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 simply connect online. Through this vast connection, people are now able to buy and sell items with just a few clicks of buttons.

When online marketplaces first started, it was in very small scale. Most people who went online,was making transaction to buy used computer parts and trust wasn't much of an issue. Early marketplaces were simply open platforms that helped connect buyers and sellers. However, the transaction itself was the responsibility of both parties.

As the commercialization of the internet became more prominent, the number of online transactions began to exponentially increase. With the network growth, naturally, there were more incentive for people to cheat for their own interest; whether it's not shipping the item at all or not paying negotiated amount. Overall, due to just a few individuals that cheat the system, people had no trust in making direct peer to peer transaction online.

Due to the lack of trust between both parties, 3rd party marketplaces took advantage of this void. They filled the gap of the market by acting as a single source of trust and regulating the market. Thus, buyers and sellers no longer need to trust each other and can simply trust the 3rd party. However, this centralized market architecture naturally gives them the authority over all participants in the network. Furthermore, it doesn't actually solve the issue of trust, but rather there is a transfer of trust from buyers/sellers to a 3rd party.

The most notable examples of these 3rd party marketplaces today are Ebay and Amazon. Transactions within these marketplaces connect buyers/sellers and deal with the transfer of goods at a global scale, which requires an immense amount of trust. Therefore, the entire transaction must be facilitated entirely by them too.

Despite 3rd party market regulation, fraudulent transactions costed 20billion dollars in the U.S alone. And to prevent and find frauds, these 3rd 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 3rd party, while ensuring safety of transaction where there is no trust established. Dype is built upon 3 pillars that ensures the safety of all participants and the preservation of our mission statement.

1. Dype utilizes the security of smart contracts on the Ethereum blockchain. In other words, the information of a transaction cannot ever be changed once initiated, which prevents any attack.
2. Dype is built along with a reward/punishment and risk/benefit governance system. Under any circumstances, the benefit of rightful behavior heavily outweighs malicious behavior, which effectively discourages malicious intents.
3. Dype is a community governed marketplace that determines any future decisions and updates.

In addition to these 3 pillars, an intrinsic goal of Dype team is to demonstrate that the use blockchain technology isn't only centric to cryptocurrencies nor is it something that everyday people won't ever utilize. Analogous to the dot-com bubble : despite the fact that the general public can't live without the internet, they still understand the application of it and utilize it daily without any understanding of Internet Protocol Suite. Dype will be providing the application layer in which the general public can interact with - by purchasing and selling things online directly without any fees.

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, unlike most mobile applications, is a decentralized mobile application -also known as Dapp. 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 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:

1. Smart Contract Escrow service
2. Decentralized dispute system.

Smart Contract Escrow Service

The Ethereum blockchain allows for our Smart Contract Escrow service to be automated with strict code. One of the most common types of fraud in e-commerce is merchant fraud; merchant fraud is the act of someone selling and receiving payment for a non-existent item, in which the 3rd party is responsible for reimbursing the buyer. The Smart Contract Escrow service will eliminate these common issues in the following steps

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 funds from the contract into seller's wallet address. Only then, the seller will receive this amount of money that buyer paid for.

Decentralized Dispute System

When dealing with any marketplace, the emergence of disputes are inevitable, especially when involving the transfer of physical goods. To resolve these disputes, 3rd party marketplaces possess their own dispute resolution centers. These resolution centers make judgements based on the evidence presented by both sides, but are usually bias in favor of the party that benefits them the most in terms of profit.

This brings up the question : "How can this process be replicated without bias while maintaining the decentralized nature of the Dype marketplace"? With game theoretics incentive model this is all possible. By introducing the correct incentives, the dispute resolution system of Dype will be less expensive, fast, transparent, and unbiased. If a dispute took place, then the process will follow these steps

It acts as following:

1. Similar to jurisdiction in the legal system involving jurors, Dype will crowdsource jurors to cast judgement on the case when given evidence from both parties.
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. Both parties will also need to put up a mediation fee for the dispute to take place. If one party doesn't, then the court will automatically rule in favor of the one that does.
3. The chance of a juror being chosen for a case is correlated to the amount of tokens that they have staked to be a juror.
4. The results of the case will be forecasted once all jurors have cast their votes on the case in favor of the majority and smart contract is automatically released to party ruled for the decision.
5. Dispute appeals will also be possible. However, fees would double along with the size of the juror pool.

Dype next step

To get our first set of users, we want to focus on specific market of streetwear reselling. The reasoning behind this is because the cost of trust is extremely high in this specific market. Once Dype has proven that this type marketplace can be done in streetwear, we will be able to comfortably scale up to other secondary marketplaces that require high trust.

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 (10-15%) 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. Which 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(estimated 3 billion dollars), 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.