

A complex network diagram with numerous grey nodes of varying sizes connected by thin grey lines, set against a black background. The nodes are scattered across the upper and middle portions of the page, creating a web-like structure.

The Mobility Blockchain Platform

A blueprint for the
future of mobility.

June 2021

A joint white paper from bloXmove, Orange Business Services and Ciklum

bloX.move



**Business
Services**



CIKLUM

We believe that:

- 1** The Future of **Mobility** is **decentralized** & lies at the center of smart cities and urban planning.
- 2** Urban mobility will be based on **public-private collaboration** while automotive and mobility services – on **pay-per-use**.
- 3** **Platform economics** and network effects are key to scaling ecosystems. Shared, **cooperative governance** is the key to decentralization.
- 4** Sovereignty over **identity and data lies with the user**. Open source protocols and standards are essential for a socially acceptable platform.
- 5** **Blockchain/DLT, Decentralized Identifiers and IoT** are key technologies in building scalable, collaborative platforms.

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Executive summary

The Mobility Blockchain Platform (MBP) is a software platform designed and built to provide a common infrastructure around which mobility services can be managed, operated and financially settled.

Our mission is to establish an open mobility ecosystem that empowers users to access more integrated and transparent mobility services around the world. With an emphasis on openness and collaboration, the MBP utilizes blockchain and distributed ledger technology to provide trust and consensus for all business actors within the mobility ecosystem.

Based on a decentralized, shared approach to cooperation, collaboration and competition among participants from the public as well as the private sector, the Mobility Blockchain Platform can be used to develop an ecosystem bringing together participants in the world of future mobility.

The MBP integrates the services of various mobility services providers. It includes the required functional capabilities necessary to conduct business without the need for a centralized party.

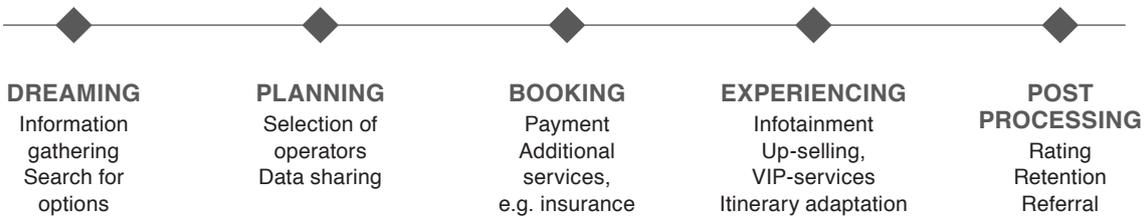
In general, the capabilities within the network of the MBP are offered by independent service providers and can be divided into two categories:

1. **Functional (technical platform) capabilities**, such as digital identities, verification, service discovery, contracting, settlement and payment.
2. **Mobility services**, such as car sharing, ride-hailing, public transport, parking, charging and micro-insurance.

Service providers using the MBP can compile and realize new B2C offerings and offer them to their end-customers. In this regards, the MBP enables a participating provider to:

- Access the service network through free and open-source protocols and APIs;
- Offer its own services as a verified ecosystem partner within the network;
- Access available services, offered by other verified providers within the network;
- Order resources and services offered within the network; and
- Settle the use of services or resources digitally.

Our vision for the future mobility ecosystems



MOBILITY SERVICES FUNCTIONAL CAPABILITIES



TECHNOLOGY ENABLERS



The future of mobility: the CASE for urban mobility

In the past 20 years, there has been a drastic change in the way consumers, regulators and city planners think about mobility. Environmental concerns, congestion, increased availability of new, flexible and shared modes of transport have contributed to the new thinking in terms of how mobility should be defined in the future.

In addition, there is an increasing trend towards urbanization, which increases the pressure on cities and municipal governments to balance the benefits of aggregation with the challenges this places on the environment, sustainability, quality of life and congestion.

Mobility plays a major role in how society will function in the future.

People are moving more not less, while the need to reduce carbon footprint and congestion necessitates:

- More efficient utilization of vehicles than the traditional driver-owned car;
- Electrification of fleets and vehicles; and with that;
- The emergence of electric charging infrastructure as a key element of e-mobility.

Citizens are expecting seamless “one-click” mobility, which is eco-friendly, affordable and on-demand.

This is accompanied by two strong trends affecting vehicle ownership and adding momentum to the transition towards pay-per-use mobility as a service paradigm, replacing the own vehicle as the prime mode of urban transport:

1. Mobility based on owner-driven vehicles is more and more discouraged by city planners;
2. A strong emphasis on electrification and carbon neutral transportation.

In 2019, there were estimated to be around 400 different brands, offering around 750 mobility services, operated by 180 providers worldwide. Most of those providers have created a stand-alone ecosystem with little or no interfaces to other mobility players. From the consumer’s perspective, this leads to inconvenience and nontransparency. When travelling, it is even more difficult to find the optimal combination of multimodal mobility services.

Furthermore, the car market is undergoing a transformation in terms of who is buying and who is using cars. The traditional idea of everyone owning their own car as the primary means of individual mobility is being questioned, especially as service operators have emerged who are providing various means of mobility – ranging from scooters to passenger cars and vans – on a transactional basis. This leads towards more opportunity-based and interconnected modes of transportation. Public transportation, car sharing or simply hiring a personal driver for short distances are becoming more common.

New business models and technologies are needed in order to tackle such mobility challenges¹.

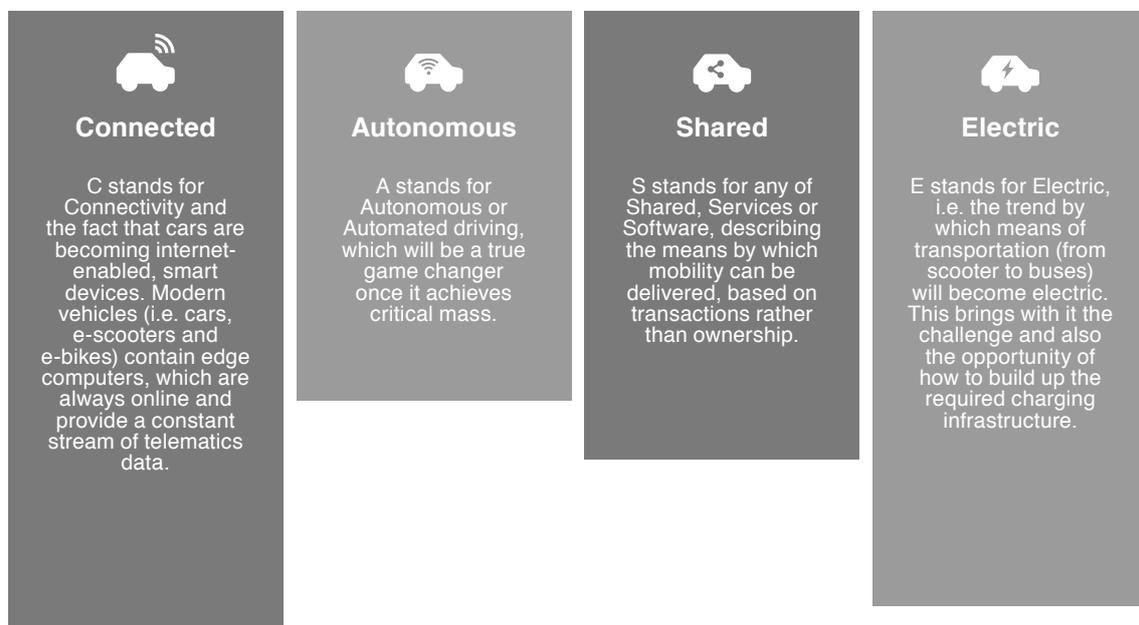
Mobility offerings in modern cities need to offer a wide range of transport modes:

- Public transport along the main trunks;
- Micromobility for short-range transport; and
- Car sharing for small groups (e.g. shopping trips).

The automotive and mobility industry have long recognized these trends and have developed a strategic framework known by its acronym: CASE (Connected, Autonomous, Shared and Electric).

