Metamesh: A Social E-commerce Cryptocurrency Marketplace

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Version 1.2

Tangle of Contents

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Abstract: IOTA needs a marketplace to have e-commerce functionality. By creating a marketplace that accepts IOTA for it's transactions, retailers will pay fewer fees. A pure social commerce platform will create viral posts and lead to faster sales. The platform has a following system, similar to established social networks, that will connect several products to users. With a secure escrow system, users will be able to transact with each other in a trustful manner. By affiliating a buyer and a seller, the affiliate will earn a commission from the sale. Any user can be a buyer, seller and affiliate.

1.0 Introduction

Online commerce has been dominated with the use of various marketing outlets. Marketplaces are the most competitive online environments having users spend incredible amounts of capital on marketing campaigns and fees. The e-commerce giants, companies such as eBay and Amazon, charge high fees when sellers successfully sell or list a product. Payment processing companies also get their slice of the pie by processing payments from the e-commerce platform to a bank account. These marketplaces aren't necessarily peer-to-peer, there is always a third party providing a service of sorts. The rise of the sharing economy has created new value in the monetization of one's unused asset. Companies such as Uber and Airbnb have tapped into this value to solve two problems: one user needs extra cash for their living expenses and another user needs a service of transportation or lodging.

We have tapped into another phenomena as well in social media with the power of 'influence'. Social networks have tremendous value and that can be noted by the valuation of social media products such as Snapchat, Facebook, Instagram, Twitter, Pinterest, etc. One's social network inherently has value and the spread of information through such networks is not only fast but effective.

In 2009, Satoshi Nakamoto created a solution to eliminate online payment processors with the invention of Bitcoin, the first cryptocurrency. This led to a new way of transacting monetary value without third parties being involved. Bitcoin works off a distributed ledger technology (DLT) called the blockchain. Bitcoin transactions are pseudonymous and this made it appealing for users that don't want their transactions to be directly tracked. Such appeal created the infamous Silk Road, a marketplace for illicit narcotics and other products of such stature.

Although, the purpose of Silk Road's existence was questionable, it did prove that a cryptocurrency based marketplace can work. In the Bitcoin whitepaper, the initial statement is "Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments" [1]. The financial institutions described are the payment processing companies such as Visa, PayPal, MasterCard, etc. Online sellers that have used these payment processors will understand how their profits are affected by processing fees. Thus, the Metamesh platform will be a cryptocurrency based marketplace with fewer fees than traditional e-commerce websites.

The goal of this platform is to monetize one's social network using one's influence by sharing products a user likes. By integrating a social network and an e-commerce platform together new meaningful data can be extracted from users. Users can now understand each other in a deeper level by being able to see what type of products they are willing to purchase. If a user shares a product to their following on Metamesh (similar to Pinterest's Pins and Twitter's Retweet), and that share leads to a direct sale, then the user will get a commission from the sale of the product. To make this platform seamless and more profitable than current existing marketplaces we will use a feeless cryptocurrency as a medium of exchange, IOTA.

2.0 Payments

IOTA: A Directed Acyclic Graph Based Cryptocurrency

The Metamesh platform will use a cryptocurrency known as IOTA for several technical reasons. Mainly, IOTA is not a blockchain-based cryptocurrency, meaning it does not rely on a third party to verify network transactions. The transactions verify themselves using a Monte Carlo Markov Chain algorithm [2]. This cryptocurrency does not need monetary network fees to transact due to its structure. IOTA also increases in scalability as the amount of active users increase. Additionally, it is a quantum resistant cryptocurrency, meaning it is not prone to quantum computing hacks, unlike IOTA's blockchain-based counterparts.

For future scaling issues with cryptocurrencies we have chosen IOTA because the cryptocurrency has no monetary transaction fees, unlike fiat transactions and other current cryptocurrencies. This cryptocurrency also works as a potential global currency because exchanging from fiat currency to another fiat currency has inherent costs as well. We are creating a marketplace that will evolve to include machines to be a part of this commerce environment. By having such a marketplace, users are able to spend their IOTA and earn IOTA. Since users will be earning revenue in IOTA they must report their taxes with their earnings report we will provide for them if they have made a substantial amount of money. We plan on following taxation guidelines for governments to be able to tax the users of this platform and be able to gain widespread adoption.

