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Litepaper

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www.mobix.ai

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MISSION STATEMENT

Create An Incentive Scheme for Sustainable Urban Mobility

According to the United Nations, the global population in 2018 was 7.6 billion and the urban population was 4.2 billion. By 2050, the global population will reach 9.7 billion, and 68% of the population (i.e. 6.6 billion people) will live in urban areas. Obviously, urban development is highly related to the future of humanity. However, overcrowding, pollution, and other urban environmental problems, have created a huge challenge for [sustainable urban development](#). Therefore, it has been put on the 2030 Agenda for the UN's Sustainable Development Goals.

Urbanisation as a global phenomenon becomes more concrete in the concept of the [15-Minute City](#), an approach that aims to improve quality of life by putting residents at the center of urban transformation, enabling them to reach everything they need within 15 minutes by foot, micromobility or public transit.

In its long-term experience working with large, decentrally-structured organisations in the Humanitarian sector, such as the United Nations World Food Programme, the MOBIX team has learned that rewarding the network participants is the key element for sustainable success. People, as well as organisations, act in the interest of the network or the community, if each of them perceives their individual benefits - mainly, but not exclusively, in economic terms. In other words: the most important factor of a decentralized network is a smart incentivization of its participants.

The smart incentivization of the use of micromobility services is the main purpose of the MOBIX Micromobility Marketplace. If urban residents are rewarded for using micromobility in a way that favours the growth of the micromobility network at large, urban life will prosper and the environment will profit.

MOBIX uses the MOBIX token to incentivize micromobility service and infrastructure providers, as well as micromobility consumers, to grow micromobility in metropolitan areas.

ABSTRACT

MOBIX Micromobility Marketplace

MOBIX is a decentralized digital marketplace for suppliers and customers of micromobility-related services, products and solutions. Urban mobility service and infrastructure providers offer their services and resources to individual and professional users in metropolitan areas. AI-powered Autonomous Economic Agents (AEA) acting on behalf of their individual and professional owners, enable micromobility-related service and infrastructure providers, products, and users to connect and interact directly with each other, thereby automating and optimising key micromobility processes such as search and discovery, reservations, bookings, settlement, payment and billing, as well as marketing and promotions. The aim of MOBIX is to make life for micromobility users and other residents of urban areas more social and more convenient.

Micromobility providers and users connect their digital identities (DIDs) to the MOBIX network, and immediately start offering and consuming micromobility resources and services. Benefitting commercial building owners and tenants, digital twins on MOBIX bring together previously unconnected systems, from security to HVAC (Heating, Ventilation, and Air Conditioning), or way finding, optimise workflows, reduce costs, increase occupancy rates, and improve overall asset utilisation and value.

The MOBIX blockchain provides security and trust, and allows for highly efficient processes, such as fully automated transactions. Based on a Self-Sovereign Identity (SSI) infrastructure that complies with the EU data sovereignty measures described in the General Data Protection Regulation (GDPR), it provides the user with full control over their own data and creates a non-discriminating environment for collaboration, cooperation and competition.

The nucleus of MOBIX is the MOBIX token that functions as a reward token, i.e. a financial incentive, for the use of micromobility services. Starting as a simple reward for the use of any service, over time the token will become the key incentivisation instrument for micromobility service and infrastructure providers to have their services being promoted in an automated, micromobility-contextualised way. MOBIX token value is created through the use of micromobility services and infrastructure on the MOBIX Marketplace: for each (trans-)action on the MOBIX Marketplace, users receive MOBIX Miles that will translate into MOBIX Reward tokens. That, in consequence, creates a sustainably growing micromobility ecosystem.

OVERVIEW

Micromobility

In the narrower sense, the term 'micromobility' refers to a range of small, lightweight, zero-emission vehicles (scooters, bikes, mopeds, pedelecs, cargo-bikes, etc.) used to move around and transport goods within limited distance, such as a metropolitan area, at respective limited speed. Obvious challenges, such as heaps of abandoned e-bikes or scattered scooters illustrate the need to evolve the term to also apply to the micromobility infrastructure of urban areas, commercial and residential real estate.