Autonomous driving (when it becomes ready and regulated) will be a true game changer in the business cases and profitability of mobility services. As autonomous vehicle technology eliminates direct costs (e.g. drivers), and provides 24-hour service availability, the usage of mobility solutions should become more flexible at a lower cost level, which will make new mobility services an even more attractive option for customers². Thus, given the high interest of OEMs in autonomous drive technology, it is expected that the levels four and five of such technology will play a significant role in the mobility market by 2030³.

CASE: the trend towards automation in the delivery of mobility



¹ "Race 2050 – a vision for the European automotive industry", January 2019, McKinsey Center for Future Mobility.

² "The rise of mobility as a service", January 2017, Deloitte.

³ "Urbane Mobilität 2030: zwischen Anarchie und Hypereffizienz", October 2017, Roland Berger.

The Mobility Blockchain Platform: Vision and Mission

As mentioned at the beginning of this whitepaper, we believe the future of mobility lies in an ecosystem where mobility services are delivered over software platforms and based on a pay-per-use business model. Therefore, it is crucial to develop a modular platform that is simple to integrate and automate. This means ensuring an optimal fit with existing infrastructure, enabling mobility service providers to dock flexibly on an existing, technical back end without cost-intensive and time-consuming development efforts.

All the actions we are undertaking aim to ensure the success of our vision. We want to make the world of mobility better and simpler.

The Mobility Blockchain Platform's mission is to establish an open mobility ecosystem that empowers people to access more integrated and transparent mobility services around the world.

We believe that decentralized, open and cooperative systems offer many benefits compared to existing, centralized platforms controlled by a single owner. An open ecosystem benefits all participants. Customers enjoy a seamless journey and transparent billing. Service providers not only get better utilization and broader reach for their offerings, but also seamless revenue distribution and real-time settlement of liabilities.

Furthermore, service providers can monetize their data to develop new products for insurance, credit or finance.

The MBP is designed to:

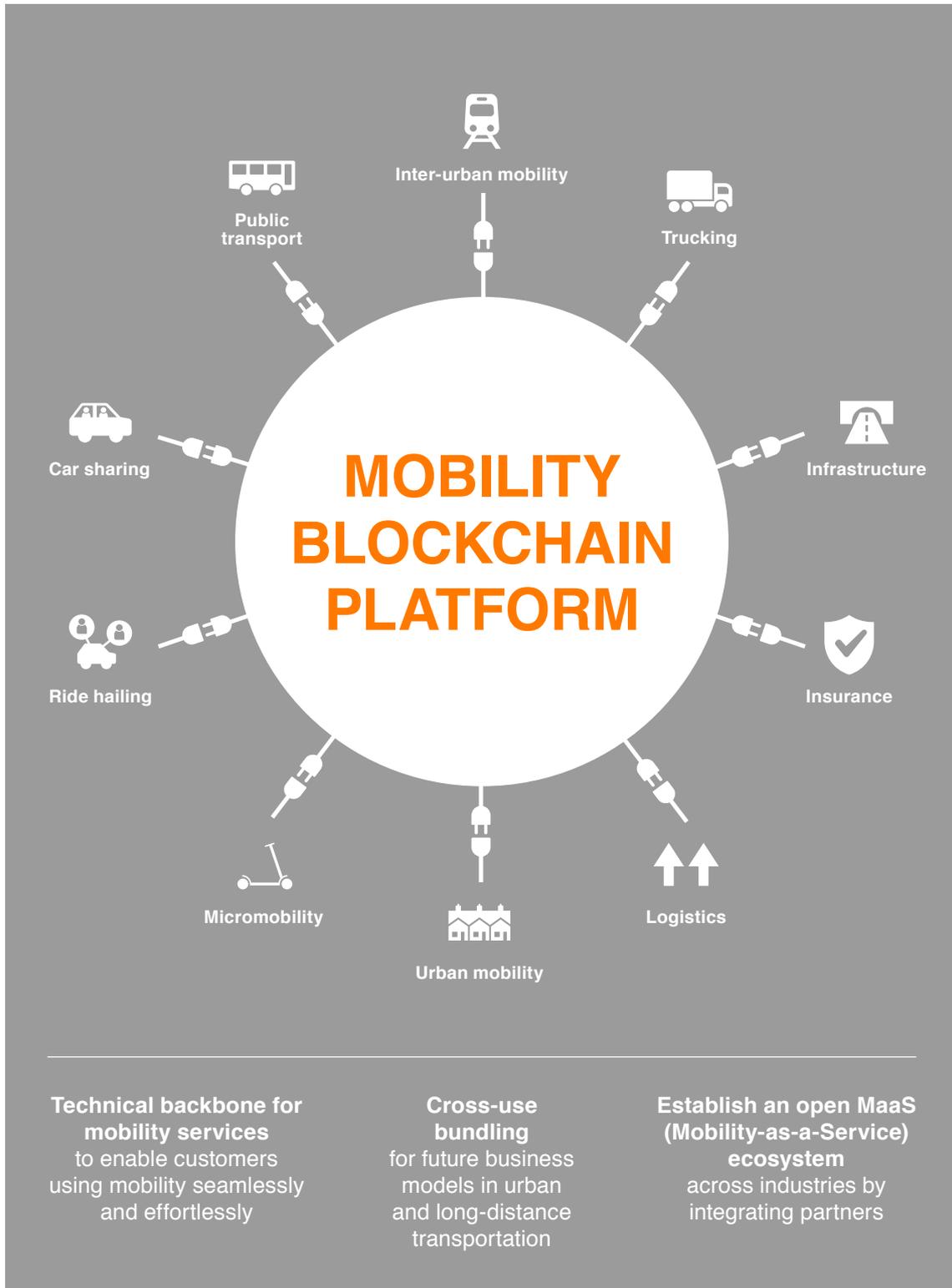
- Allow urban planners to steer traffic and the utilization of urban infrastructure;
- Provide the market mechanisms, resulting in the supply of services best suited to urban policy and market demand;
- Be effective in transporting people and goods;
- Be efficient in terms of resources needed to transport, increasing number of people and volumes of goods;
- Be flexible in providing the appropriate mode of transport and vehicle, according to requirements and preferences;
- Provide users with a choice of operators, services and pricing models.

Such a Mobility-as-a-service (MaaS) platform needs to provide a common and jointly used transaction infrastructure for service providers, providing their individual services, ranging from public transport, taxi and ride-hailing to car sharing and micromobility as well as financing, leasing, insurance and fleet operations.

Users should be provided with one fully bundled ticket, allowing them to “roam” through individual operators offerings, including access control and billing. Operators should be able to create feature-rich products without having to own and operate all assets needed for the delivery of the service. And all of this needs to be provided with the ease-of-use, efficiency and scalability we see in platform economics.

The platform provides the business protocols common to all service offerings, such as verification of identity and credentials, as well as managing contract signing and financial settlement processes.

The mobility blockchain platform will set the technical backbone to enable service providers to offer an integrated mobility and added-value services



The Mobility Blockchain Platform provides deep integration and seamless transactions to mobility service operators

SCALABILITY



1-Click rental



Self-service access



E2E Real-time Settlement

Open standards, interfaces and protocols, in addition to decentralized governance can provide needed scalability

INTEGRATION



Open and democratized protocols



Open mobility business software



Open and decentralized platform

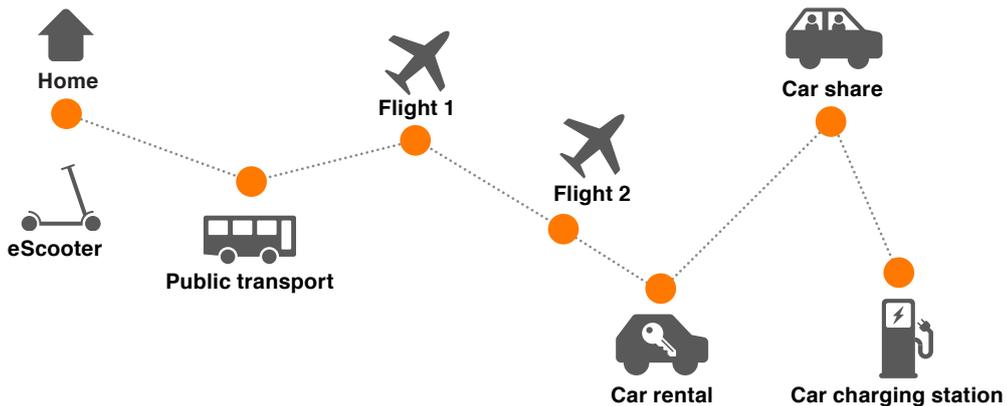


In-app SW Wallet



Digital signature

One ticket shopping for users: Integrated, multi-modal transport is critical to address smart city “liveability” challenges. Consumers want to travel from their home to their destination and back again in as fast and cost-effective way, avoiding congestion and minimizing their impact on the environment.