3.0 User Journey

The users of this platform can interact with it in several ways. A user can sell, share and buy products. Users can also favorite items so that they can go back to find them or let their following know the type of products they like. A user can have several roles and is free to use this platform however they see fit. Any user is able to be a seller, marketer and buyer.

Every user will have a following/follower based social networking functionality. Users will also create an identifiable profile leaving out anonymity. We aim to tie a user's identity to their favorite and shared products to help their social network realize what they like. Users will also have a history of purchases that they can see for self-auditing purposes. Users are also able to sell items so they will have reviews on their profile from other users that have purchased a product from them. Users will have a credited IOTA wallet where they can deposit IOTA and start shopping for items, or they will earn IOTA by selling and sharing products that lead to a successful sale. For a more in-depth explanation of how transactions will work, please refer to Section 4.0.

3.1 The Seller

The seller will create a product post with a title, image of the product, description, and price in IOTA (APIs will tie the rate to dollars). After being posted on the platform, the seller's followers can then share the product to their own followers that are on the platform. The seller will earn 90% of the sale and the marketer (user that shared the post and successfully made the sale) will earn 5% of the sale. If there is no marketer involved then the seller will earn 95% of the sale. All sales conducted on Metamesh will use IOTA as a medium of monetary exchange.

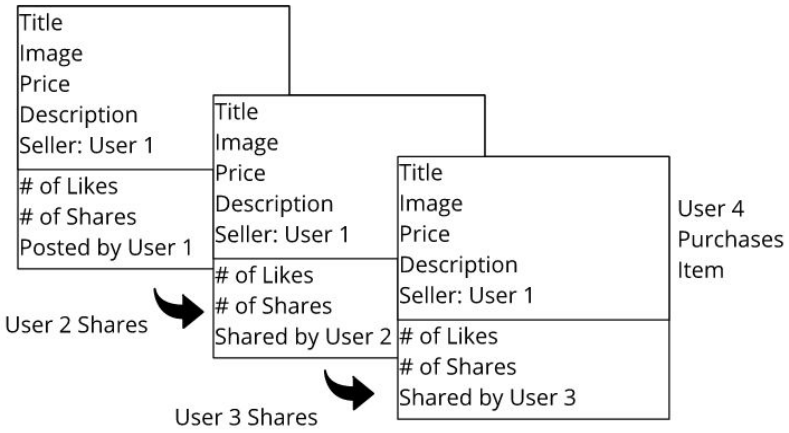

Figure 1. Product Post Pathway. Notice the flow in which the post moves between the platform's users. This can be shared to the nth user.

3.2 The Marketer

A Marketer is an individual that helps distribute product posts through sharing a Seller's product posts. If a Marketer successfully affiliates a Buyer and Seller through their shared post then the Marketer will earn 5% of the sale conducted between the Buyer and Seller if the transaction is executed successfully.

A Marketer is free to share whatever products they want to share. There will be an hourly limit on the amount of products a Marketer can share to prevent spam attacks from any malicious users. This Marketer feature is key to this platform, allowing users to monetize their following by providing meaningful products to a specific product-seeking niche.