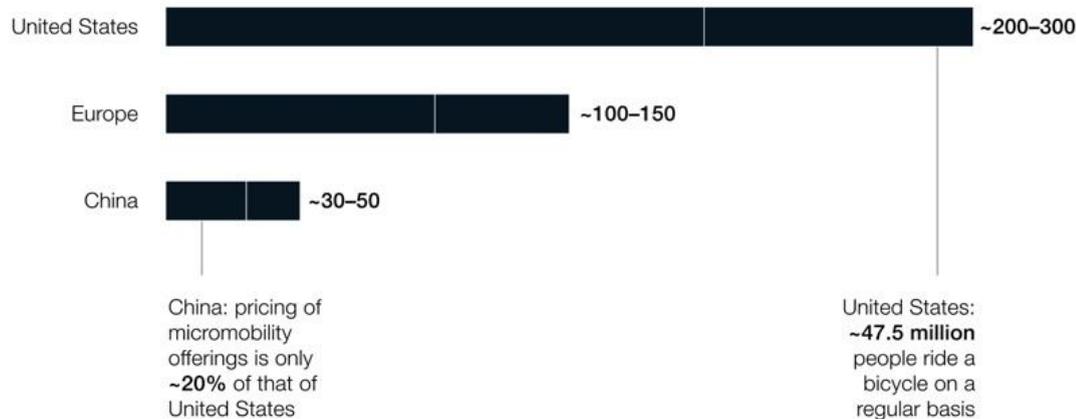
The Micromobility Market

In this Litepaper, we argue that a smart, sustainable, and environmentally-friendly future for metropolitan areas is based on both, micromobility assets, and a micromobility-friendly infrastructure that provides the framework for even more densely populated areas. On the MOBIX Marketplace, micromobility service and infrastructure providers are connected with users in order to offer and consume all kinds of micromobility-related services. As the world's first micromobility marketplace with a unique combination of Autonomous Economic Agents (AEA) on top of a foundational blockchain, and a privacy-preserving Self-Sovereign Identity (SSI) architecture, MOBIX helps to solve the transportation challenge in metropolitan areas in a collaborative fashion.

McKinsey estimates micromobility markets reaching \$300b to \$500b by 2030.

The shared micromobility market in China, Europe, and the United States could reach \$300 billion to \$500 billion by 2030.

Estimated size of micromobility market, by region, in 2030, \$ billion



McKinsey&Company

During the COVID-19 pandemic, the number of passenger-kilometers traveled declined 50 to 60 percent worldwide and the use of micromobility solutions has declined dramatically. However, the expected relaxation of lockdown conditions should lead to a strong post-pandemic recovery of micromobility: first, with fewer points of contact and ease of maintaining social distancing, micromobility will be considered less risky than other modes of transportation. Then, lockdowns have created a strong urge to go and move outside, to meet with friends and enjoy urban lifestyle. Last, but not least, smart city planning limits car-travel and promotes eco-friendly, and multi-modal, transportation modes.

Solving the Urban Transportation Challenge

Urban transportation, mobility of human beings and the delivery of goods, require millions of transactions every day. Scarce infrastructure and time resources demand highly efficient processes, notably regarding search and discovery of available services, price negotiations, identity management and user authentication, payment and post-settlement. Transportation and micromobility are, on the one hand, huge technological and organisational challenges, on the other hand they represent an indispensable basis for a sustainable future social life in urban areas that are becoming more and more decentralised: The concept of the 15-Minute City has evolved into a standard term describing an approach to urban design that aims to improve quality of life by creating cities where everything a resident needs can be reached within 15 minutes by foot, micromobility or public transit.

