

WHITE PAPER

Monami: A Decentralized Location Data Market Project

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Tokens distributed during the Sale Period will constitute 50% of the total number of Tokens generated. Tokens will be allocated among the team, the community, the platform, and the foundation.

Due to the fact that our products are offered on the internet (meaning both the World Wide Web and the TRON Blockchain) we understand that there is a possibility that there might be a certain “flow back” of the Project’s products into the countries where Token sales are regulated by government or special legal requirements exist or Token

sales are illegal. If you are not sure whether it is legal for you to buy tokens, please seek advice from your lawyers on the matter.

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1.0 LOCATION DATA

1.1 What is location data?

Location data is information about the geographic positions of devices (such as smartphones or tablets) or structures (such as buildings, attractions).

The geographic positions of location data are called coordinates, and they are commonly expressed in Latitude and Longitude format.

Additional attributes such as elevation or altitude may be included and help data users get a more accurate picture of the geographic positions of their data.

People commonly mean GPS data when they talk about location data. In reality, there are various types of location data.

It is important to know how the data is collected as it determines the accuracy and depth of the collected data, this has direct implications on the suitability and usability of the data for a business.

Location data, which may also be referred to as "human movement data," is any piece of data that relates to where a person is currently, has been historically, or is predicted to be in the future. Some of this data is explicitly generated by an individual, such as by checking into a location on an app.

1. Other data is generated implicitly, such as by tapping your bus pass at a bus stop.

2. Below is a sample of some data sources that produce location data:

- Social media check-ins
- Daily lifelogs
- Web surveys
- Wi-Fi connectivity (IP address) via laptop, tablet, or phone
- Receipt data

- Credit card data
- First-party transactions to stores/events
- Location-Stamped Images
- Satellite Imagery
- Mobile app location services
- Visible Light Communication
- Ultrasonic audio communication
- Visual Foot Traffic Counters
- Connected car signals (Bluetooth, GPS)
- Tickets via train, plane, or bus
- Gym check-ins
- Restaurant reservations
- Calendar meeting location entries

Furthermore, new datasets can also come into existence by joining some of the above primary sources of location data together

1.2 Location Data Sources and Types of Location Data

1.2.1 Global Positioning System (GPS)

A GPS provides latitude-longitude coordinates gathered by the hardware on a device which communicates with a satellite such as a car navigating system, a mobile phone or a fitness tracker.

The latitude/longitude coordinates generated by the GPS are considered the standard for location data. Your device receives signals from the satellites and it can calculate where it is by measuring the time it takes for the signal to arrive.

This produces very accurate and precise data under the right conditions. The quality of a GPS signal degrades significantly indoors or in locations that obstruct the view of multiple GPS satellites.

1.2.2 Location Data Sources and Types of Location Data

SDK are codes that app developers put into their applications.

These codes tell the app to collect location data from the device it is installed on. These codes require express user permission to collect location information.

Data collected by SDKs have the potential to be very accurate and insightful. User's daily habits can be tracked which may uncover deeper insights for businesses. However, the biggest challenge with the SDK method is in achieving scale.

These apps require a user's permission to collect location information obtained generally using an opt-in interface when the user first interacts with the application.

Some SDKs only operate when the app is open. Others can run in the background to gain broader insights into the movement and behaviours of the owner of the device.

1.2.3 Bidstream

Bidstream data is data collected from the ad servers when ads are served on mobile apps and websites. Bidstream data is easy to obtain and scale, but it is often incomplete, inaccurate, or even illegitimate.

Many ads do not collect the location but record the IP address the phone is connected to. This IP often does not reflect the actual location of the device, e.g., a person sitting in a Starbucks but connected to the university campus Wi-F will be recorded as being at the campus. Moreover, due to speed at which ads need to be delivered, very often the cached location of the phone is getting recorded as the GPS does not have enough time to update itself.

Centroids, or a large accumulation of device IDs in central locations, are very common with Bidstream data, as many devices may connect to the same IP address and many apps automatically default to the central location of the country where the ad is served.

1.2.4 Beacons

Beacons are hardware transmitters that can sense other devices when they come into close proximity.

The location data collected by beacons is very accurate. They can also collect details such as names and birthdays, which can be very valuable to businesses.

Since beacons are hardware, they have to be purchased and installed at locations businesses want to track. Therefore, as with SDK data, it can be challenging to achieve scale through this method.

1.2.5 Wi-Fi

Wi-Fi enables devices to emit probes to look for access points (routers).

These probes can be measured to calculate the distance between the device and the access point. The precision of Wi-Fi location data is entirely dependent on the Wi-Fi network it is built on.