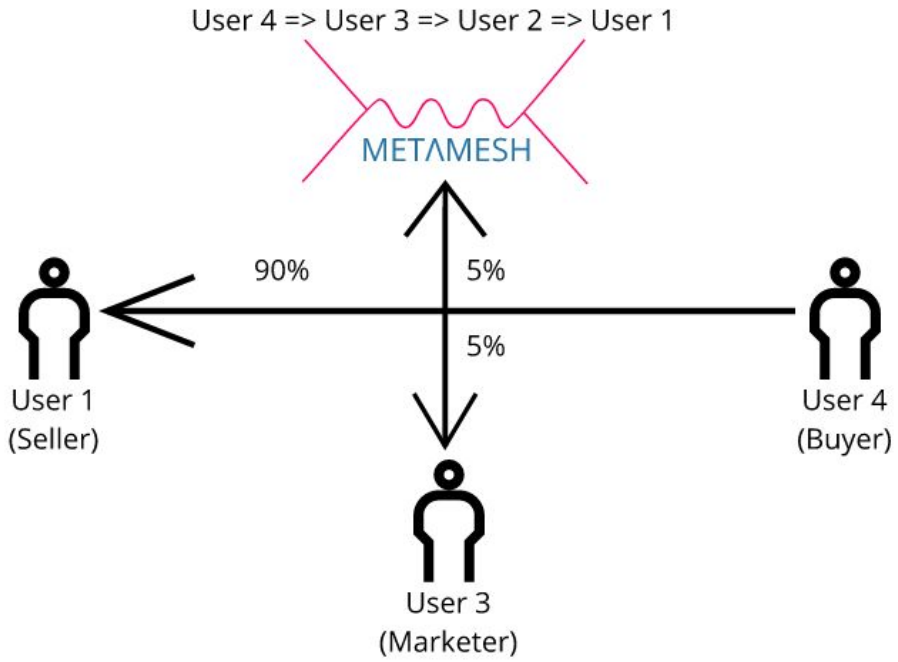

Figure 2. The Payout Distribution. This is tied to Figure 1 on how the product was shared between users but only the nth user, a.k.a. the Marketer, gets the commission since the Buyer purchased the item through the Marketer's shared post. The arrows on top of the diagram represent who follows who (i.e. User 4 follows User 3).

3.2a Marketer Dynamics

The Marketer can share any product they desire but they should strategize on the products they will share. We believe that Marketers should build a niche following, such as in cosmetics or electronics. Users that have a following in other social networks can invite other users to this platform so that they are able to gain monetary value with the use of this platform. Metamesh will have an affiliate program for users to bring in new users to the platform, similar to how cryptocurrency exchanges have an affiliate program.

3.3 The Buyer

This user tends to browse through items that the users they follow share or post for sale. This user will have a feed with products that interest them directly without having to browse through unnecessary items. For instance, let's assume that a user is an Apple enthusiast; this user will follow other tech related users and will then see relevant Apple and tech content. Generally, when a user visits Amazon.com or ebay.com they see a lot of products but they aren't tailored for every individual. Amazon does have a feature where they track a user's cookies so they can effectively target them to buy a product, but we see this as an invasion of privacy.

A benefit of this platform is that buyers can see what others have added to their favorites list or shared. This will allow buyers to know what gifts to buy for friends and loved ones, or to come up with topics of discussion with other users.

4.0 Transactions

The IOTA wallet that is in our system will work similar to the wallet software that an exchange uses. Buyers can directly pay a seller without using our integrated wallet and the funds will be locked in escrow. Once the item reaches the buyer and no complaints are placed within the stated return period, then the seller and marketer will have access to their earned IOTA on the platform wallet. When a user is credited with IOTA they will be able to spend it on the platform to purchase other products or withdraw it to their personal IOTA wallet that's off the Metamesh network.

4.1 IOTA Wallet Deposit and Withdrawals

Depositing IOTA on Metamesh is an easy process for users. We will have an established hot/cold wallet ratio where the user's funds will be held. A user is prompted to deposit IOTA to a certain address that we link their account to and when the IOTA transaction is confirmed they will be credited with the IOTA that they deposited. The IOTA will then go on to our pooled hot wallet for the liquidity of the marketplace. Our users should be familiar with cryptocurrency exchanges so this process will be very familiar for them.

When users want to withdraw their IOTA from Metamesh they can do so by providing the platform an IOTA address. For security purposes, we will establish a Two-Step Verification process to verify the identity of the user withdrawing funds.

5.0 Customer Edification

In order to have this process run more smoothly we ask our users to run a full node using Roman Semko's CarrIOTA Bolero Nodes [3], Figure 4, and have an official IOTA wallet that has been audited by the IOTA Foundation so that our users do not use malicious software, Figure 5.

For new IOTA users that want to secure the network and have access to faster transactions we will give them very detailed instructions on:

1. Creating a secure seed using their computer's terminal or Keepass, Figure 3.
2. Running a full node using CarrIOTA Bolero, Figure 4.
3. Install and use the official IOTA wallet, Figure 5.
4. How to transact their IOTA

By educating our users how to use this network it will lead to a higher level of security when exchanging.

Shell

```
#Linux
`cat /dev/urandom |tr -dc A-Z9|head -c${1:-81}`

#Mac
`cat /dev/urandom |LC_ALL=C tr -dc 'A-Z9' | fold -w 81 | head -n 1`
```

Figure 3. Securely Generating a Seed [4].

