

# TSIO

## How Transport and Technology is Converging Into a New Internet of Mobility



by  
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As revolutionary as the move from horses to the internal combustion engine, technological advances are yet again set to transform transport beyond recognition. New flexible and sharing economy services are already blurring the lines between private and public transportation.

Artificial Intelligence and electric battery technology will drive down production, running costs of vehicles, at the same time making them more accessible to young people and those who cannot drive.

As whole industries find themselves converging into the same space, new supply chains and business models are emerging. Venture Capital money is coming in, such as the \$1bn raised to date by Ofo bike-sharing company, that is subsidising areas of our transport system that would typically be picked up by local government.

Yet current infrastructure and data for travel booking, payment and information remains locked away in silos. It means little interoperability between modes of transport, across borders or between competing transport companies. For travelling customers, this means having to use multiple

apps and wasted time trying to “manually” sew together their journey, leaving the idea and desire for a seamless mobility experience a far-off dream.

Mobility as a Service (MaaS) is a market valued at \$1 trillion by 2030, that empowers users to make individual journeys and/or overall mobility lifestyle choices that involve combinations of flights, ferries, private car, shared mobility services and public transport. It is being driven by an observed trend for consumer markets moving away from a desire to own cars to being in control of their digitalised lives – a trend epitomized by the popularity of Uber in cities around the world. Certainly, in the UK, we are seeing a combination of Uber and e-bikes help many consumers ditch their 2nd car.

TSio Protocol positively disrupts the transportation and travel industries with decentralised blockchain-based mobility account infrastructure for people and cars. This will enable consumers (and in time, autonomous cars) to manage and pay for their mo-



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bility and travel through a single account, that is owned and operated by themselves – not by a centralised system giant (e.g. Apple, Google, Amazon, Facebook etc).

This includes bringing the customer back into control of managing rights and access to their travel behaviour data. This mobility account isn't passive either, it automates the creation and execution of underlying multi-party commercial

agreements for integrated service offers, aggregated directly to the customer- across the full spectrum of public transit, automotive, airlines and sharing platforms. In a future where autonomous cars have their own legal and financial existence, it enables the AI of the car to negotiate with surrounding infrastructure for the services it needs to remain fuelled and roadworthy.

Through engagement with the mobility industry we have established the following design objectives for TSio Protocol.

- Create inter-operability and roaming capability for mobility accounts



between transport operators, modes and across borders.

- Reduce the costs for transport providers requiring real-time settlement of high volumes of low-value payments.
- Provide low network latency, fast verification and compatibility with low power devices.
- Prevent fraud, protects data and resists denial of service attacks.
- Manage the rights and responsibilities of highly portable personal data.

There is now a vast array of new and developing variants of Distributed Ledger technologies, some being developed without specific applications or industries in mind, others developed for specific industry use-cases, with some risks of duplicated efforts and the development of new data siloes.

As an industrial use-case led project, we plan to exploit, and influence the evolution of, existing low-level protocols. The TSio Protocol layer will be situated between the lower level distributed ledger protocols and higher level eco-system applications and services.

To achieve the design objectives above we have identified an opportunity to run the “nodes” of our decentralised network on connected vehicles, fuel pumps, traffic signals and cameras, local ticket validator machines and smartphones.

We are designing the TSio token to equate to a mobility account, that is at any point in time tethered to a user ID, a geographic location and holding device. This interaction between the digital and physical domain provides a helpful mathematical constraint for the intended use case of managing the movement of people and goods. It enables high volumes of low value transactions and fast validation processes in a secured network environment.

The success and scaled adoption of the open-source TSio Protocol core layer will be dependent upon achieving success for our eco-system partners, who will be building applications and services on top of our new global infrastructure.

We plan to engage and help grow this eco-system through designing the TSio token to not only function as a mobility account, but to act as an eco-system community token. We have adopted a concept developed by Outlier Ventures, called the “Minimum Viable Community” (MVC) for our ICO. This means that the cash proceeds of our ICO will be divided between open-source development of the TSio Protocol and R&D by our MVC members to adapt their existing products to interface with the TSio Protocol and to pilot the technology on their customer base. Our MVC includes MVPs in personal data storage, demand-responsive transport and wearable technologies.

For wider eco-system support and adoption, we are supported by the TravelSpirit Foundation, based in Manchester, UK, who already have a membership of 50+ organisations and an emerging global presence in Portland (Oregon), Florida, Washington, Toronto, Turin, Cape Town, Singapore and Hong Kong. We are also applying to become associate members of the Hyperledger Project.

We are shamelessly ambitious – nothing less than an Internet of Mobility that challenges assumptions that the development of new mobility models should be proprietary, monopolistic, and closed to outsiders. Through TSio Protocol and TravelSpirit we are building a community that believes that an open, integrated, connected, multi-modal transport system provides the path to sustainable and equitable transportation for all.

To find out more and engage please:

1. read our whitepaper <http://travel-spirit.foundation/resources/whitepaper-6-tsio-protocol-the-internet-of-mobility/>
2. register your interest <https://tsioprotocol.com/>
3. join an open dialogue and Q&A <https://www.linkedin.com/pulse/tsio-protocol-whitepaper-internet-mobility-si-ho/>