Wi-Fi networks are great at providing accuracy and precision indoors. Devices can use this infrastructure for more accurate placement when GPS and cell towers are not available, or when these signals are obstructed.

1.2.6 Point of Sales (POS)

POS data is data that stems from consumer transactions. This data usually contains adjacent information such as purchase items, amount spent, and method of payment, which can provide valuable information.

Because POS data is decentralized, it would be difficult to match multiple data sources through this method. POS data also only captures customers who have made an in-store purchase, and does not capture information on people who entered the store but did not buy anything.

1.3 How is location data used today?

Today, location data is utilized by a wide range of companies, organizations, governments, and machines to make important decisions. These decisions can range from simple, where a retailer adjusts its staff based on the number of visitors to its stores, to complex, where emergency first responders are quickly dispatched after a natural disaster according to the distribution of people in affected areas.

Below is an example of some industries that rely on location data:

- Advertising Technology: Targeting based on location and geo-behavioral shopping habits
- Artificial Intelligence (AI): Research and discover patterns in location data for automation and greater operational efficiency
- Augmented Reality (AR): Validate the locations of players in real-world mobile games
- Autonomous Vehicles: Guidance for these vehicles based on traffic and congestion; Goldman Sachs predicts that the market for guidance for autonomous cars alone will grow from around \$2.2 billion in 2020 to \$24.5 billion by 2050³
- Financial Services: Real-time foot traffic analysis of publicly traded retailers to infer sales volumes, home appraisal, and fraud prevention by banks
- Government & Smart City: Public transit service route optimization, improved disaster response, defense, and resource management
- Healthcare: Fitness tracker data for health analysis and geo-alerts for wandering dementia patients
- Insurance: Helps insurers to automatically adjust rates or verify claims based on consumer physical activity or motor vehicle usage
- Logistics: Improved routing and advanced detection of bottlenecks
- Real Estate: Site selection based foot traffic evaluation of surrounding and similar areas
- Retail: In-store mapping and guidance for product discovery
- Telecommunications: Smarter decisions about cable, towers, and service coverage by examining population density trends

Business Advantages of Location Intelligence

Large enterprises have been using location information to make business decisions and improve their ROI for years. The most successful organizations have also used the insights they gained to improve the customer experience and win over new audiences. In 2020, it's become apparent that old marketing strategies simply won't work anymore because old datasets have become unreliable with the shifting economic state of the world.

Below are four ways businesses are using location intelligence in 2020 to generate results.

1.3.1 ad targeting

Ad targeting is one of the most common and easily implemented uses for location data. Companies can purchase what are known as 'advertising audiences' that have specific characteristics. These advertising audiences are built on insights from location intelligence.

For example, a health food brand could purchase an advertising audience of people who have visited health food stores in the past six months, and send highly-relevant advertisements to consumers interested in healthy food.

That same health food brand could also use an advertising audience of people who visited gyms, since the chain used location analytics to learn that people who visit gyms are also often interested in a healthy diet. By using an audience with complementary interests, the health food store could target a new audience and acquire new customers.

1.3.2. higher click-through-rate (ctr) and roi

Using location intelligence, companies can learn more about customer interests, activities, and habits, which can then help create detailed personas for sales, marketing, and customer service. When used with a customer

relationship management (CRM) system, those personas help each team provide highly relevant communications to both customers and prospects alike.

Using accurate personas to improve communications throughout the customer lifecycle creates a better customer experience and can greatly improve your business results. Advertisements and offers that are highly relevant gain better results, improving the CTR and the ROI of campaigns. We've seen companies achieve a 250% increase in CTR for marketing campaigns just by using location intelligence to reach relevant audiences and provide more personalized offers.

1.3.3. omnichannel attribution

Because location intelligence is based on real-world actions, it can help businesses connect online activities to offline behaviors. That means companies can use location intelligence to connect mobile advertisements to offline foot traffic in stores, restaurants, and other commercial places of interest. By connecting changes in your foot traffic data to mobile advertising campaigns, you can understand which advertisements work and which ones don't, giving you the insight to make better decisions and increase your ROI in the future.

1.3.4. competitive analytics

Instead of focusing solely on their own customers, many companies use location intelligence to learn about their competitors. By tracking visits to competitor locations, companies can compare their store visits against their competition. They can also see where their competitors' customers go before and after visiting the store. With this information, companies can launch conquering campaigns to win over their competitor's customers.

For example, your company could use location analytics to learn that over half your competitors' customers regularly visit their store late in the

evening. By optimizing your ads to show in late evening, you can better reach those consumers when they're ready to make a purchase or visit a store.