Mobility providers receive the money from home operator (who sold the ticket)

**MOBILITY
BLOCKCHAIN
PLATFORM**

Settlement and revenue distribution

Architectural layers

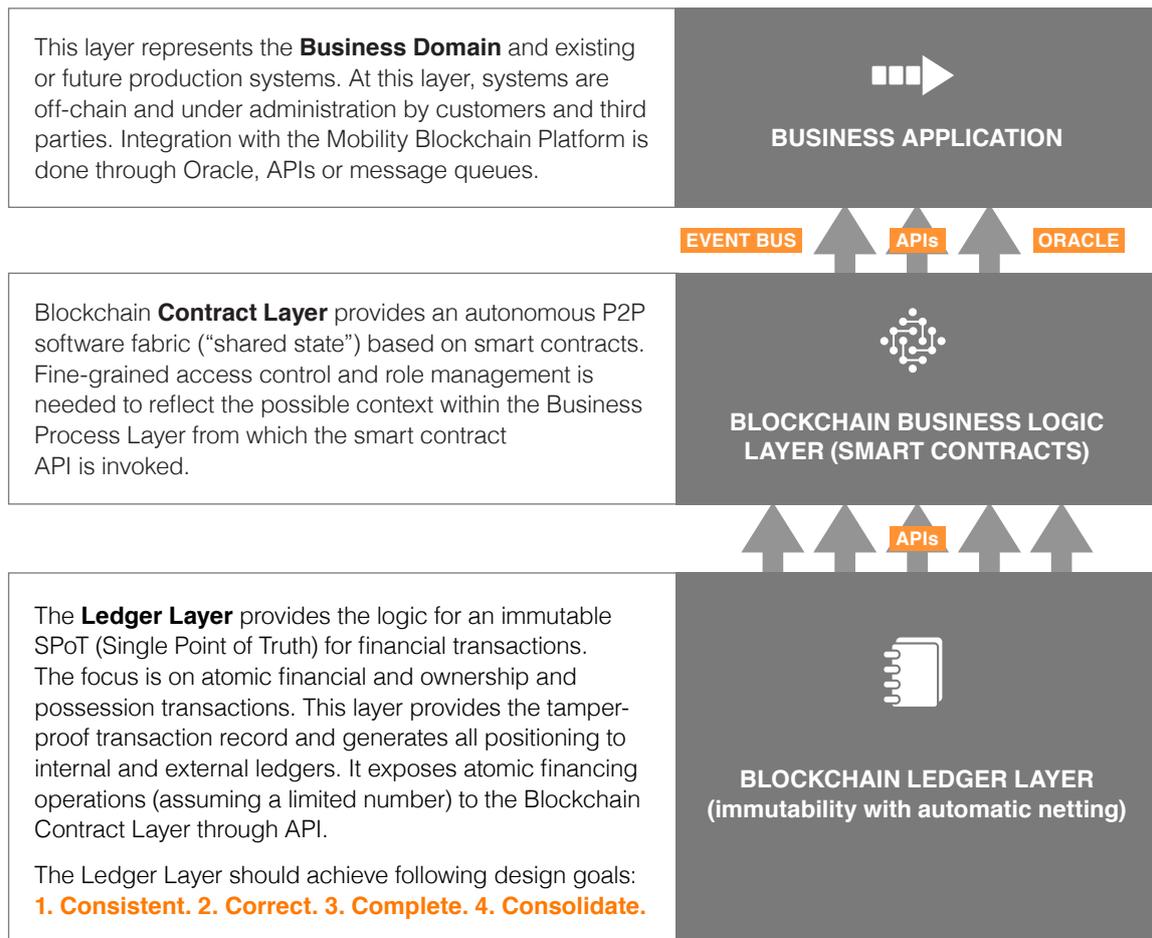
MBP has been developed to be deployed as a common technical infrastructure within an ecosystem.

It provides generic business process functionality, which is common to any digitally delivered service, for example, authentication, authorization, digital signatures and consent agreement, billing records, pre-booking, booking and settlement. These functionalities are common to any use case.

Integration with a given business flow, use case and customer happens via well-defined interfaces.

It should be noted that the actual integration, on-boarding and deployment of customers happens between the business domain and the contract layer. This is where the solution and integration architects of the two teams interact to connect the business and transaction systems to the MBP shared ecosystem platform.

Architectural layers of the Mobility Blockchain Platform



Key capabilities of the platform

The Mobility Blockchain Platform **provides automatic orchestration, execution and settlement of online transactions:**

- 1. Access:** Standardized, open-source protocols and APIs to interconnect capabilities and services.
- 2. Verification:** A standardized, open-source verification process to verify the identity credentials of participating companies, equipments or assets (CCC: Company, Customer and Car; the "Identity Triangle").

3. Discovery: A request and offer mechanism for the allocation of available services, enabling network participants to dynamically access and check the availability of services offered on the network.

4. Contracting: Manage the contract-signing procedure to ensure legalization of smart, digital contracts.

5. Settlement: Correct cross-party booking of liabilities into the shared ledger (AR/AP).

Providers use the access layer to plug into the platform and deliver their services. Based on this interconnection, participating providers can bundle and realize new B2C offerings and offer them to their customers.