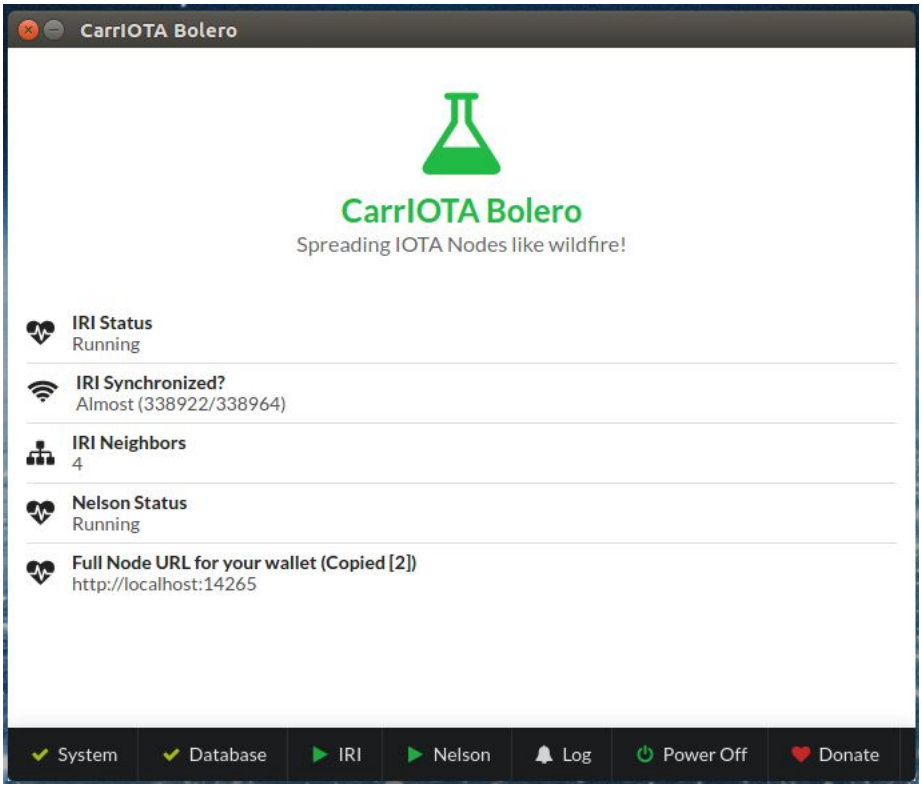

Figure 4. CarrIOTA Bolero Full Node. This software was made by Roman Semko's team and it makes running a full node an easy task [3].