What Types of Businesses Are Using Location Intelligence?

The benefits of location intelligence are becoming more widely known as companies see results. In today's digital world, consumers are demanding more relevant, personalized experiences. But while location intelligence can be used in nearly every industry, there are a few sectors that could greatly benefit in 2020.

retail

COVID-19 impacted many industries during lockdowns and the reopening process, and because of this, there's no denying that buying behaviors have changed. Because there are no sureties in 2020, especially when past year's data is no longer reliable, retailers can use location intelligence to reach new audiences, improve consumer insights, and scope out the competition. Moreover, retailers can use location intelligence to predict what to keep in stock, and how many people should be on staff on any given day. With location intelligence, retailers can rely on foot traffic data to help them make the best business decisions possible in this new economy.

automotive

Companies in the automotive industry use location intelligence to reach audiences that have expressed interest in cars – either from a partner or from a competitor. What does this look like in 2020? This could include people that have identified as auto buyers, visited an automotive retail location, or who have shown interest

1.3 What is the future of location data?

We are living in a time where “data” has become the new oil, a highly valuable asset for many businesses. The amount of data available will continue to expand

as new and emerging technologies like smartphones and IOT connected devices grow exponentially. Data holds the power to transform every aspect of a business.

The Demand for Data

So what does this all mean?

Well, it means that the benefits and business demand for data has never been greater. Let's take a look at the next wave of the data revolution, specifically the power of location. There are many different definitions for this data but in its simplest form, location data allows businesses to glean actionable insights about real-world consumer behaviors and trends in the offline world. The demand for this type of data has skyrocketed over the last year, according to a market research report published by MarketsandMarkets, the Location Analytics Market is projected to be worth over \$16 Billion dollars by 2021.

The Opportunity For Growth

There's a huge opportunity for all industries to exploit location data to either create a competitive advantage or make better informed business decisions. In a recent Forbes Insights report, The Power of Place: How Location Intelligence Reveals Opportunity in Big Data, it gives an in depth analysis on location data and on how it provides a brand new way to unlock actionable insights.

Businesses can't afford to ignore the power of location anymore. The benefits of location data are becoming increasingly more important for brands, marketers and researchers across multiple industries.

New Tech, New Benefits

As the demand for location data continues to grow in the marketplace, new and emerging location based tools will flood the market. Advertisers will need location data to help them bridge the gap between online and offline worlds. However, partners beyond advertising will be looking for an accurate and precise source of location data as well. Clients across a wide variety of other verticals such as Finance, Retail, Real Estate, and Transportation are just a few industries that will benefit from location data. Learn more about these industries in Part II of the series Location Data: The Future Is Now? We will take a deep dive into these industries to discover why location data is so valuable and how it is being used to generate actionable insights.

Location data will eventually be self-generated by sensors and smart devices that are deployed throughout the world.⁴ These sensors will be a part of the Internet of Things and will document all information about the locations and people that they detect. This is happening already, largely because of the growth in mobile devices that sit in your pocket. Mobile devices are extremely advanced and have a plethora of high-accuracy sensors that can report back movement data⁵, such as your precise location, indoor floorplans, your altitude, speed, bearing, and your position relative to Bluetooth-enabled devices or Smart TVs.

1.4 How do companies buy location data?

Data provenance can be referred to as the pedigree of data—the record of components, inputs, systems, and processes that affect the collected data, providing its historical context. In short, it is understanding where data comes from, how it is collected, and how it can best be used, and how it has been used over time. Without being able to access and view all available data points at every step of the way, marketers can't make educated and value-driven decisions. Data provenance is not only key to making marketer's decisions better-informed, but has also come to be an expectation on the part of regulators when it comes to ensuring that consumer data is treated properly.

Today, data buyers typically buy data from centralized data exchanges. These exchanges have done the work of aggregating datasets from data suppliers, who are willing to sell their data, which the exchanges then sell on their behalf. The exchanges pay data suppliers with a monthly revenue share in the range of 50% - 70% of the total revenue received from data buyers. The entire process of supplying data to receiving payment for data normally takes 90 to 120 days. Considering the novelty and importance of this market, it remains a fairly conventional buyer-seller process—slow, inefficient, and with high upcharges for ineffective middlemen.

Much of this inefficiency stems from the lack of transparency in the quality and source of the data in the market. Purchasers of data do not pay until they know the full value of what they have received, which can take two to

three months. This is because it is only after they receive the data that they have the time to employ engineering resources to comb over the results and filter out duplicate, fraudulent, or faulty data. If data buyers could verify the reputation of data suppliers and compare dataset overlap before making a purchase, then they would know a dataset's exact worth and feel comfortable in paying for it in real time or even in advance.