Decentralised Incentives

By incentivising both, suppliers and customers of micromobility-related services, to actively and permanently participate in the ecosystem in their respective metropolitan area, MOBIX provides the foundation for a sustainable growth of a decentralised social system. Micromobility suppliers can promote and sell their services dynamically via [Fetch.ai](#)-powered Autonomous Marketing Agents (AMA), depending on the respective individual context, i.e. supply & demand, user preferences, location, time, weather, etc.. By not only targeting their product range to inhomogeneous customer groups, but by tailoring each specific service in a contextual way, micromobility service and infrastructure suppliers streamline their businesses. Individual and corporate customers, on the other side, are incentivised to use eco-friendly micromobility services. The reciprocity and the decentralisation of incentives ensure a sustainable mechanics and an equilibrium of supply and demand on MOBIX marketplace.

MOBIX Diagram



USERS KEY BENEFITS

Micromobility Service Customers

Key Benefits: Easy everywhere-access to micromobility-related services, incentivised consumption of value added services

Individual and professional users in urban areas are enabled to consume micromobility and attached value-added services in a highly convenient and privacy-preserving way using the 'all-in-one' MOBIX Wallet.

Micromobility Service Providers

Key Benefits: Market Access, Revenue Growth, Contextual Micro-Targeting

The main objective is to provide micromobility service providers with direct, albeit privacy-preserving, access to millions of end-users and professional users of micromobility; i.e. the transportation of humans and goods. These providers currently only have access to limited user groups in scattered locations.

Micromobility Infrastructure Providers

Key Benefits: Optimized Asset Utilisation, Maximised Asset Values

Infrastructure providers, such as building owners and operators, amongst others, can optimise their asset utilisation by offering available space and surplus capacity in a dynamic, contextualised way, based on market needs. Better utilisation means minimised fixed costs, and, in consequence, maximised asset values.

Value-Added Service Providers

Key Benefits: Customer Access, Tailored Promotions

Value Added Service Providers VAS can attach and offer their services to micromobility services in a contextualized way, using Fetch.ai-powered Autonomous Marketing Agents (AMA). These include leisure activities, such as special entertainment or dining offerings, as well as business activities, such as delivery or mobile nursing services.

COMPONENTS

MOBIX Marketplace Dashboard

The MOBIX Marketplace dashboard allows for offering micromobility-related services and infrastructure. Individual and professional users can manage their service offerings and have access to a detailed reporting of their marketplace business. Users can leverage their service offerings by using Autonomous Marketing Agents (AMA) that allow for contextualized, individualized promotions.

MOBIX Wallet

The MOBIX Wallet allows for search & discovery, reservation, booking, and paying for micromobility-related services. It comes with a fully-fledged Self-Sovereign Identity (SSI) functionality: users can verifiably authenticate themselves digitally, while being in full control of their data. This unique privacy feature makes the MOBIX Wallet fully compliant with EU laws and regulations. The unique integrated Smart Decentralised Key Recovery (SDKR) mechanism allows for a recovery of a potentially lost keyphrase (e.g. password) even in a completely decentralised storage.

Additionally, users receive MOBIX Reward tokens in their MOBIX Wallet via airdrop, as rewards for their active use of micromobility-related services, and for the active participation of other MOBIX Marketplace users. This mechanism helps to maintain a sustainable overall market growth.

Autonomous Marketing Agents (AMA)

Micromobility service and infrastructure providers, as well as Value Added Service Providers, can make use of Autonomous Marketing Agents (AMA) that allow to autonomously promote services to potential customers based on contextual data, such as supply and demand, user preferences, availability, time, location, etc.. AMA improve automated service promotions to a degree that the service providers themselves get a better understanding about their customers and how to streamline their businesses. AMA are powered by [Fetch.ai](#) technology. In the long-term, AMA will help to establish a privacy-preserving marketing environment, allowing users to pro-actively opt-in receiving personalized promotions, or pull-marketing, rather than being targeted by unsolicited push-marketing.

MOBIX Reward Tokens (MOBX)

As a MOBIX user, you can earn MOBIX Miles for a bunch of different micromobility-related activities that will be converted into MOBIX Reward tokens, airdropped to your MOBIX Wallets. Activities include – among others – the use of scooters, bikes, mopeds, cargo bikes, miniEVs. Even simple walking instead of using a car will earn you MOBIX Miles, and, consequently, MOBIX Reward tokens.