Capabilities provided by MBP



Unified identities for customer, company and car, digitally secured and verified



New business models through trusted **integration and value-added services**



Open protocols for a minimally invasive integration effort with legacy systems



Modular platform, designed for multiple use cases and business models

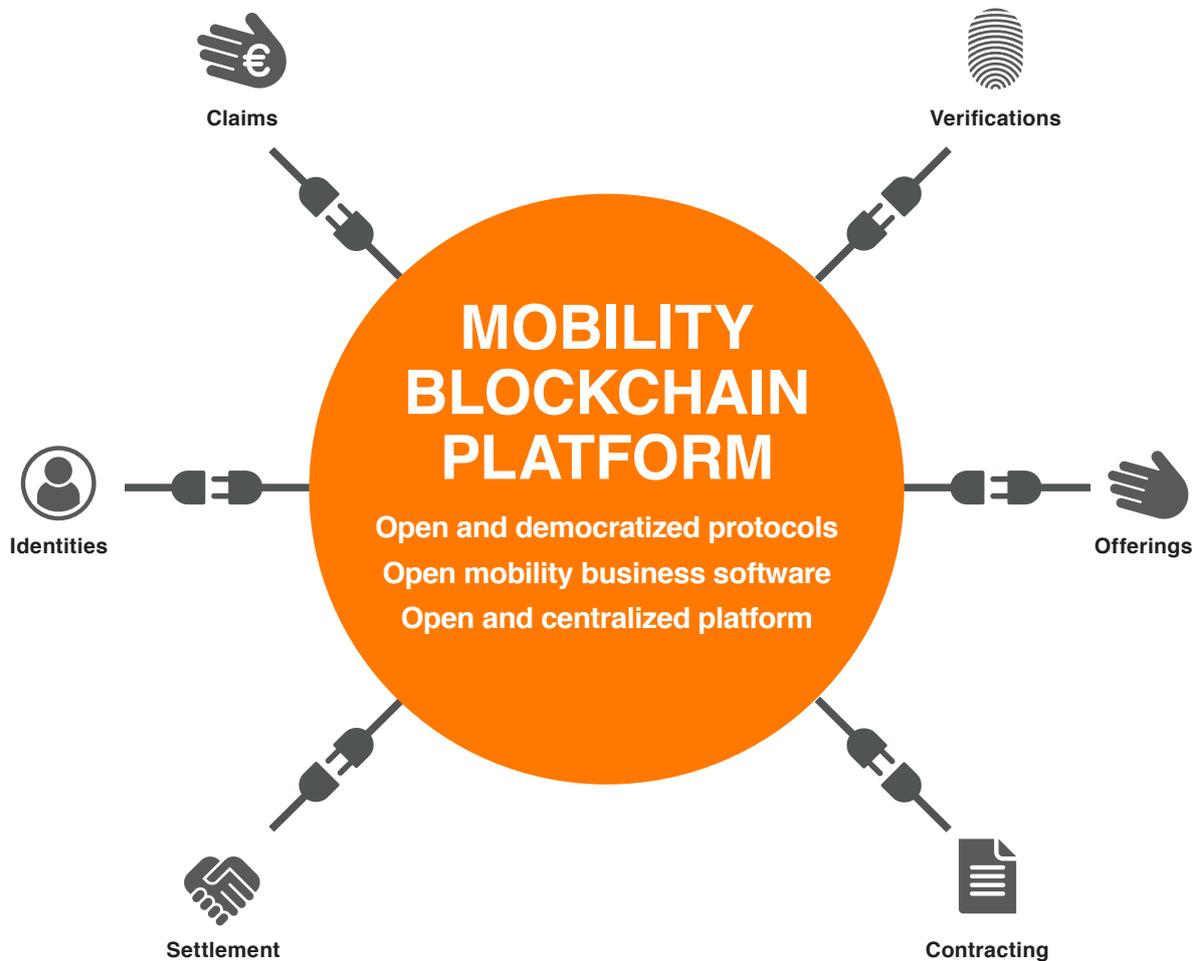


Seamless **revenue distribution and settlement** of liabilities in real-time



Enable and automate **secure B2B** business **transactions**

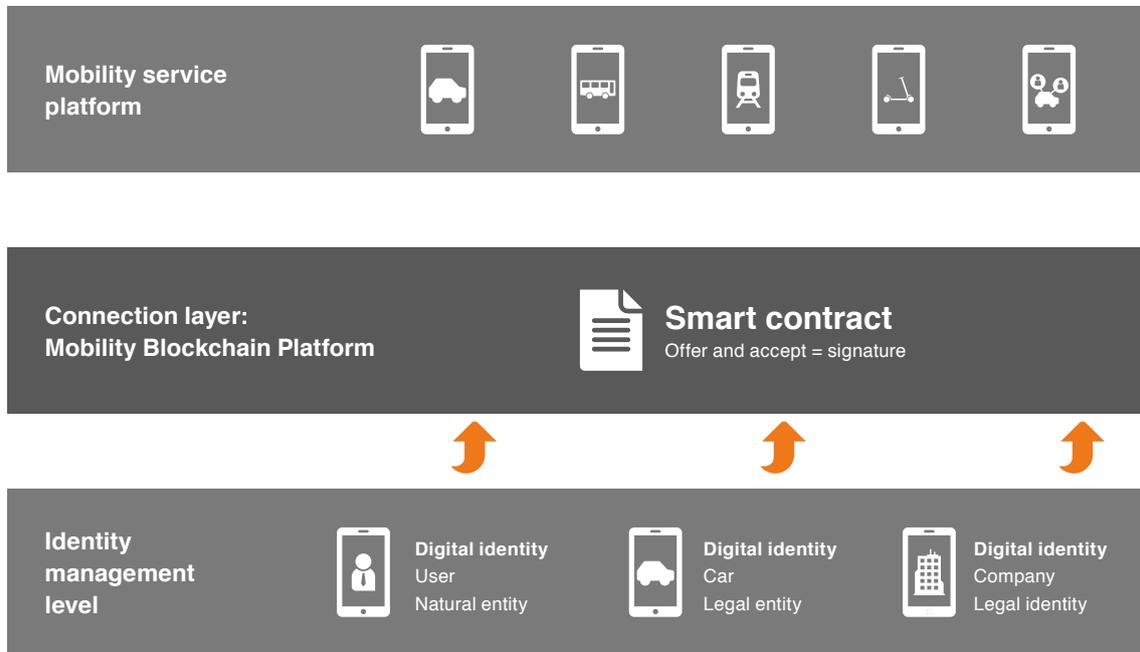
All services in the network are pluggable



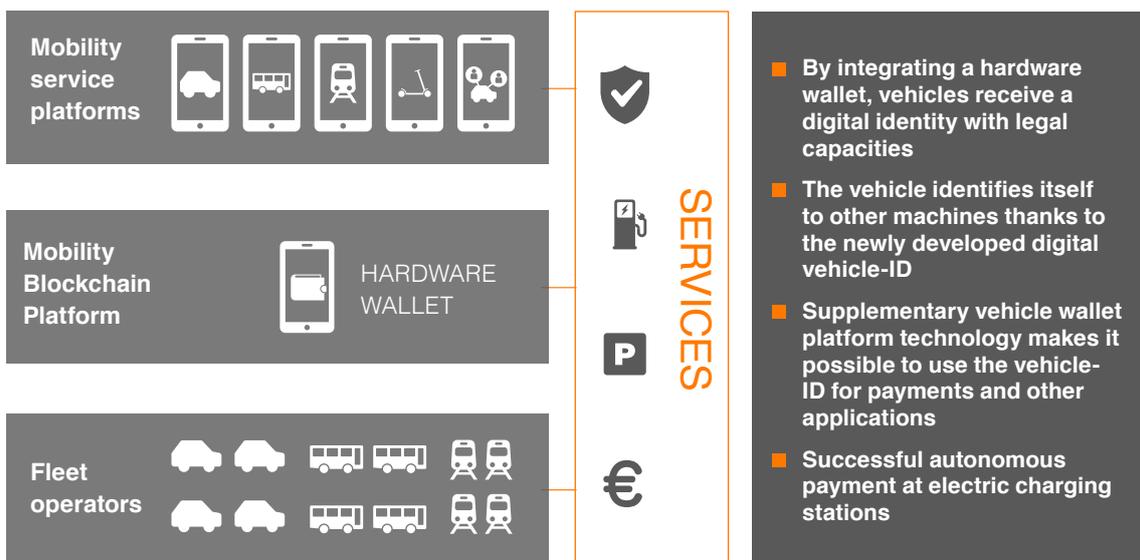
All services in the network are considered to be “pluggable”. This means, that services can also be provided by any other provider meeting the standards of the MBP.

It should be noted that the described capabilities (verification, contracting and settlement) will be offered and carried out by providers within the network. The MBP only defines the standards for those described procedures and processes within the network.

Multi modal mobility service bundles & settlement



Car wallet: Turns a vehicle into an identifiable economic agency capable of automated transactions



Applications of the MBP

Examples of real-world business services

1 MOBILITY SERVICES	2 ASSET FINANCING AND LEASING	3 INSURANCE SERVICES
4 IDENTITY SERVICES (for users, companies, vehicles/machines)	5 PAYMENT SERVICES	6 NOTARY AND VERIFICATION SERVICES

Urban mobility: MaaS

CHALLENGES AND OPPORTUNITIES

The Mobility Blockchain Platform provides essential services and infrastructure for urban mobility. It also provides the transaction platform for the operations of the infrastructure needed to deliver such services.