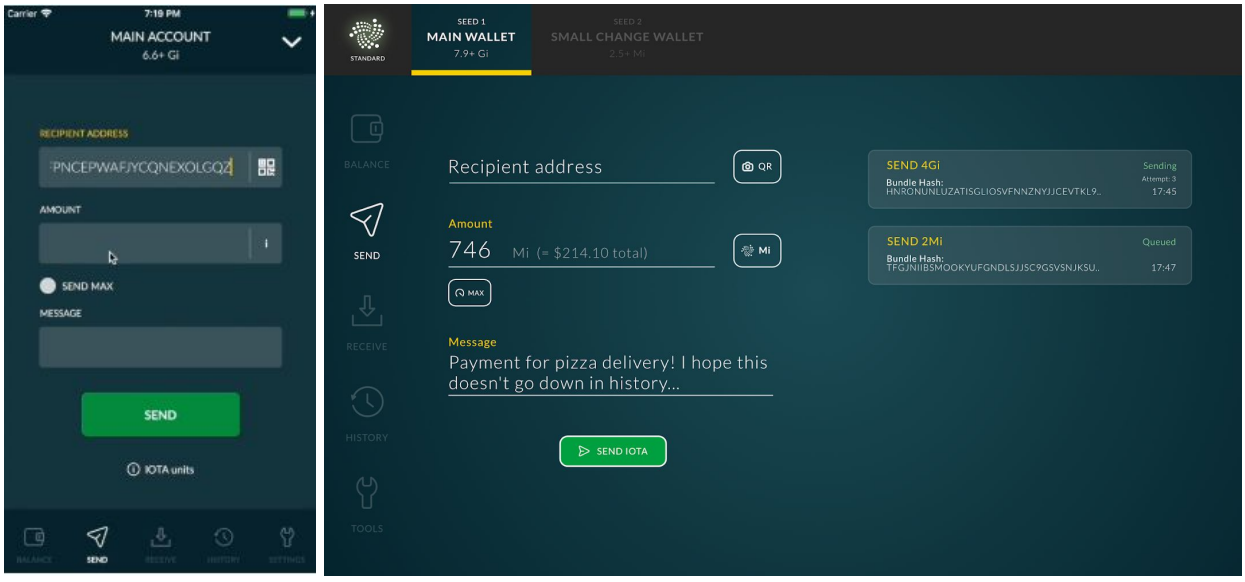

Figure 5. The Trinity wallet. The Trinity wallet, previously known as the 'UCL Wallet', was a project started as a Master's thesis by University College London student Charlie Varley. The Trinity wallet is iOS, Android & desktop compatible [5].

6.0 Market Opportunity

By using IOTA as a medium of exchange we are solving several problems for the IOTA community. We are also developing a new way to conduct e-commerce by increasing user interconnectivity. The Metamesh platform will:

- Establish a marketplace where users can exchange IOTA for goods.
- Establish a new method for users to earn IOTA by providing marketing services for sellers.
- Increase online sellers' profit margin by removing payment processing fees.

The Metamesh platform combines both commerce and social networking to increase the amount of views a product post typically gets. At Metamesh, we believe that the user's network is an asset and the influence they have over their network can spread throughout the world. Since the beginning of e-commerce, companies like eBay and Amazon have used the same business model, the two-sided business model. We believe we have an efficient business model that can take on the current two-sided business model traditional e-commerce uses. On Metamesh, users will be provided new features: a greater profit margin, faster sales for our sellers, relevant products that users are interested in, and a simple user interface.

6.1 Market Size

Accelerated by higher levels of disposable income and the growing number of internet connections, revenue for the e-commerce and online auctions industry rose at an annualized rate of 12.3% the past five years, reaching $452.3 billion in 2017. In the upcoming five years, industry revenue is expected to increase at an annualized rate of 9.3% to reach $704.1 billion [6]. Internet connectivity is growing exponentially, 46.1% of the world was connected to the internet as of 2016, Figure 6 [7]. As the number of internet connections throughout the world increases, the amount of revenue in the E-Commerce and Online Auctions industry is expected to rise. Amazon, eBay, and Etsy have an approximate 520 million active users with low profit margins [8]. There are approximately over 260,629 IOTA addresses as of January 2018. The amount of addresses have grown from 1,624 as of June 2017 to 119,136 with more than 100 MIOTA. That is 7236% user growth in seven months [9]. These addresses currently do not have access to a marketplace that accepts IOTA as payment. Making this cryptocurrency highly speculative with very low functionality. By establishing a marketplace for these users, IOTA will have a greater function and serve as more than a speculative asset.

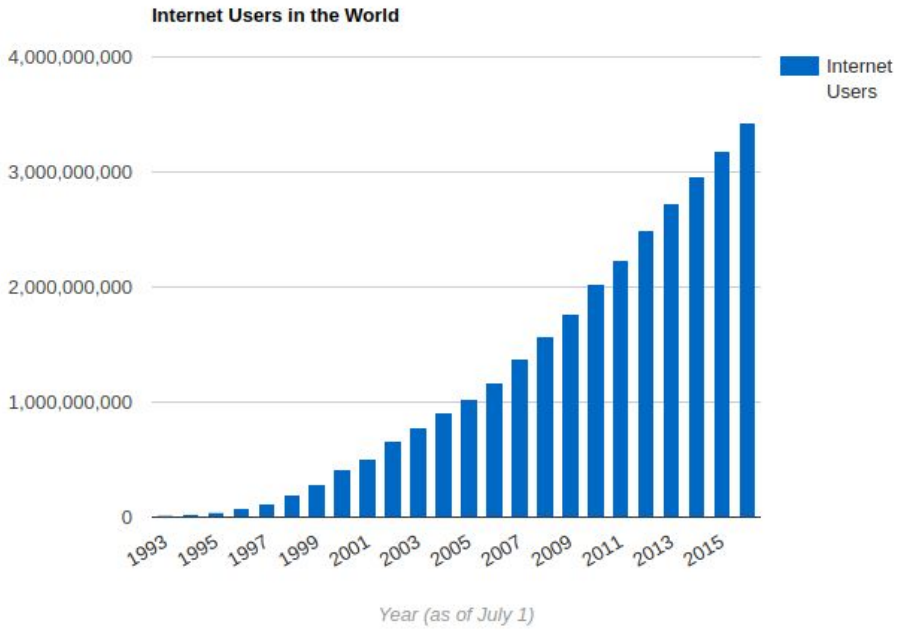

Figure 6. Internet user connected across the world. As of Tangle milestone 360102 there are approximately 3,867,055,000 users connected to the internet [7].