MOBX tokens power the work of Autonomous Agents, i.e. they facilitate the communication between the MOBIX Marketplace users; s.a. search & find, reserve and book micromobility-related services and infrastructure offerings.

Autonomous Marketing Agents will be fed with MOBIX tokens in order to allow for a privacy-preserving, contextualised way of promoting goods and services. Some fraction of the marketplace fees and Autonomous Marketing Agents fees is used to buy back MOBIX and burn.

In short, the MOBIX Reward token takes on the function of a lubricant for the MOBIX Marketplace: it rewards and incentivises individual and professional users to use eco-friendly (micromobility) transport, and, at the same time, provides a sustainable business model for micromobility-related service and infrastructure, as well as value added service providers. And all based on a GDPR-compliant, privacy-preserving data management.

TECHNOLOGY

MOBIX is based on a set of technologies leveraging Blockchain & Distributed Ledger Technologies (DLT), Artificial Intelligence (AI), and Self-Sovereign Identity (SSI). The combination of these technologies results in multiple benefits for professional and individual users, for suppliers and consumers of micromobility-related services on the MOBIX marketplace, as well as for municipalities and the environment in general:

Benefits for Micromobility Service Providers

- Access to an unlimited number of consumers
- Minimized marketing costs through contextualized, personalized promotions
- Minimized maintenance costs

Benefits for Micromobility Infrastructure Providers

- Access to an unlimited number of consumers
- Optimized asset utilization
- Maximized asset valuation

Benefits for Micromobility Consumers

- Urban lifestyle improvement ('15-Minute Cities')
- Rewards for eco-friendly transport behavior
- Self-sovereign recommendations managed by personal virtual agents

Benefits for City Councils & Environment

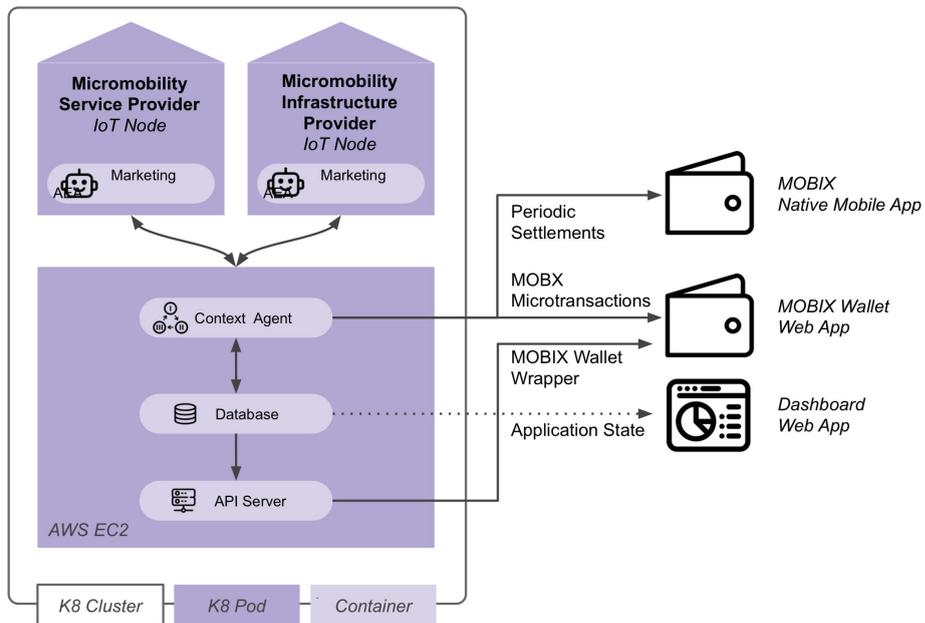
- Improved urban livability through decentralization of social activities
- Minimized CO2 emissions thanks to zero-emission traffic

Autonomous Agents

[Fetch.ai Autonomous Economic Agents](#) (AEA) are used for different purposes:

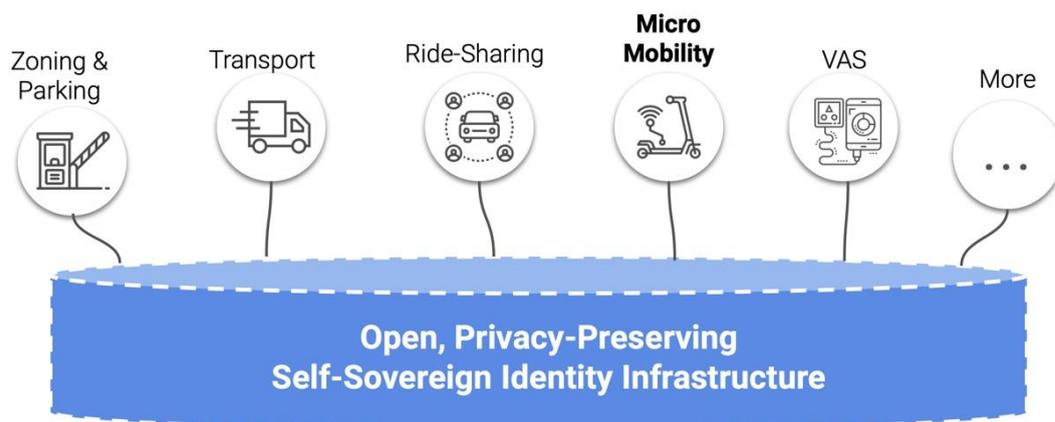
1. Autonomous Context Agents (ACA) use sensor-based information, such as geo-location data, to search and discover the information matching specific users' contexts. The ACA takes care of all relevant information a user needs to use micromobility services in the best possible way. Example: Sheryl wants to follow her friend's recommendation of having a drink at a bar 3 km away from her actual location. Together with the bar's address and pin on a map she sees the nearest available scooter to join her friend's party.
2. Autonomous Marketing Agents (AMA) are used by micromobility service and infrastructure providers, as well as value added service providers, to search for and find users ready to receive their personalized recommendations. As with the ACA, AMA gathers information of the specific user contexts, such as location, user preferences, etc..
3. Autonomous Privacy Agents (APA) take care of their owners' (i.e. users) privacy by safeguarding all data flows and making sure that users only receive information, s.a. personalised promotions, that match their preferences, and contexts, and that are actively permitted by the users.

Autonomous Economic Agents Diagram



Self-Sovereign Identity (SSI)

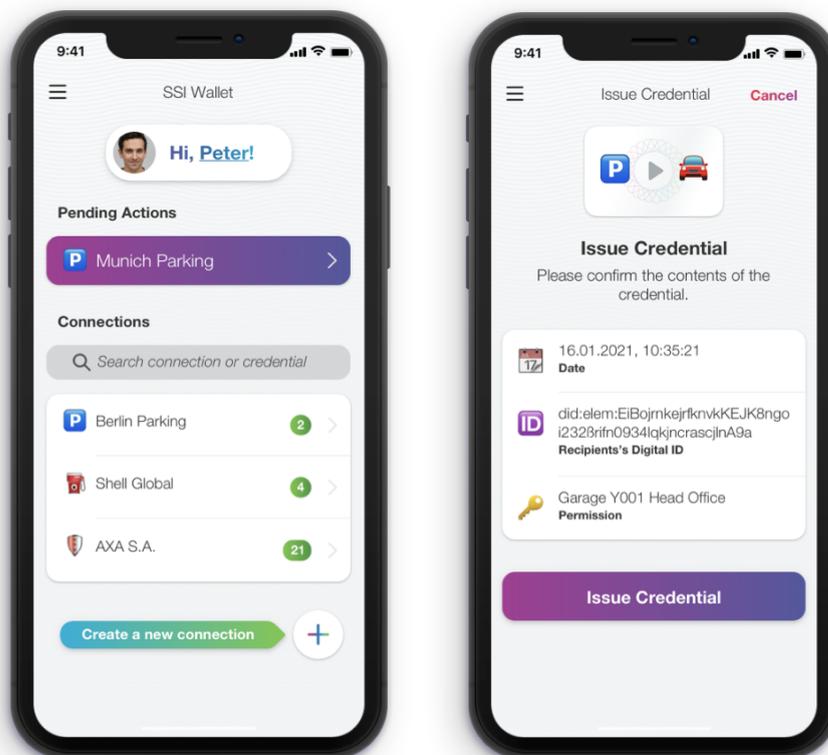
In a digitized world with all its advantages of leveraging information to benefit individual and professional participants, data sovereignty is one of - if not the - most important aspect(s) for individuals to preserve their privacy. The more data the Autonomous Economic Agents used by MOBIX can compute on, the better the results and the more beneficial MOBIX will become for consumers and suppliers of micromobility services.