The benefits of the MBP in this use lies in the increased efficiency and convenience provided to all customers. Applications can always recall and verify customer data, which is validated by the blockchain via cryptographic methods. At the same time, the blockchain eliminates the need for building trust among all network participants by ensuring the validation of every transaction (i.e. a “chain of witnesses” for all transactions). Overall, blockchain technology provides a solution to all players within such a business ecosystem:

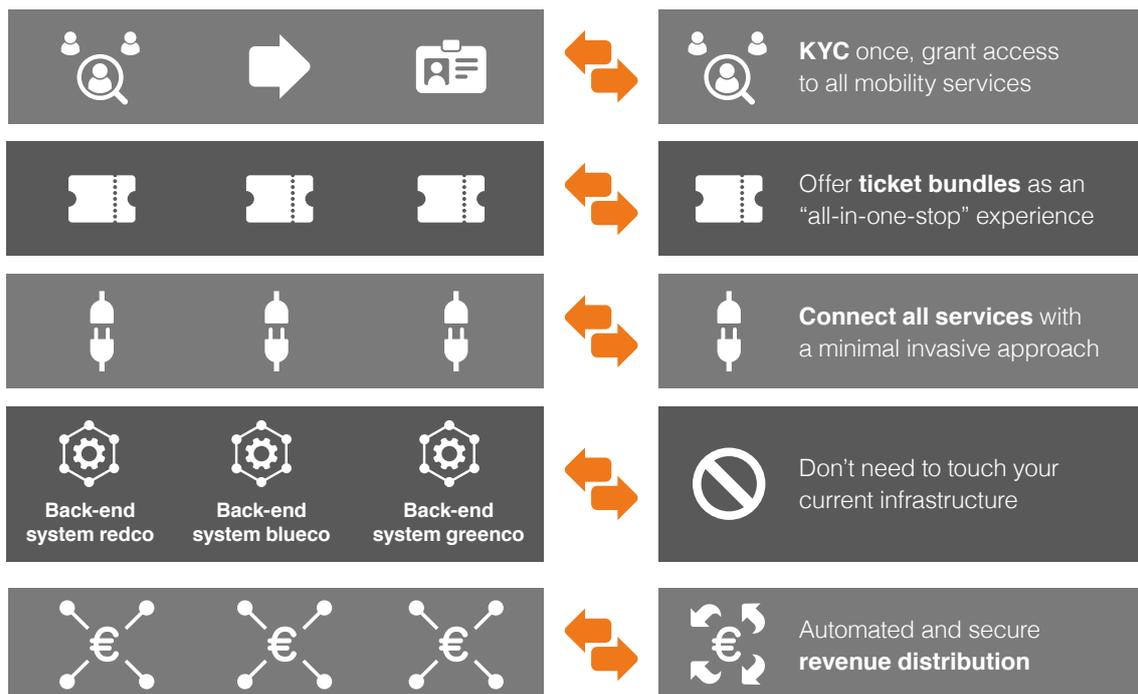
For customers, the usage of the MBP means convenient access to a variety of mobility services, offered by different providers. Routes can be planned and different mobility services can be

combined and readily booked. Customer identity data can be stored securely and utilized for any authentication process. The MBP executes financial transactions with the highest possible level of transparency and traceability.

For city governments, the MBP provides a state-of-the-art-ecosystem that strengthens the city’s position in future-oriented urban mobility management. The city’s image benefits from increasing usage of mobility services as well as public transport and traffic jams being minimized. Eventually, by collecting and analyzing anonymized data from all services, urban traffic becomes more predictable and thereby more controllable.

For mobility service providers, the MBP provides the opportunity to connect with other players more easily, in order to bring a seamless user experience to the consumers. Service providers can build partnerships directly and do not require the approval of a third-party entity. In addition to adding new distribution channels, they should benefit from access to a larger customer base.

MaaS: the Mobility Blockchain Platform way agency capable of automated transactions



Fleet sharing: increase utilization and enable asset-light rental services

CHALLENGES AND OPPORTUNITIES

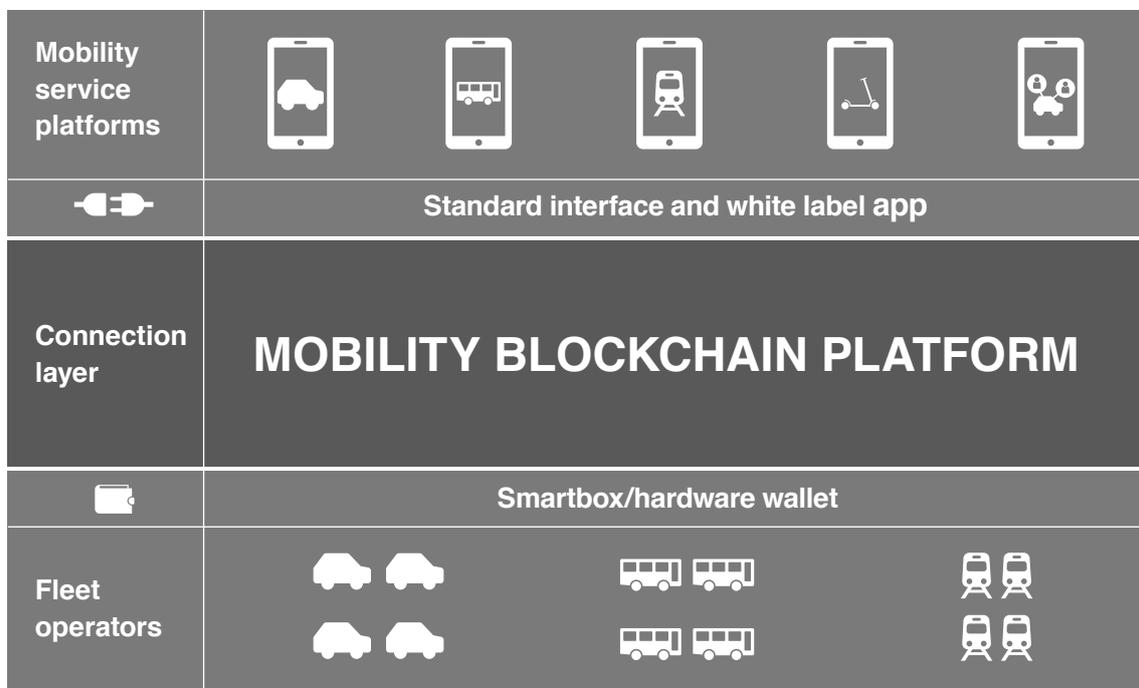
The way, in which the people approach the mobility changes, also fleet operators need to shift their focus to new service models. The main challenges for the fleet operators today are to understand the customer demand, the high administrative effort, the requirements to reduce CO2 and shift to zero-emission, and the biggest challenge of all, to optimize the fleet utilization.

The fleet sharing use case enables a company (e.g. fleet operators, like Athlon, or an asset-heavy mobility service provider, like ShareNow) to either:

- **Offer** its currently available and unutilized vehicles to other companies (e.g. asset light mobility service provider or a fleet operator) for utilization; or
- **Request** currently available and unutilized vehicles from other companies in order to utilize them.

The use case aims to enable vehicle owners to utilize their cars better by offering them on the MBP to other companies.

Strategic scenario: Decentralized and fragmented fleet supply



Tokenization is a game changer for the financial service sector

CHALLENGES AND OPPORTUNITIES

Tokenization⁴ is a new mechanism for financial products, which is based on blockchain technology⁵. Tokenization use cases range from so-called utility tokens, which pay for network functionality, to tokenizing assets or their revenue streams.

For the financial arms of large automotive players, this means that traditional products – such as finance and leasing as well as services, such as mobility solutions – could be improved and scaled beyond their current scope.

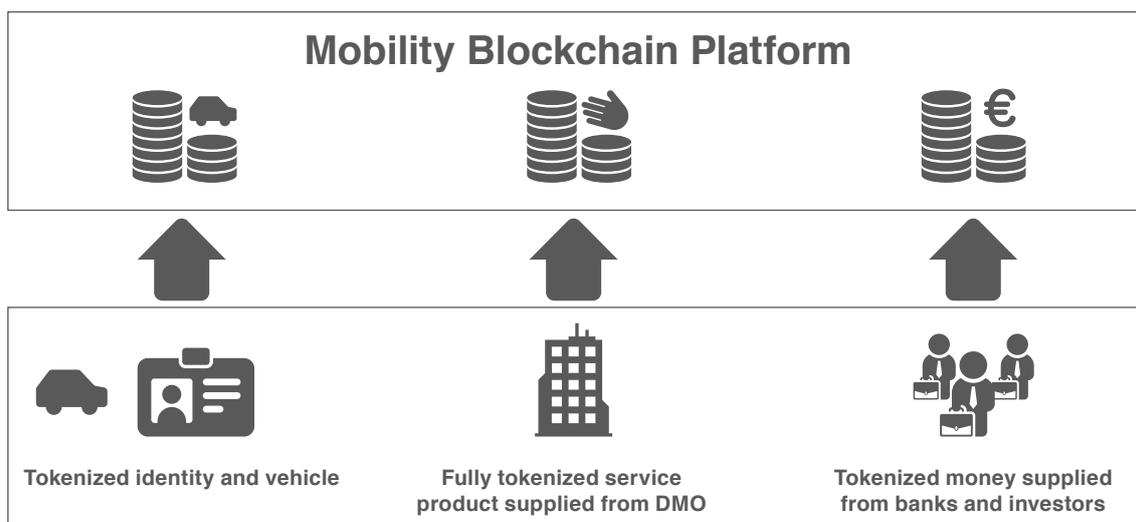
The point to bear in mind is that blockchain enables financial service providers to tokenize existing financial assets and, indeed, this is the most important corporate use-case for tokenization. Token-based financial products can create a trustworthy financial portfolio by securitizing revenue streams generated by an asset portfolio such as vehicles or charging stations.