2 PROBLEMS AND SOLUTIONS

There are a few core problems with the current model for buying and selling location data. We have outlined these problems and how Monami solves them below.

2.1 Data Buyer Problems and Solutions

- 1. Problem:** There is zero transparency on data provenance (origin). Centralized exchanges provide no accessible record of facts concerning the data's source or owner. This creates a cobweb of duplicate data purchases, and labor and time spent analyzing data overlap by data buyer engineering teams. Hundreds of millions of dollars are spent on location data and yet up to 80% of it could be fake. Transparency, for the most part, has meant getting agencies to pay media rebates and kickbacks to advertisers and not much more.

Solution: Data provenance can be referred to as the pedigree of data—the record of components, inputs, systems, and processes that affect the collected data, providing its historical context. In short, it is understanding where data comes from, how it is collected, and how it can best be used, and how it has been used over time. Monami keeps a permanent, immutable audit trail of atomic exchanges of MON tokens for datasets. These transactions are factual records about a dataset's provenance, and it is freely accessible by any data buyer who wishes to validate a dataset's source.

2. **Problem:** Data buyers have no permanent record that a dataset was created in a privacy-compliant manner with the authorization of end consumers.

Solution: Without being able to access and view all available data points at every step of the way, marketers can't make educated and value-driven decisions. Data provenance is not only key to making marketer's decisions better informed, but has also come to be an expectation on the part of regulators when it comes to ensuring that consumer data is treated properly. Monami enables suppliers to append privacy compliance documentation, such as privacy policies and user opt-in messages, that are dated with timestamps for every dataset that is published to Monami. Data buyers now confidently buy datasets that are authorized for use by the end consumers, and they can now audit the privacy compliance of datasets at any time, even those datasets purchased in the past.

3. **Problem:** Among marketers who purchase demographic data, 84 percent say that accuracy is very important to their purchasing decisions. Accuracy refers to how well the data describes the real-world conditions it aims to describe. Inaccurate data creates clear problems, as it can cause you to come to incorrect conclusions. The actions you take based on those conclusions might not have the effects you expect because they're based on inaccurate data. For example, data might lead a marketer to believe that their customers are mostly females in their 20s. If that data is inaccurate and their customers are actually primarily men in their 40s, then they will end up targeting the wrong group with their advertisements.

There is no easy way to determine that a dataset is accurate or high-quality. Data buyers have to run a manual analysis on each dataset to understand its quality before putting the data to use. This can take months and often requires looking at multiple datasets at once.

Solution: By capturing how the data is processed and used (and by whom), organisations can use data provenance to assert the extent of their

compliance with respective regulatory requirements. Data subjects can also request access to their data in order to assess whether their data was protected and seek recourse if discrepancies arise.

The advent of blockchain and distributed ledger technology allows data to be stored in a tamper-proof and replicable way, eliminating the need to trust in a central authority or an independent third-party. Through this decentralised network, blockchain provides a distributed, immutable ledger that tracks the origin and movement of data at the various stages of data creation and data modifications. With an understanding of who initiated the data points, when, how, and for what purpose, this record of information can then be used for data validation and audit purposes. Tracking and recording all the activity involving the data points ensures that the compliance process remains transparent and accountable.

A pool of MON tokens are to be released over time with more tokens rewarded to data suppliers who begin publishing data to Monami sooner. The rewards token pool acts as an incentive for data suppliers to provide high-quality, in-demand datasets to data buyers. Furthermore, because Monami utilizes the Tron blockchain when a data supplier submits data to Monami, it executes a transaction on the Tron network, which results in a permanent record on the Tron blockchain. These Tron transactions incur an execution fee to be paid in TRX. This fee acts as a natural filter, discouraging data suppliers from uploading "spam," fraudulent, and low-quality data.

2.2 Data Supplier Problems and Solutions

1. **Problem:** When comparing a data item or its counterpart across multiple data sets or databases, it should be the same. This lack of difference between multiple versions of a single data item is referred to as consistency. A data item should be consistent both in its content and its format. If your data isn't consistent, different groups may be operating under different assumptions about what is true. This can mean that the

different departments within your company will not be well coordinated and may even unknowingly be working against one another.

Once data suppliers transfer data to a centralized data exchange, they cannot determine if its use falls within the terms of their contract or their expectations.