Since MOBIX fully respects the privacy of its users, a Self-Sovereign Identity (SSI) architecture is integrated to preserve privacy by design. With the MOBIX Wallet, users are in full control of their identity and decide what part of their identity information they share with whom. Users can pro-actively opt-in to receive personalized promotions matching their individual preferences and contexts.

Based on the MOBIX Compute-to-Data approach, no personal data will be exchanged, but all respective computation will take place in the original location of personal data. It's the algorithms; i.e. the computation, that is exchanged, but not the data itself.

MOBIX Wallet with integrated SSI



A unique element of the MOBIX Wallet is its integrated key recovery mechanism: Provided by MOBIX partner Datarella, its [Smart Decentralized Key Recovery](#) (SDKR) allows users to recover their keys (e.g. passwords) which had exclusively been stored on their devices; i.e. not on a MOBIX server, but only decentrally. In most existing applications, users would not be able to recover their keys if stored decentrally only: they would be lost forever and all information could not be accessed anymore, With SDKR, a MOBIX Wallet user is safe - she can relax since she benefits from the highest possible security when storing her keys while knowing that she could recover these if ever needed.

Both, the Autonomous Economic Agents and the Self-Sovereign Identity architecture are built on top of the Fetch.ai blockchain that ensures fast, reliable data processing.

PARTNERS

From the start, MOBIX works with a group of technology, solutions and micromobility infrastructure partners in order to provide a sound technical and organisational solution, combined with a smooth user-experience, towards all market participants.

Fetch.ai

Fetch.ai is building an open access, tokenized, decentralized machine learning network to enable smart infrastructure built around a decentralized digital economy.

For MOBIX, Fetch.ai provides the foundational blockchain, as well as Autonomous Economic Agents that are deployed as Autonomous Marketing Agents (AMA), enabling MOBIX participants to contextually promote their service offerings.

Datarella

Datarella provides Enterprise Blockchain Solutions. The Enterprise Blockchain serves as the foundational, underlying protocol for digital business transformation with converging technologies, such as AI, autonomous machines, AR and VR.

For MOBIX, Datarella provides their SSI-Wallet, including their Smart Decentralized Key Recovery (SDKR) as the user's hub for managing their identities. Datarella also creates and operates the MOBIX marketplace dashboard, and supports market participants with onboarding, and the management of Autonomous Marketing Agents. Additionally, Datarella creates the bridge to the ATOMIX lending platform.

OCEAN

Ocean Protocol unlocks the value of data. Data owners and consumers use Ocean Market app to publish, discover, and consume data in a secure, privacy-preserving fashion. OCEAN holders stake liquidity to data pools. Developers use Ocean libraries to build their own data wallets, data marketplaces, and more.



Ocean datatokens wrap data services as industry-standard ERC20 tokens. This enables data wallets, data exchanges, and data co-ops by leveraging crypto wallets, exchanges, and other decentralized finance (DeFi) tools.

RAAY Real Estate

RAAY Real Estate tokenizes real estate while streamlining administration, sales and distribution processes for industry players. We empower real estate actors to launch greenfield products by leveraging the RAAY Digital OS.

For MOBIX, RAAY Real Estate provides self-owned and self-operated buildings and acts as micromobility infrastructure provider by offering their real estate resources as physical hubs for parking, charging and Value Added Services (VAS).

ATOMIX

The Atomix lending platform introduces the benefits of tokenization to collateralized lending. It provides a bridge between the security taken over real world assets for use as collateral and tokenization, delivering scalable liquidity to borrowers and lenders.