6.2 Trends

We are in a period in history in which one can easily generate an income without having traditional employment. However, only few companies have tapped into this trend. Companies like Airbnb, Uber, eBay and Etsy have users with a profit incentive. There are several marketplaces in existence such as eBay, Etsy, Amazon and our leading competitor Depop.

The marketer is the new concept being introduced, and with the marketer having a profit incentive they will want to share as many relevant posts as possible. This will create a cascade of marketing for sellers which will allow their product to be distributed throughout the Metamesh network and other networks as well. The networks are created through a follower/following system. The platform will have a social network aspect, where users will learn more about each other and will distribute product content faster by users sharing product posts.

By merging social networking and e-commerce we are creating a social marketplace. Almost anyone can create an e-commerce website from platforms like Wordpress, Shopify and Squarespace. It is challenging to create a successful social network with Facebook and Twitter already having established network effects. Merging both of these industries is possible and effective. We can see a proof of concept of social marketplaces with Instagram sales posts and Facebook's Marketplace. Due to Amazon's high market share, several retailers have had to specialize in to niches or have a high amount of differentiation. An example of social commerce is Groupon. Groupon relies on user's word of mouth marketing to create sales on the platform.

Large companies have increased their investment in artificial intelligence technology to enhance the user's experience. Chatbots help customers that need support as fast as possible. Companies also gather user data to forecast user's behaviors and act as a personal shopping assistance.

6.3 Competitors

Our biggest competitor is a company named Depop. It originated in Italy and has expanded to the United Kingdom. Depop is trying to enter the U.S. market. Depop offers social e-commerce as well but it doesn't have the marketer in their business model and does not deal in cryptocurrency. They use the traditional two-sided business model.

Our target customers are e-commerce retailers that have IOTA that they want to earn/spend. We are relying on word of mouth marketing from our initial users to increase user growth. By creating a marketplace that utilizes IOTA for its transactions, we will create a network backing the IOTA infrastructure to lead to higher scalability and transaction throughput.

The e-commerce industry has a vast amount of competition. Amazon has about 21.2% of the market and eBay owns less than 1% of the market. A variety of new e-commerce business models have been applied as well. These include social commerce sites such as Groupon and subscription-box companies like Birchbox and Blue Apron. The key external drivers of the market are: per capita disposable income, number of mobile internet connections, percentage of services conducted online, and the world price of crude oil. These analytics are based on fiat marketplaces that come with several fees. Metamesh will lead to a higher profit margin due to IOTA's free payment processing. There is a factor of market volatility that a user must consider when it comes to IOTA's fiat value. However, the e-commerce industry has very low revenue volatility due to an increase of customer confidence.

Due to our competitors relying on payment processing platforms and credit card transactions, they will have a higher fraud rate. Because Metamesh will be using a cryptocurrency as the method of transaction, this problem does not occur. The only way a user's funds can be stolen is by hackers gaining access to their seed. Since we will provide customer edification, see section 5.0, we believe this rate will be lower than the competitor's fraud rate.

6.4 Policies & Regulation

Since Metamesh will not be in the business of converting the user's IOTA to fiat currency there is no need for a Money Transmitter License. Retailers must follow Federal Trade Commission's Mail, Internet or Telephone Order Merchandise rule. Which requires that retailers use methods that enable the shipment of goods within 30 days of a product's order. Retailers must abide by the Streamlined Sales and Use Tax Agreement. The agreement requires online retailers to collect sales tax from customers living in states that have passed the agreement. Those states are:

- Arkansas
- Georgia
- Indiana
- Iowa
- Kansas
- Kentucky
- Michigan
- Minnesota
- Nebraska
- Nevada
- New Jersey
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Rhode Island
- South Dakota
- Tennessee
- Utah
- Vermont
- Washington
- West Virginia
- Wisconsin
- Wyoming

Any additional rules or regulations will be stated in Metamesh's Terms of Use and Metamesh's Terms and Conditions.