Tokens and the smart contracts to which they connect, provide traceable transaction records and thus provide a fully transparent – and real-time – audit trail, which greatly improves the risk profile of such financial products. Funding and treasury departments stand to greatly benefit from this new and fast channel for liquidity.

Financial service providers traditionally offer various products and services to customers in order to generate stable, free cash flow, alongside strengthening customer loyalty. At the same time, the main financial benefit is to get stable funding support from money market players that hold secure financial assets in their portfolios. Traditional identity management technologies, assets securitization and Know Your Customer (KYC) practices, however, have intrinsic risks and drawbacks that can lead to inefficiencies in asset management and inaccurate asset valuation.

At the end of the day, blockchain enables automotive financial businesses to fund their main assets (e.g. fleets, charging infrastructure or floorplan).

Tokenization



⁴ The tokenization of assets refers to the process of issuing a blockchain token that digitally represents a real tradable asset.

⁵ D. Stewart and M. Simmons: The Business Playground: Where Creativity and Commerce Collide. Berkeley, USA: New Riders Press, 2010.

Business model and stakeholders

For the Mobility Blockchain Platform to thrive, it needs a variety of members from different industries and backgrounds to cooperate in creating, delivering and capturing value. This collaboration will generate several incentives that will be more prominent as the members' number increases, following a "Star Alliance" model, where fleet operators benefit from having access to selling tickets for flights that they do not operate, increasing the value they offer to their customers, while, getting additional revenues on own flights, without having any cost of acquisition.

A parallelism for the MBP would be scooter companies, owning the vehicles in several cities, benefiting from offering access to scooters worldwide, increasing the value provided to their customers, and increasing the usage of their vehicle thanks to the cooperation with other players, generating revenue in both cases. Companies that do not own mobility-related assets can contribute in increasing the demand, for example, travel agencies offering third party scooter services to their customer base. A general overview of incentives for the MBP stakeholders is described later in this chapter.

MBP stakeholders can be described as follows:

1. MBP operators: Founding partners and key operators

This group co-owns the platform, and participates on the value and capital gains of the organization. Institutions in this group own key assets and services that are essential for creating utility. Just to mention a few:

- a. Mobility service and fleet providers
- b. Digital identity service provision
- c. Tech companies / blockchain
- d. Telecommunication services
- e. Digital payment providers
- f. Insurance providers
- g. Nonprofit organizations and academic institutions

2. Business customers: Companies who offer their service over the platform

They interact with the platform within a Software-as-a-Service (SaaS), or actually Transaction-as-a-Service, model. They can use the capabilities provided by the platform itself as well as services provided by other service providers in a simple "plug-in" environment with low complexity integration to generate new sources of revenue. They benefit from the platform as it presents an environment free of vendor lock-in and avoids the risk of being devoured by quasi-monopolistic, centralistic hyperscalers.

Joining this group is especially interesting for asset-heavy service providers (e.g. fleet owners who want to increase utilization by spreading their supply of vehicles across the platform's demand aggregators).

3. End-users: MBP members who would like to increase the revenue per user by cross-selling services from the MBP

Companies in this group are cities, telecommunication firms, banks and travel agencies, among others. A use case would be banks offering vehicle leasing or renting services to their customers, for example, or companies in the travel or restaurant industry, generating extra revenues by offering last mile mobility to their customers.

Incentives for the different stakeholders

In previous chapters of this whitepaper we have explained the multiple benefits that the MBP brings from a technology side, especially in terms of automation, open access and security. Hence, this solution is interesting in terms of long-term strategic advantage, access to new customer bases, and improvement on customer experience. Just to name a few examples:

ROLE	CATEGORY	PROBLEM	INCENTIVE
Corporate members	Owners	<ul style="list-style-type: none"> • Grow the ecosystem • Enable strategic initiatives and businesses 	<ul style="list-style-type: none"> • Grow the ecosystem • Enable strategic initiatives and businesses • Capital gains
Mobility service provider	B2C operator	<ul style="list-style-type: none"> • Needs to scale • Wants to provide end-to-end multi-modal services • Prefers to be asset-light and has no appetite for asset operations 	<ul style="list-style-type: none"> • Offload transactional and operational aspects of service delivery • Better financial scaling due to asset-light operations
Fleet operators	B2B operator	<ul style="list-style-type: none"> • Low vehicle utilization • Operations and customer aggregation (each demand specific skillsets) • Inefficient remarketing = sub-optimal residual value 	<ul style="list-style-type: none"> • Virtual fleet aggregation results in scalable supply • Better utilization of assets • Increase in residual value and decrease in TCO (Total Cost of Ownership)
Finance and Insurance providers	B2B operator	<ul style="list-style-type: none"> • Entry into Distributed Ledger Technology (DLT)-driven settlement ecosystem • Lack of technical infrastructure to efficiently operate micropayments at scale • Entry barriers to cooperate with big mobility players and bundle products 	<ul style="list-style-type: none"> • Simple infrastructure to bundle products with mobility service providers • Access to high-frequency, pay-per-use ecosystem • Access to IoT ecosystem
Public transport sector	Cooperative member, regulator and policy maker	<ul style="list-style-type: none"> • Extremely difficult to combine existing multi-modal inter-urban services into one platform • High limitations to growth operations in new locations • Complex and rigid legacy systems 	<ul style="list-style-type: none"> • Open access to cooperate and innovate with high tech players • Opportunity to take a step forward into sustainable urban mobility • Increasing customer lifetime revenue by offering service in new areas and markets
Charging infrastructure	B2C and B2B	<ul style="list-style-type: none"> • Complex to reach critical mass out of highly populated regions • High financial investment needed to increase the charging network • Reduced tools for increasing customer loyalty 	<ul style="list-style-type: none"> • Contributing to build the largest mobility platform in Europe and paving the way for electric and sustainable mobility • Simple infrastructure to bundle products with mobility service providers • Increasing customer lifetime revenue by offering service in new areas and markets
B2C consumer	End user	<ul style="list-style-type: none"> • App jungle, need to download and register in several apps with similar purpose within the same city or service offering • Fragmented customer journey • Repeated onboarding and handing over of sensitive data, with a high risk of data leaks and cyber attacks on personal accounts 	<ul style="list-style-type: none"> • 1-click service delivery • Seamless and international service roaming • Rich, multi-modal, multi-service products (like mobility, financial services, insurance or charging...) delivered over one channel of choice

Principles of the decentralized platform economy

Problem statement

Decentralized platforms – powered by technologies such as blockchain, Distributed Ledger Technologies (DLT) and Decentralized Identifier (DID) – offer a promising alternative to centralized platforms, which have come to dominate whole industries and have concentrated power in the hands of their owners.

In this chapter we will try to describe the underlying principles of “cooperative platforms” and how they can be built and operated beautifully as software using decentralized technologies. Such cooperative platforms present a much more balanced and sustainable approach to digital marketplaces and avoid dominance by single companies who hold sway over ever-growing parts of the digital economy.

Platform economics is at the core of the most successful Internet enterprises, have unleashed creative energies and revolutionized the way services are delivered, consumed and settled. They have truly empowered end users and brought huge benefits, in terms of choice, ease-of-use and cost-effectiveness.