Solution: When you use traditional, paper-heavy processes, trading anything is a time-consuming process that is prone to human error and often requires third-party mediation. By streamlining and automating these processes with blockchain, transactions can be completed faster and more efficiently. Since record-keeping is performed using a single digital ledger that is shared among participants, you don't have to reconcile multiple ledgers and you end up with less clutter. And when everyone has access to the same information, it becomes easier to trust each other without the need for numerous intermediaries.

Monami provides data suppliers with a factual record of data usage. After data suppliers submit data to Monami, they can track who bought it and who re-sold it on Monami.

2. **Problem:** Businesses that may have valuable data cannot easily test market demand for their data because the barriers to entry for new entrants are extremely high and there is a lack of trust in data buyers and centralized exchanges. This means that valuable and potentially innovative datasets remain locked away.

Solution: Data is only as valuable as the insights it produces, the decisions it influences, and the results it yields. Without the ability to ensure data integrity, marketers are relinquishing their most powerful tool. Better data means better insights, which means more effective marketing and communication across touchpoints. Conversely, if the data is unreliable or not utilised correctly, it can actually do more harm than good. Monami allows anyone to easily publish a dataset, which can then be searched for and purchased by potential data buyers. This lowers the barrier to entry for

businesses that are new to the data trade to test the market demand for a dataset, resulting in new, unique, and useful datasets entering the market. Furthermore, Monami promotes trust from data suppliers because it is built on the blockchain which means all transactions are permanently recorded, and no one entity controls the trade of data.

2.3 Data Ecosystem Problems and Solutions

1. **Problem:** There are no trusted sources of reputations for data suppliers or data buyers. When it comes to marketing analytics, harnessing trusted, high-fidelity data is not just vital in empowering marketers to effectively understand and engage consumers at the right moment, but also in ensuring that media budgets are not unnecessarily wasted. Marketers need to know where their ads are served and where their money is spent throughout the campaign supply chain. Ultimately, unattributable data is a burden as it eventually leads to untraceable ad spend. Without attribution, marketers are left unable to track the validity of a given impression, assess the quality of the insights they generate, or the overall performance of their campaigns. In other words, understanding where their data comes from and its reliability is vital in ensuring that marketers can make effective decisions and optimise the use of their media spend.

Solution: Monami makes datasets and historical transactions reliable and also freely accessible and verifiable by anyone at any time. This means data buyers can better determine whether a data supplier has a good reputation and quality data based on their historical transactions and datasets, quickly and easily.

2. **Problem:** Due to a lack of reliable reputations of market participants and standards for data trade, agreements to exchange data are too slow.

The time for data buyers to evaluate potential data suppliers can be well over three months.

Solution: There is a growing need for transparency, accountability and ethics in marketing, especially as countries around the world continue to enact new data privacy laws. These rising standards bring a new level of complexity to the marketing landscape, and it's now more important than ever that marketers are able to have access to high-quality, reliable data that has been procured in a compliant manner, in order to make best use of their media spend. By implementing measures such as data provenance, organisations can bring clarity to consumer data use, and transparency in the advertising industry can become a reality. Monami is a reliable and trustless source for reputations of both data buyers and data suppliers and allows for a de facto standard to develop in the location data trade. Both can increase the speed at which data trade agreements are executed, making the ecosystem more efficient and enabling faster growth and innovation.

3.0 Monami

3.1 Model

Monami is a location data market. There are two core parties within Monami: those who supply location data and those who buy location data. Both the suppliers and the buyers transact with MON tokens.

Currently, most datasets on Monami consist of anonymous and aggregated GPS and sensor information from mobile devices across the globe.

New types of data are constantly being added to Monami, including receipt data, first- party transaction data, credit card data, Wi-Fi access-point data, or satellite imagery. These datasets enhance

Monami's data offering and open up new use cases. New datasets are also crucial to providing accurate location data. That is, combining many signals or relative positions can help to reach a stronger consensus than just one signal that indicates where people are in space and time.

The data made available for sale on Monami is owned by the supplier, whether they publish it using tools such as a software development kit (SDK), an application programming interface (API) supplied by a third-party, or whether they publish it independently and directly to the blockchain. The suppliers always receive payment in MON tokens when their data is purchased by a data buyer, and the suppliers can also receive additional tokens in the form of rewards when they contribute data.

Many current data suppliers are mobile app publishers that naturally create anonymous 'exhaust' data, such as GPS location signals, when people use their apps. This exhaust data is generated by individuals simply walking the earth.

4.0 TOKEN MECHANICS

An TRC-20 based coin is supported for the Monami ecosystem and can be used for all economic activities. It can be acquired through browser software mining and aims to activate the blockchain ecosystem through swapping with other major tokens and to build infrastructure that can be used for real economic activities.