7.0 Team

Claudio Atilano

Engineering & Business Development

Claudio is a web developer with a background in data analysis. Founded iMarkett, a company dedicated to create IOTA wallet solutions for non-technical users. Claudio Atilano studied Physics and Entrepreneurship at Florida International University (FIU), where he met Justin Cata and Oriana Aristizabal. Claudio worked as a web developer at Haqshaq LLC and Florida International University. Claudio is a member of the Blockchain Education Network and created a presence for the non-profit in Miami.

Justin Cata

Engineering & Business Development

Justin Cata, studied Physics and Mathematics at FIU, is skilled in data analysis, and has founded a private fund with several investors specializing in high risk cryptocurrency investing. Justin is also a member of the Blockchain Education Network. Justin worked with Claudio to create a physics data analysis package to enhance student's programming skills.

Oriana Aristizabal

Product Design & Business Development

Oriana Aristizabal studied Physics and Economics at FIU with experience working for the Federal Reserve of Atlanta as a quantitative analyst in the Supervisions and Regulations department. Oriana is also a member of the Blockchain Education Network and founded a small organization in FIU to help students learn the value that distributed ledger technologies provide.

Vince Alcivar

Engineering & Product Design

Vince Alcivar earned his bachelor's degree in Computer Science at the University of Florida and worked as a software engineer at Ultimate Software. Vince then went on to create his own game development company, Freeze Ray Studios LLC, where he develops mobile apps full-time. Vince is also part of the Blockchain Education Network(BEN) and met the rest of the team by attending technical workshops sponsored by BEN.

8.0 Vision

We see that the cryptocurrency industry is in its infancy and it offers a lot of value to existing markets. We believe IOTA is the best cryptocurrency for this platform due to its technical advantage and established history. Our values are focused on improving the current Sharing economy and adopting the new Machine economy. This platform will have several phases where we will focus on different users in each phase.

8.1 Phase I: The Peer-to-Peer Marketplace

The ideal user in this phase is one that:

- Has IOTA and wants to use their IOTA.
- Wants to earn IOTA.
- Wants to sell their product without transaction fees.
- Are familiar with social networks such as Twitter, Instagram and Pinterest.

We have described how the platform should function in Section 3.0. From our beginning user base we will fix any problems that arise with Metamesh and then look to scale to users that don’t exactly understand how IOTA want to earn a higher profit margin.

8.2 Phase II: The Peer-to-Machine Marketplace

The ideal user in this phase is one that:

- Wants to monetize the data their IoT device and Metamesh usage creates.
- Wants to have access to live data from IoT devices or from users with IoT devices.
- Wants to earn passive income by integrating IoT devices onto Metamesh

We aim to make IOTA's Data Marketplace as seamless as possible by having users connect their personal IoT devices to the Metamesh platform. Artificial intelligence integration is a trend that current retailers use to enhance their sales. We aim to help our users by providing them artificial intelligence software to help them make market conclusions according to their following. For instance, if a retailer on Metamesh has a following that has been sharing a certain product, the platform will suggest to the retailer that they should add that product to their stock. Another example of artificial intelligence on the Metamesh platform will be Autonomous Offline Support, AOS. AOS will share product posts to the user's following tailored to their prior Metamesh usage. To have access to the artificial intelligence integrations, we'll ask the users to connect their IoT devices to Metamesh to provide their own computational power from their devices. These devices will also be connected to the IOTA Tangle to provide network security. There is no estimated time to reach this phase yet.

8.3 Phase III: The Machine-to-Machine Marketplace

The ideal user in this phase is one that:

- Is an IoT device that provides a service to another IoT device in exchange for IOTA.
- Is an IoT device that needs a certain resource or good that is willing to accept it from an IoT device.

The infrastructure to reach this phase is yet to be built. IOTA aims to be the backbone of the Internet of Things to establish the Machine economy. To have machines autonomously transact there will need to be incremental advances in artificial intelligence and IoT integration. Once IOTA has smart contracts, IoT devices will need to have a directory to sort smart contracts. We will sort these smart contracts to facilitate machine-to-machine transactions. For example, a Roomba Robot Vacuum won't transport 10 pound packages as efficient as a drone would. Thus transporting a 10 pound device to a location can be a smart contract created by the device that needs the transportation and sorted into the Drone category. There is no estimated time to reach this phase yet.

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