Last but not least, they created incredible wealth for their owners. On the other hand, they leave a trail of creative destruction behind them as incumbent operators lose control over their customers and markets. Due to the relentless pressure of venture-funded, freely spending hyperscalers, margins tend to drop dramatically. This is, after all, what the end customer realizes as cost-effectiveness. Market players only have a chance to compete if they can offset these low margins with very deep pockets and the operating scale to achieve profitability by growing the number of transactions. The advent of blockchain and other decentralized technologies has added an important element to this.

Cooperative platforms combine many digital benefits

Blockchain, Distributed Ledger Technologies (DLT) and other decentralized technologies (such as Decentralized Identifiers (DID)) provide technical mechanisms that lend themselves very well to building fully automated platforms that can manage financial transactions from contract signing all the way to financial settlement, without the need for intermediaries.

These are completely autonomous software networks and provide the critical element of trust and

consensus by which commerce and value transfer becomes part of the network layer. The underlying peer-to-peer (P2P) principles, in which all participants are equal peers and operate identical nodes provide a technical analogue to cooperatives in the social and economic sense of the word.

The last twenty years have shown us how software is, indeed, eating the world and have brought powerful new actors to the world of international commerce. Centralized platforms – the proverbial GAFA⁶ – have now entered a phase where they constitute a similar danger to competition and market balance as Standard Oil did in the early 1900s. Politicians and regulators are recognizing this and are addressing it with the means at their disposal.

In the meantime, blockchain and other decentralized technologies have emerged over the last ten years and provide a paradigm by which new cooperative platforms can be built, combining the advantages GAFA platforms offer end users with a more sustainable balance of power among market participants.

Tokens provide a mechanism to program the flow of value into community-operated, highly secure commercial platforms. Combining the technical advantages of decentralization with the purpose and incentives of cooperatives can create a powerful counterbalance to centralized platforms. They can also unleash new business models in which power does not necessarily accrue to centralized market makers, but is jointly held by a community of equal cooperative members.

Summary

Blockchain networks form a counter-model to established platforms and allow independent parties to take part in “community-owned and -operated networks”⁷. This allows businesses to integrate their services within a trusted service network and avoids single-player platform dominance. Blockchains and Distributed Ledger Technologies (DLT) share a unique set of features to provide trust and consensus within highly fragmented and decentralized environments. These features include but are not limited to distributed governance, open access and cryptographically secure transactions.

⁶ GAFA: Google, Apple, Facebook, and Amazon

⁷ “Past, Present, Future: From Co-ops to Cryptonetworks”, March 2019, Jesse Waden, Andreesen Horowitz.

Existing mobility services providers will become profitable

Decentralized, integrated and connected network of mobility providers will allow scaling, bundling, code sharing and resource sharing – leading to higher direct revenues.



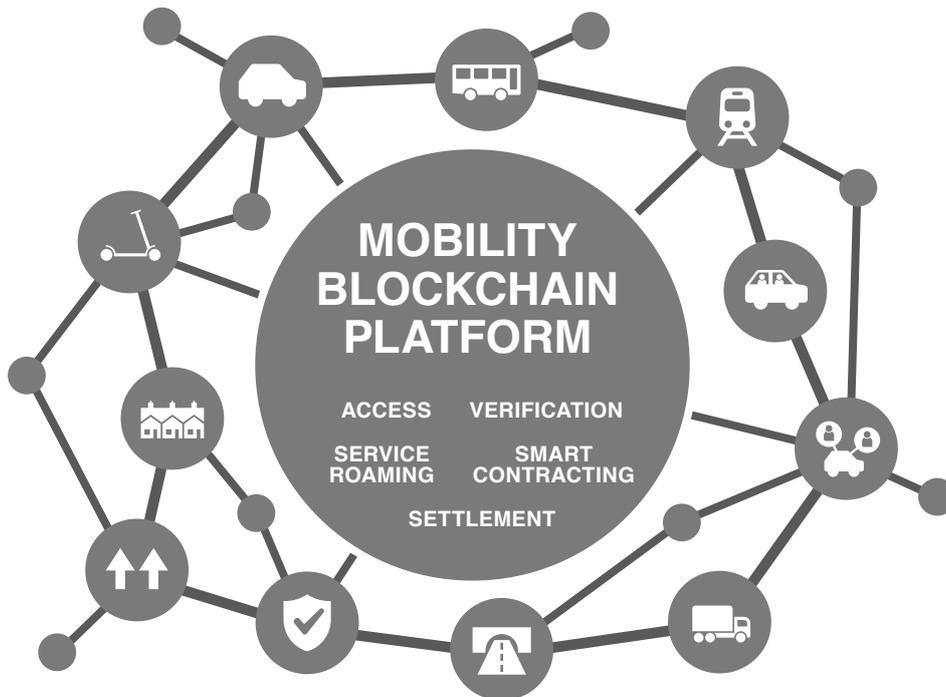
Service integration



Low cost of full utilized assets



Full demand response



Ecosystem development and growth strategy: the decentralized way

In the world of mobility, most of the platform players are working in a centralized environment, having full control and central authority, and eventually, if competition has been wiped out, no limitations on price setting.

For the ecosystem to thrive, the MBP needs a variety of members from different industries and backgrounds to cooperate in creating, delivering and capturing value. Decentralized platforms bring several benefits, eliminating trade barriers, achieving economies of scale and automating back office processes while avoiding monopolies.

The main challenge comes from the vast amount of people, processes and systems that will be affected by the blockchain solution, and the mentality shift necessary for understanding the long-term benefit of moving from traditional silos model to decentralized co-innovation environments.

Therefore, the main goal that we should keep in mind when developing a blockchain environment is motivating and incentivizing the network, creating synergies and reaching critical mass with a simple and seamless application.

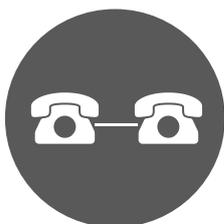
Besides, thinking pragmatically, corporates should be planning to take action and cooperate, before a centralized platform takes over the market, controlling market demand, influencing supply prices and taking a high fee from every transaction because there are no alternatives to their sales channel.

We expect the growth of the MBP to follow the pattern of the “S-curve of technological adoption” and the “network effect”, where at the tipping point, the highest utility and economies of scale will be achieved after the early majority joins the platform.

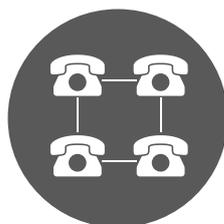
As a metaphor, we can imagine how the introduction of the telephone was. If there was only one telephone in the world, the utility would be zero as it cannot be used to communicate. But the more telephones are distributed around the network, the higher utility the user will gain from it by being able to communicate with more people, and therefore, generating interest from more individuals to join the network.

Highest utility and economies of scale will be achieved after the majority joins the network

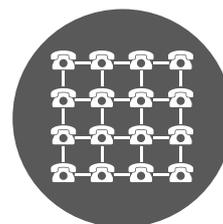
Network effect



Two telephones



Increasing amount of telephones



Huge network of users with telephones

Awareness and community building

Businesses (especially big corporates) typically operate in isolation due to the complexity and financial cost of the human capital, processes and systems required to achieve joint goals. Thanks to the Mobility Blockchain Platform, it is possible to create a community of companies to cooperate towards a shared goal in an effective and automated fashion.

In the previous years, millions of professionals worldwide have shown interest in learning what blockchain is, and trying to understand its business benefits. The MBP acknowledges this mission and is contributing by participating in blockchain consortiums, international conferences, expert panels and podcasts.

Just to mention an initiative, we founded in 2018 the Blockchain Academy, an organization focusing on onboarding professionals interested in DLT (Distributed Ledger Technology) in the mobility topic. In the training sessions, we present the benefits of the MBP and why they should join the network, how their business can take advantage of the platform, and as well the latest developments of the platform and teach participants how to identify blockchain use cases.

The main idea behind the MBP is the term decentralization. The goal behind it is to create a cooperative environment, scalable and enabler of co-innovation, while avoiding lock-in risks and being absorb by monopolistic players. Thanks to the MBP, different parties are working towards a sustainable and balanced economy, where none of the players will have a disproportionally share of the added value.