MON tokens enable transactions between data buyers and data suppliers within the Monami ecosystem, and the tokens are treated as a utility. MON tokens and blockchain technology enable atomic transactions, which create a reliable way to confirm that a transaction

between a data buyer and a data supplier occurred, without the need for a middle-man or escrow service.

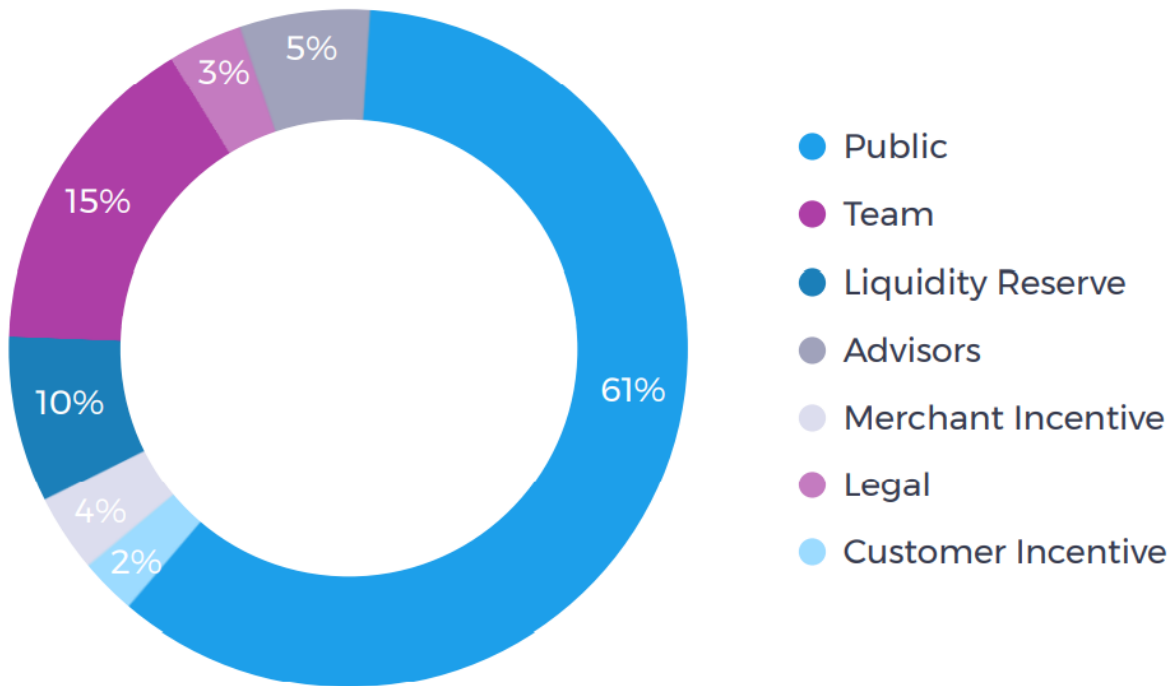
The use of MON tokens also provide numerous advantages over the traditional means of exchanging data; some examples include: verifiable audit trails in the form of factual records of transactions, reliable market participant reputations, the real-time trade of data, a global market rate for location data to enable efficient international data trade, and incentives for data suppliers who are often also data buyers on Monami.

4.1 TOKEN ALLOCATION

We designed a token based on definitive market rules and fundamental economic principles. We ensure that MON tokens are used actively by our ecosystem members.

MON tokens are created during the launch of Monami Core smart contract that generates and distributes tokens. After the tokens are generated, there is no chance to create MON tokens, as there are no mining activities associated with the Monami network. The total supply of MON to be distributed is 300,000,000 MON.

As a result, MON tokens allocation can be described as the following:



4.2 The Future: Payment with Tokens and Blockchain

The Past: Payment without Tokens and Blockchain

Prior to Monami, data suppliers were not paid for the datasets that they supplied to data buyers until well after the data had been transferred. The entire process from supplying data to receiving payment for data was normally 90 to 120 days and commonly involved centralized exchanges that acted as middlemen. It is a fairly conventional buyer-seller process—inefficient, and riddled with delays and high fees for ineffective middlemen.

MON tokens and the Monami blockchain enable atomic exchanges of datasets and MON tokens between parties. When a buyer finds an encrypted dataset and wishes to acquire the key to decrypt it, the buyer formally proposes an exchange of tokens for the key on the blockchain. The dataset seller accepts that offer by encrypting the key for the buyer and recording that encrypted key on the blockchain. The smart contract ensures that the tokens are transferred to the seller, and the encrypted key is recorded at exactly the same time. Either both operations occur, or neither occurs. At any time in the future, the buyer can read the

encrypted key from the blockchain, decrypt it, and use that key to decrypt the dataset. In contrast to how data was formerly traded without Monami, both of these actions happen simultaneously, and one cannot happen without the other. This largely benefits data suppliers as they can now be paid immediately for the datasets they supply, rather than 90 to 120 days later.