For MOBIX, ATOMIX provides a bridge to enable micromobility providers to leverage their real-world assets as collateral for tokenized security. Thus, existing and new, professional and individual users, can focus on offering their micromobility services, instead of struggling with managing large capital bases.

ROADMAP

Market Entry

MOBIX follows a 5-step Go-to-Market strategy: first, MOBIX users will be onboarded and be rewarded with MOBIX tokens for generally using eco-friendly micromobility services. Then, micromobility service providers will be onboarded and start using the Autonomous Marketing Agents (AMA) to promote their services on a contextual 1:1 relationship with their potential customers. In the third step, micromobility infrastructure providers will be onboarded, in order to promote their assets towards both, service providers, and end users.

After micromobility service and infrastructure providers have been actively engaging on MOBIX, they start enriching and expanding their service offerings, while value-added service providers will be onboarded and additional marketplace tools will be provided. In a fifth phase, the asset-heavy micromobility business will be transformed to an asset-light business by tokenizing micromobility assets. Leveraging real-world assets, s.a. scooters, bikes, cargo bikes, pedelecs, etc., as collateral, professional and individual players can use the ATOMIX lending platform to provide micromobility services on a asset-light level.

In preparation of the MOBIX launch, its components will be developed. Before, a test version of the MOBIX Wallet will be used in the “Deep Parking” showcase demonstrated at IAA Mobility 2021. Right after, the first MOBIX Reward token distribution takes place. Owners of FET, the native token of Fetch.ai, will receive the first batch of MOBIX Reward tokens, by staking their FET on the Fetch.ai mainnet. This procedure is also known as ‘stakedrop’: depending on their staked FET, FET holders will receive MOBIX tokens as rewards to run and stabilise the network. Following the initial stakedrop, more distributions of MOBIX tokens to Fetch.ai token holders will follow.

Phase 0

SEP - NOV 2021

IAA Mobility Showcase & MOBIX Stakedrop

- Showcase “Deep Parking” using a test version of the MOBIX Wallet during IAA Mobility, Munich (7-12 SEP)
- Genesis MOBIX token distribution to FET token holders staking their FET on the Fetch.ai mainnet (20 SEP - 20 NOV)

Phase 1

APR--SEP 2021

Development & Closed Beta

- MOBIX components are developed and integrated
- MOBIX Wallet is being tested In a closed user group

Phase 2

Starting OCT 2021

User Onboarding & Basic (Centralised) Incentivisation

- Users register via the MOBIX Wallet (MOBIX-ID/SSI/eIDAS, AEA)
- Users connect MOBIX app with their existing micromobility apps
- Users can use their MOBIX-ID to connect with other micromobility apps
- AEA airdrop MOBIX Reward tokens when a connected micromobility service has been used

Phase 3

Starting NOV 2021

Service Provider Onboarding & Full (Decentralised) Incentivisation

- Micromobility Service Providers register via the MOBIX dashboard
- Micromobility Service Providers set-up AMAs to promote their services
- AMAs start promoting services
- Users receive MOBIX Reward tokens based on consumed promoted service

Phase 4

Starting DEC 2021

Infrastructure Provider and Value-Added Service (VAS) Provider Onboarding

- Micromobility infrastructure Providers (building owners, developers, operators, etc.) register via the MOBIX dashboard
- VAS register via the MOBIX dashboard
- Micromobility Infrastructure Providers and VAS set-up AMAs to promote their services to B2C (e.g. charging) and B2B customers (e.g. parking,



charging, VAS)

Phase 5

Starting MAR 2022

ATOMIX Bridge - External Tokenisation of Micromobility Assets

- A bridge to the Fetch.ai-based ATOMIX lending platform will allow micromobility asset owners to use their assets as a collateral for tokenised security
- Existing professional micromobility suppliers use their tokenized assets to focus on their core service business instead of managing their fixed capital
- New users can own and operate micromobility assets, either individually or in a community-based asset-sharing approach

CONTACT

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