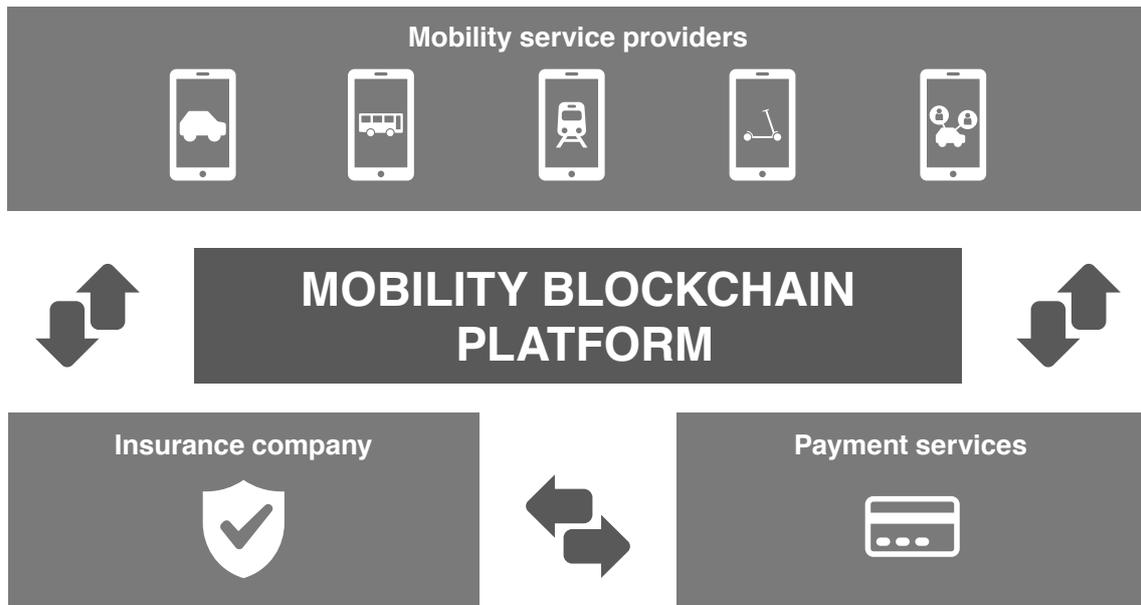
Creating a positive feedback loop

The primary goal of this pillar is to achieve platform scalability by being able to create reproducible steps, onboard new members efficiently and create new synergies. That is crucial to generate new customer value. Having a great platform is important, but developing use cases with high utility is critical.

We are involved in consortiums and blockchain-related organizations for connecting with companies from different business areas (finance, mobility, insurance) that want to benefit from the MBP to provide their services and are eager to co-develop new offerings. This way we ensure that the services implemented in the MBP will evolve to cover the exact needs of the market and the investments into new features will be efficient.

This bundle of services is a crucial element, which creates the right synergies for creating a consistent and scalable offer. In addition, it is critical to involve a larger number of platform participants, leveraging their existing customer bases to detect new use cases, shape new service offering paradigms and design better customer journeys. The goal of this phase is to develop a strong foundation – or MVE (Minimum Viable Ecosystem) – to be able to start focusing on growth thanks to the experiences collected in onboarding new companies in less than one day.

The members of the MBP benefit from cross-transversal offerings and bundles, increasing the value, increasing the value provided to the customer



Achieving critical mass

As mentioned earlier, the telephone is a good metaphor to explain how the utility of the MBP increases with increasing levels of consumer participation. Having only one telephone in the market makes no sense.

The real utility is generated when you achieve a critical mass and you can have phone calls with other users. That happens when you bring into the network “the first 100 telephones”, or the first 100 companies, and you can start generating synergies with your services offer and demand with other companies in the network.

Achieving critical mass is a key milestone for a platform business where the long-term sustainability of the business will be mercilessly tested. Our tools for achieving the required initial critical mass will be through generating **business incentives**.

As a recap, let’s name a few:

- Access to additional sales channels;
- Revenue generation without new customer acquisition;
- Special conditions for early members of the network.

Onboarding will be simple and agile. “Onboarding packages” will be created out of the learnings from

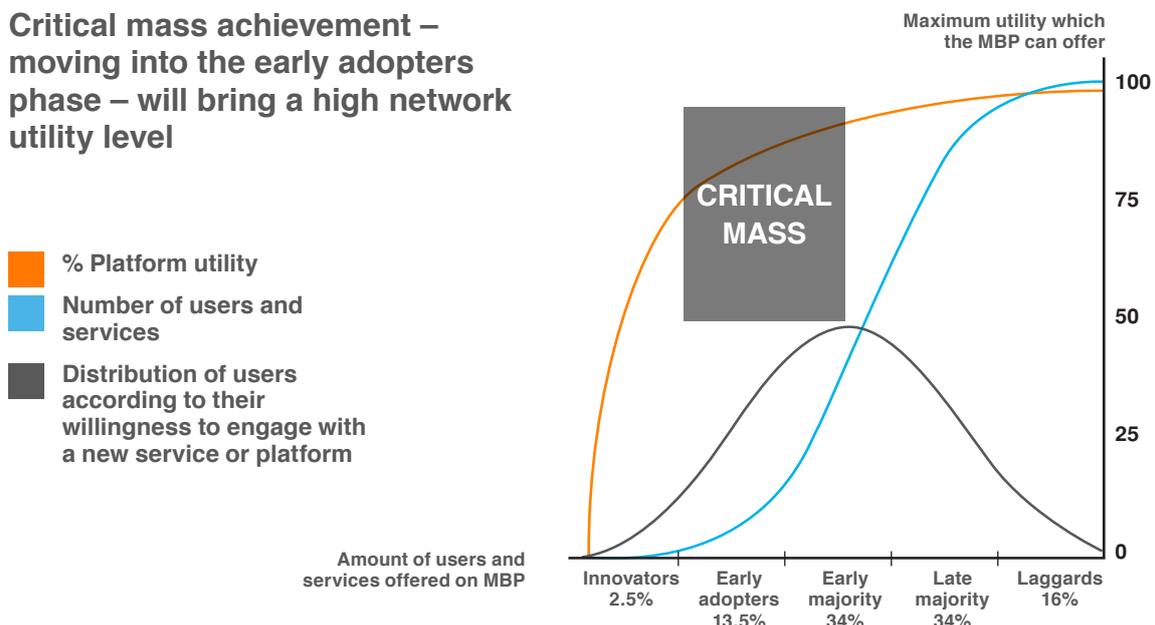
the MVE creation, which will allow new platform operators and participants to start benefiting from the Mobility Blockchain Platform SaaS in record times, in less than one day; allowing the business to be scaled at a fast pace.

There will be focus sales teams with the goal to accelerate platform growth, ensuring the initial momentum is kept, and quickly achieve high platform utility. Our sales teams will target corporations, trade unions, industry associations and key decision makers showing them the benefits of joining the network.

Cooperation with third parties and the franchising of the platform model will be considered in parallel in specific markets and regions to achieve market penetration to ensure we can offer a global service to the end-customer and have more effective business development and marketing campaigns.

It is important to highlight that each platform operator will determine what service prices are desirable for them. There will not be one single operator deciding what the prices are. Instead, cooperation is required across the network to increase the overall demand and lower admin and settlement costs. This would create the risk of the platform being absorbed by a monopoly that would strangle margins and control market prices.

Critical mass achievement – moving into the early adopters phase – will bring a high network utility level



Governance

With an emphasis on openness and collaboration, the Mobility Blockchain Platform utilizes blockchain and distributed ledger technology to provide trust and consensus for all business actors within the mobility ecosystem.

The operational model of the MBP will be split into two layers:

- 1.** An independent foundation, whose purpose is to define and develop the necessary protocols and standards, as well as safeguard the created IP for an open mobility ecosystem including network verification, service discovery and allocation, contracting and settlement. The members of the organization operate the MBP as a network of validator nodes and thus provide the organization's governance framework.
- 2.** An operations unit, a corporation 100% owned by the foundation, registered in a defined location and led by a distinctly visible external CEO. The purpose of the operations unit is to ensure the technical implementation of rules and decisions made by the foundation. Additionally, it enables at least two functioning nodes for minimal network capability.

Systematic benefits



About the authors

We will be happy to answer any further questions you may have:



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