The use of Tron smart contracts for atomic transactions allows these two parties to execute this operation simply by trusting the publicly available logic of the smart contract. In contrast, to perform such an exchange with a private centralized provider, both sides must, at the very least, trust the centralized provider.

4.3 Tokens Enable Real-time Trade

The need for real-time location data for automation and artificial intelligence is growing rapidly. Prior to Monami, these needs were largely unmet in the location data market as most of the data trade is done manually and through large daily transactions. The ability to trade futures on Monami allows market participants to agree on subscription-style, real-time delivery of datasets, and this enables machines and APIs with access to MON tokens to make dataset purchases instantly, without the need for a middle-man and with guaranteed dataset delivery.

4.4 Tokens Enable Efficient International Trade

The international location data trade is growing rapidly. Currently, businesses in the data trade execute via their native currencies, and this opens these businesses to exchange rate risk between currencies. Monami and MON tokens change that. For the first time, the value of location data will be expressed as a utility with worth that is determined

solely by free market conditions of the location data trade. By utilizing the MON token to purchase data, international businesses express trade conditions in identical terms and enable transactions that otherwise might not have occurred.

4.5 Token Rewards

There are many use cases that can help incentivize data suppliers to supply data and earn tokens in return. These incentives are designed to supply Monami with more datasets and new datasets that are in high demand from data buyers across the globe. For data buyers, the rewards help to curate a marketplace, supplied with more robust data for them to purchase.

4.6 Data Suppliers Are Also Data Buyers

Data suppliers are often also data buyers in the location data market. This is because most data suppliers utilize location data for their own products, and buying more data can be an added benefit. For example, many app publishers who supply datasets to Monami also run applications that require foot traffic data on the popularity of nearby stores. This data is difficult for the app to collect itself, so instead, the app publisher purchases this data from Monami. In a second example, many data suppliers want to learn more about their users' real-world habits by analyzing additional location data on where their users spend time. They can then improve their app by personalizing the experience to users based on their habits and hobbies. Again, app publishers don't collect enough information on their own users to get a great, holistic understanding of their users' habits; instead, they purchase additional data from Monami using MON tokens.

In this light, data suppliers exchange their data for MON tokens and in turn use those MON tokens to buy more data, creating a balanced and efficient ecosystem.

5.0 BLOCKCHAIN

5.1 What is blockchain?

Blockchain is technology that offers a digitized, decentralized, immutable public ledger of the exchange of data. Its decentralized nature means that no single person or company controls data entry or its integrity, and its method "chains" together data entries so that they cannot be modified later. Blockchain provides a way for large groups of unrelated companies to jointly keep a secure and reliable record of the exchange of data.

Contracts, transactions, and the records of them are among the defining structures in our economic, legal, and political systems. They protect assets and set organizational boundaries. They establish and verify identities and chronicle events. They govern interactions among nations, organizations, communities, and individuals. They guide managerial and social action. And yet these critical tools and the bureaucracies formed to manage them have not kept up with the economy's digital transformation. They're like a rush-hour gridlock trapping a Formula 1 race car. In a digital world, the way we regulate and maintain administrative control has to change.

Blockchain promises to solve this problem. The technology at the heart of bitcoin and other virtual currencies, blockchain is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. The ledger itself can also be programmed to trigger transactions automatically.

5.2 Why is Monami built on the blockchain?

For location data to provide value, it needs to be highly accurate, privacy compliant, and it must contain information about how the data was generated and who generated it.

Blockchain provides this in a trustworthy and scalable way without the presence of a centralized authority.

For data buyers, blockchain enables audit trails and reveals facts about the origin of data, therefore generating greater confidence in the integrity of the data purchased.

For data suppliers, blockchain provides full transparency on data usage and clear ownership rights on data, thereby creating greater trust in sharing data.

6.0 Dataset Publication and Access

Datasets routinely traded on Monami are larger than the entire Tron blockchain. Storing the content of these datasets directly on the blockchain has never been a practical consideration for the scale expected by our trade partners and competitors. Monami can hold an immutable, verifiable reference to any dataset referable with a URI outside of Monami. Practically speaking, datasets are typically served from HTTP servers, FTP servers, cloud storage providers (e.g., Amazon S3, Google Cloud Storage), and BitTorrent. In the future, Monami will naturally support new protocols and transport mechanisms that can uniquely identify resources using URIs.

