【欧州】【自動車】

Road/Railways – Mobility as a Service: Approaches to the MaaS model of transport and uncertainties related to the appliance of legal frameworks on the MaaS implementation

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【概要：Summary】

The road transport sector will undergo significant changes in future as electrification and connected and automated vehicle technologies will be continuously introduced. The further development could also support the introduction of robotic taxis, automated shuttles and delivery drones for urban environments. These automated vehicle technologies will facilitate a move from a personal vehicle ownership transport model to a Mobility-as-a-Service (MaaS) based transport model. The MaaS innovations will allow the traveller to find mobility solutions, based on a service, which will lead to a shift away from personally owned modes of transportation. MaaS, combined with vehicle automation and electric engines, is expected to lower the costs of road transport and offers the potential to improve the levels of asset utilization for passenger cars.

Since the MaaS could significantly change the road transport in particular in cities, some studies point out the aspects that need to be considered when introducing the MaaS model.

The Juniper research study entitled "Mobility-as-a-Service: Emerging Opportunities, Vendor Strategies & Market Forecasts 2018-2023" (September 2018) examines the MaaS implementation, growth and readiness of cities. However, although the Juniper research study forecasts that MaaS introduction could lead to annual time-savings of over 500 million hours by 2023, which could lead to a more efficient use of road vehicles, it is still unclear if this would reduce overall emissions, as this depends on the relative extent of ride sharing.

The Ricardo Consultancy white paper on MaaS entitled "Identifying markets for future mobility services" (January 2019) outlines the key steps that companies within the existing automotive value chain should take when bringing MaaS innovations to market. The white paper offers technical insights on the key success factors in the commercial market testing and launching of MaaS innovations. Regarding the costs of the automated vehicle technologies that will enable MaaS innovations, the Ricardo study suggests that the cost per mile of robotic taxis would be around half that of personal car ownership.

Finally, the MaaS Alliance commissioned study entitled "Study on market access and competition issues related to MaaS" (June 2019) aims at giving an insight into the rights and obligations of public and private transport operators in order to support authorities, operators and service providers when creating new advanced mobility services. The study aims to strengthen the development of open MaaS ecosystems and encourage the generation of new public-private partnerships. This study gives an insight into the rights and obligations of public and private transport operators and comes to the conclusion that operators or authorities will be able

to extend their scope and become a MaaS operator. However, a lot of aspects of the EU's regulatory framework will have to be clarified accordingly.

【記事：Article】

1. Background of MaaS

The aim to decarbonise transport might lead to a different approach in future transport policy. Road transport could undergo massive changes, driven by electrification and connected and automated vehicle technologies. The further development in transportation supports the economically viable introduction of robotic taxis, automated shuttles and delivery drones for urban environments. These automated vehicle technologies could also drive a shift from a personal vehicle ownership as transport model towards the use of Mobility-as-a-Service (MaaS) model as a new car concept. These massive changes bring an opportunity to move towards a more efficient, safer, less polluting and more accessible transport system. This transformation offers the potential to radically improve the current very low levels of asset utilization for passenger cars. Based on the MaaS innovations, the traveller could find service-based mobility solutions, which will lead to a shift away from personally owned modes of transportation. Therefore, MaaS could significantly increase the efficiency and utilization of transport providers that contribute to the overall transit network in a region. MaaS would decrease costs to the user and reduce city congestion and emissions as more users adopt MaaS and as more users rely on public transit components or electric, autonomous vehicles in a MaaS network.

However, the new transport technologies will need the right policies in place in order to achieve emission reduction and the utilisation of environmental friendlier transport modes, as they will not spontaneously improve the transport situation.

2. Juniper Research study shows MaaS effects on private vehicle journeys

MaaS integrates multi-modal transport services, including buses, taxis, rail and metro, offering compelling on demand services, resulting in transportation modal shifts. The research by Juniper Research entitled "Mobility-as-a-Service: Emerging Opportunities, Vendor Strategies & Market Forecasts 2018-2023" examines the MaaS implementation, growth and readiness of cities at global level. It provides an evaluation of the current market progress to MaaS implementation and future opportunities for players across the value chain in each area of MaaS deployment. The research analyses the key sectors, regional opportunities and developments, providing the impact expected on existing transport methods. It also includes a scenario-based forecast regarding 3 scenarios for low, medium and high user adoption for the future of MaaS. It also intends to determine the scale of growth of MaaS platforms.

The Juniper Research found that the responsive, on demand service, enabled by MaaS would lead to more efficient use of road vehicles. MaaS provides time-savings that would improve the citizens' quality of life as the adoption of MaaS platforms could replace over 2.3 billion urban private car journeys annually by 2023. This would lead to annual time-savings of over 500 million hours by 2023, being the equivalent to 90 hours per annum per MaaS user. Consequently, peak traffic levels could be reduced, lowering both congestion and air pollution.

