single point of failure. Ethereum is a great protocol that perceives the vision of meeting golden mean intersecting decentralization, security, and scalability. And with biggest developer working on it's protocol, they would have resource to pursue that vision.

Another reason is it's use case of stablecoin. Big question that you might have with any cryptocurrency is how it can be used if currency value that serves as medium of exchange is not stable. There are stablecoin that is built on top of Ethereum call DAI that constantly stays stable by collateralizing other crypto asset all with smart contract. We will be using DAI on our online marketplace as a currency to exchange. IPFS is a versioned file system that can take files and manage them and also store them somewhere and then tracks versions over time. You can simply think of it as decentralized cloud system. We don't want to use some centralized server to host metadata such as images, description of item, and reputation as that will lead to single point of failure. Using IPFS will allow effect storage of these data without sacrifice of our vision of decentralized platform.

### **Engineering details & Incentive model**

Dype decentralized application is built using different framework compare to most other app. The Dapp allows buyers and seller to make transaction directly through Ethereum Blockchain with factory smart contract that we developed. This allows to enforce the contract in automatic, trustless, and impartial manner while having upmost security as no one outside of the party can interfere or change any aspect of smart contract. With this, any bad actors in the platform trying to modify this smart contract would have far more less incentive as altering data on blockchain is nearly impossible. Other online marketplace uses vast amount of their resource in keeping infrastructure such as cloud computing to allow these transactions and centralized database in keeping books of all the transaction. However, with blockchain, cost of maintaining this infrastructure is nearly costless(around 1 cents USD for each contract), which will allow to lower transaction fee dramatically.

This infrastructure will allow middleman to be removed in terms of contract construction, execution, and enforcement which can significantly lower transactional risk and cost of trust. Again, online marketplace's whole business model is to become that middleman, a centralized authority, that just facilitate transaction between buyer and seller for a fee(around 10-12%). Through Blockchain technology and smart contract, we can get easily facilitate most of what they do for nearly zero cost.

As mentioned previously, we will be providing application layer where user can interact with blockchain without them even knowing about it. With the use of react, a JavaScript library for building user interface, and web3.js, user will be able to easily integrate popular browser clients like metamask, and mist to interreact with this application.

### Dype's protocol

DYPE's vision is to create an open-platform where transaction in online marketplace doesn't rely on trust of single entity. Instead, utilizing blockchain technology, that trust is distributed to everyone in the community so it's virtually trustless. We do this by mainly using 2 protocols: Smart Contract Escrow service and decentralized dispute system.

### **Smart Contract Escrow Service**

Previously mention, Ethereum blockchain allows contract to happen through code. With this revolutionary idea, we can implement smart contract escrow. Largest fraud that happens in online marketplace is when seller receives payment but fails to deliver the product to buyer or up to standard that buyer is expecting.

Smart contract Escrow will act as following(prob need chart)

- 1. Seller first calls our factory smart contract in Ethereum Blockchain
- 2. They post their metadata such as title, price, description, pictures on IPFS as well as deploy their own contract on Ethereum Blockchain
- 3. Buyer can now browse through our website and see all the listings seller posted.
- 4. If buyer would like to buy the item, they would pay through Ethereum address. This will allow funds to get stored on Contract itself, which means seller wouldn't receive the money right away, giving no incentive for them to not ship the item.
- 5. Once buyer receives the item, they can now release the fund from the contract into seller's wallet address. Only then, seller will receive this amount of money that buyer paid for.

### **Decentralized Dispute System**

In any type of marketplace, there will rise some type of dispute whether it's miscommunication or one of the party is, intentionally or unintentionally, committing fraud. In any cases, online marketplace is resolving these disputes within their system. Which means authoritarian ruling that has no transparency, while still taking long-time to come up with conclusion.

Then question again becomes, how can we create a protocol to resolve dispute without having to trust single entity? With game theoretic incentives model, we're able to create a dispute resolution system that is inexpensive, fast, transparent, and reliable all while keeping decentralized nature of the platform.

It acts as following:

- 1. If the dispute occurs, we crowdsource people in community who have signed up to act as juror, similar to how jurisdiction system in court works today.
- 2. Jurors then stake certain amount of tokens into the contract that will incentivize them to vote honestly by making incoherent juror pay part of their deposit to coherent one.
- 3. Once candidate stake their token, juror will be chosen randomly that gives weight of the vote according to their staked amount
- 4. After the vote is casted, smart contract is automatically released in favor of the juror's vote

### Dype next step

To get our first set of users, we want to focus on specific market of streetwear reselling. The cost of trust in streetwear market is one of the highest in secondary market and once we prove we can solve this problem, we will be able to scale to other growing secondary marketplace such as memorabilia or luxury watch.

### **Background of Streetwear**

Streetwear- the casual clothing of a style worn especially by members of various urban youth subcultures—is one of the world's fastest growing industries, with an estimated value of \$309 billion during 2017. Series of streetwear brand such as supreme, kith, and adidas(Yeezy) is adapting business model where they severely under manufacture the supply, to give sense of exclusiveness to their brand. Correspondingly, with rise of picture based social media such as Instagram, "flexing(showing off)" these clothing means difference between 1000 follower to 1 follower especially for generation Z and millennials. Therefore, these limited supplies of streetwear/sneakers combine with high demand creates a secondary market where price of resell item can go high as 10 times the original price. However, being that secondary market is highly unregulated with influx of fakes, it massively discourages direct transaction between buyer and seller. Similar to other online marketplace, this causes 3rd party system like **stockX and Goat, which both companies are valued more than billion dollars**, to regulate those transaction in return of high fee (10%) from users in order to run.

# **Dype Summary**

"This division of labour, from which so many advantages are derived, is not originally the effect of any human wisdom, which foresees and intends that general opulence to which it gives occasion. It is the necessary, though very slow and gradual consequence of a certain propensity in human nature which has in view no such extensive utility; the propensity to truck, barter, and exchange one thing for another." Adam smith

Our mission is to re-invent the idea of trust in online marketplace. At our core philosophy, we believe in the idea of free trade, our natural propensity to truck, barter, and exchange. However, centralized authority intervening in the trade in return of deceiving promise of trust demoralize that same natural propensity. And with exponential growth of online transaction, these intermediaries will acquire more power that can only detriment consumer in one way or another.

decentralization, immutability, transparency, and security are some of the buzzwords that revolve around blockchain technology. At its fundamental level, combining these features, blockchain distributes that central point of trust into the hands of many people, so it's virtually trustless. With this, we no longer need to rely on marketplace intermediaries where main service they provide is to become that source of trust. This also generates immense productivity as intermediaries no longer have to spend vast resources to maintain that trust.

Using smart contract and decentralized dispute system, we are able to solve this problem where people have become so immune to their pain that they don't even realize it. We're taking vertical approach to the marketplace, similar to how Amazon started with just a book and ebay started with auction for baby beanie, as we target secondary market of streetwear resell(Jordan, supreme, etc) first. Cost of trust in this marketplace is immense with influx of fake, and we will be able to expand horizontally and scale to other marketplaces after we prove how blockchain technology can provide real applications that average consumer didn't even realized.