Publishing a dataset on Monami also involves recording the size and a checksum of the data referenced by the URI. The combination of the URI, the size, the checksum algorithm, and the checksum allows data consumers to verify that they have obtained exactly the data referenced on Monami. The modification of even a single bit in a dataset results in

a different checksum using the same checksum algorithm. This same mechanism underpins the security of most blockchain technology.

The cost of a Tron transaction depends largely on the volume of data stored on the blockchain during the transaction. Only a small amount of data must be stored on the blockchain to create a verifiable reference to a dataset stored outside the blockchain. The size of the dataset does not affect the amount of data required to store this reference and therefore does not affect the cost of publishing this reference on the blockchain.

Data suppliers may encrypt a dataset before publishing its reference to Monami. Buyers can download and verify that this encrypted dataset matches the on-chain reference prior to obtaining a key to decrypt the dataset.

For a variety of reasons, a supplier may stop serving a dataset referenced on Monami. In some cases, a supplier will find that the cost of hosting a referenced dataset exceeds its value in the market. In other cases, a supplier may simply cease doing business. Monami cannot monitor or maintain the availability of referenced datasets. Monami allows suppliers to record their intention to maintain a dataset for a period of time. Market participants, such as brokers and rating agencies, may find value in comparing the actual availability of datasets with the stated intention of the suppliers. Other market participants may find value in mirroring referenced datasets to increase their availability to the market.

In the same way that Monami supports any data transport mechanism, Monami allows suppliers to attach any schema for interpreting a dataset at the time of its publication. For example, some data buyers prefer to receive a human-readable, line-delimited set of records with fields separated by commas, while others find programmatic advantages in consuming data with a compact binary format defined by Protocol Buffers.

6.1 Dataset Purchasing

The limited performance and cost of transactions on the blockchain do not always suit the nuances of negotiation between the buyer of a dataset and its supplier. However, the permanence of Monami blockchain records is perfect for recording the clear, formal agreements arising from negotiations. Market participants, including brokers, can develop and re-develop negotiation mechanisms that result in permanent, public agreements on Monami.

An informal negotiation outside of the blockchain might involve a buyer and a supplier exchanging emails, making phone calls, or an in-person meeting. It might involve a supplier instructing a broker to advertise a fixed Monami token price for the data and accept offers from any buyer. It might even involve two algorithms negotiating over a new protocol without human intervention. All of these informal methods can result in an offer to purchase that the supplier will accept.

The purchase of a dataset published on Monami involves two steps. A buyer with a balance of Monami tokens records a formal offer to purchase a dataset that includes a number of Monami tokens to transfer to the dataset's supplier. This formal offer can also include arbitrary data relevant to the two parties such as license agreements to be enforced by authorities outside Monami.

The dataset supplier executes the second step of formally accepting this offer. If the dataset is encrypted, this acceptance must include a key to decrypt the dataset. To ensure that only the buyer can decrypt this dataset, the decryption key is encrypted, using a public key provided by the buyer in the purchase offer. The Tron transaction, recording this acceptance, executes the exchange of Monami tokens and the decryption key atomically.

6.3 Bad Data Filter

The Tron blockchain requires a fee for executing a network transaction. When a data supplier submits data to Monami, this is a network transaction on the Tron blockchain, and this requires a fee. This means that by using Tron, there is a natural bad data filter in the form of the Tron network transaction fee, which discourages data suppliers from uploading "spam" or fraudulent data.

7.0 Road Map

2021 Q3:

- Monami development began.

2021 Q4:

- Monami MVP launched.

2022 Q1:

- Monami Mobile Merchant Alpha.

2022 Q2:

- Added Customer invoicing from web application.

2022 Q3:

- Monami Mobile Wallet 1.0: deterministic multi currency wallet, BTC, ETH, TRX support from the launch.
- 13 different currencies accepted for payment.

2022 Q4:

- Monami Mobile Merchant 1.0: mQR code for Merchants, transactions and notification

2023 Q1:

- Monami Mobile Wallet 1.x: more currencies, ERC20 and EOS tokens support.

2023 Q2:

- Monami launch on EOS blockchain.
- Monami Mobile Wallet 2.0: Merchant catalog, built-in exchange etc.

2023 Q3:

- Monami Core production launch on EOS.
- Monami Mobile Merchant 2.0: with products inventory, invoicing, reporting etc.
- Monami Web Merchant 2.0: web version of Monami Merchant App with all its functionality plus product and user management.