The platforms include multi-modal transport services, including buses, taxis, and rail, and typically incorporate on demand services resulting in a shift in the way that mobility is used. The report evaluated the cities regarding the existing and planned infrastructure, stages of deployment, and cohesion between public transport services. However, many US-based cities showed a slower uptake of MaaS, because of the fragmented nature of state and federal transport systems. Accordingly, the research named Helsinki (Finland) as the top city in the world for MaaS implementation, growth and readiness, followed by Stockholm (Sweden), Vienna (Austria), and Amsterdam (the Netherlands) at the top four positions, and then Austin, USA. The cities in Western Europe are

expected to account for 83% of MaaS journeys across the world by 2023.

According to the research's author Nick Maynard, Helsinki achieved its winning position in MaaS driven by collaboration between government and MaaS vendors. However, although the Juniper Research study forecasted that MaaS introduction would lead to significant time-savings by 2023 and a more efficient use of road vehicles, it is still unclear if this would reduce overall emissions as this depends on the relative extent of ride sharing.

3. The Ricardo white paper on identifying markets for future mobility services

Regarding the question of commercial exploitation of MaaS innovations, the UK-based consultancy Ricardo Plc. published a white paper entitled "Identifying markets for future mobility services", outlining the key steps that companies within the existing automotive value chain should take when bringing MaaS innovations to market. The Ricardo Consultancy white paper on MaaS presents the rationale for conducting a mobility services pilot market study and offers technical insights on the key success factors in the commercial market testing and launch of MaaS innovations. The paper also provides strategic insights in the automotive value chain. With appropriate strategic analysis and proactive pilot study exercises, there are opportunities to profit from the MaaS development and growth. Regarding the costs of the automated vehicle technologies that will enable MaaS innovations, Ricardo analysis suggests that the cost per mile of robotic taxis will be around half that of personal car ownership, even if the autonomous technology is more expensive than that of traditional vehicles. As people start to share taxi rides, the cost per mile will decrease to less than 17% of the cost of personal cars. Ricardo believes that both the business case and regulatory framework are likely to be strong enough by 2022 to allow the commercial development of MaaS in urban environments. However, this poses a risk for automobile manufacturers that their products become commoditized, with mobility services and software functionality becoming the primary commercial product differentiators and thus the drivers of profits. The commercial development of MaaS could not only replace current models of vehicle ownership but it could perhaps even take the place of conventional public transport.

4. The MaaS Alliance study on uncertainties over legal frameworks appliance to MaaS implementation

In June 2019, the MaaS Alliance, a EU-based public-private partnership advocating a common approach to MaaS, commissioned a study on the legal framework and roles of private actors and public transport authorities and operators in the MaaS ecosystem. The study entitled "Study on market access and competition issues related to MaaS" prepared by the consultancy Valdani Vicari & Associati, VVA, highlights EU-wide uncertainty regarding the appliance of legal frameworks to the implementation of MaaS. The study focuses on the question of market access and competition issues related to MaaS in the context of EU law. According to the study, there is no uniform definition of MaaS and range from being narrow to very broad. The term is used by different stakeholders to describe different aspects of mobility. This study defines MaaS as promotion of the use of a single appliance to provide access to mobility, with a single payment channel instead of multiple ticketing and payment operations. It facilitates the use of diverse transport options including public transport, ride-, car-or bike-sharing, taxi, car rental or lease, or a combination thereof. It includes the provision of an alternative to the private use of cars and it can offer added value. The study states that at the heart of the MaaS concept is the idea of connecting different available transport and mobility services in a one-stop-shop package, providing a tailor-made, efficient, sustainable and environmentally friendly alternative to the private use of cars.

However, the study highlights the EU-wide uncertainty

over legal frameworks applying to the implementation of MaaS. There have been many different local interpretations and uncertainties in the legal framework that have held up market access and provision of MaaS services in many European cities. The study's aim is to support the development of MaaS by improving the common understanding of the legal framework and helping public and private partners in cities with their MaaS implementations.

The study evaluates whether EU legislation could affect the overlap between MaaS and municipal public transport provision, including examining the potential regulatory implications of public transport providers, which generally receive a degree of regional, national or EU funding. The study takes into account the EU competition law, equal access provision and ticket pricing restrictions. The study analyses whether there is any EU legislation that would restrict European public transport authorities/operators from offering all of their tickets to end-users through MaaS operators and whether the public transport authorities'/operators' liability for damages towards travellers remain the same, as well as whether anything changes if the ticket is purchased directly from a MaaS operator instead of the public transport provider.

The issues were analysed with regard to the relevant EU regulatory framework in force, namely EU transport legislation, competition law, state aid law, and public procurement and data protection legislation. The MaaS Alliance study gives an insight into the rights and obligations of public and private transport operators. According to the study, the public transport operators (PTOs) or authorities are able to extend their scope and become a MaaS operator, but a lot of aspects have to be taken into account. The competition law regarding pricing and providing equal access to all services will have to be closely examined and probably revised. Another key finding is that MaaS operators must be able to access the same deals concerning tickets and services like the ones offered to end-users by public transport operators, such as mobile tickets, monthly tickets etc..

According to the president of the MaaS Alliance, Jacob Bangsgaard, there is a need for clarification of the EU's regulatory framework in place when considering the implementation of new mobility solutions and services like MaaS.

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