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Collaboration as a Service (CaaS) to fully integrate public transportation



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Multimodal integration of public transport needs to be improved to make public transport a desirable option compared to private transport. Mobility-as-a-Service (MaaS) is a transport coordination concept that has not yet matured in the market. Integrating public and private transport operators is necessary for MaaS to be fully realised. Smart ticketing systems providing Software-as-a-Service can enable such integration, allowing for a reimagined MaaS.

In general, transport operators provide services within two types of networks:

- micro-networks – within cities and nearby regions;
- macro-networks – aviation, rail and waterborne services offering booked or tailored options.

The micro-network is typically dominated by the public sector with some private organisations and franchises. It has a high volume of daily passengers on repeated services, thus requiring less reliance on timetables, and ticketing is provided on an on-demand basis with a fixed cost. In contrast, the macro-network is primarily operated by private-sector organisations with a larger focus on timetabled operations. Critically, the services are less frequent and require booking in advance.

Industry cooperation strategies are mature in the macro-network and can provide insight into improving the development of the micro-network. Increasing the commercial viability of the transport value chain will be achieved by mobility operators working collaboratively and forming alliances. This is particularly relevant to MaaS as it involves many stakeholders on one platform.

The current model of MaaS involves a central broker or service provider who makes agreements with public and private operators to create tailored solutions for the user. However, several problems arise from this broker-led model, which is a possible explanation for the limited uptake of MaaS to date.

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Transport operators (particularly private operators) have a vested interest in understanding their users' needs and strengthening brand value among consumers, which is made more difficult with an intermediary MaaS broker. Furthermore, MaaS brokers develop their own subscription or payment packages which often distort the prices of transport operators.

Macro-network operators have moved away from the broker-led model. For example, airlines increasingly communicate directly with consumers rather than via a travel agent. This transition has been facilitated by the action of international organisations that set common ground rules for all operators to cooperate. Notably, the standardisation of ticketing, pricing and fare information between operators, travel agents and booking platforms has been established. Operators in the macro-network have created alliances or joint ventures that enable improved services to be offered to consumers, while still retaining ownership of their own information.

In light of this, smart ticketing systems are viewed as a principal enabler of integrating public and private operators of the micro-network. Initially, smart ticketing was used to simplify ticketing processes and address the problem of fare evasion. In general, public transport organisations have developed systems that incorporate only public transport operators in the ticketing system and not the wider private mobility service providers. However, evidence shows that where private mobility operators have been included in an integrated ticketing system, the use of public transport has increased. It is a prime example of the benefit of cooperative relationships over competitive ones.

By giving users access to a common ticketing system, their opinion on the available network will be significantly improved as the benefits of having private operators on the transport network are realised. Users will not see multiple transport networks managed by different operators, but instead as a single, integrated network. Critically, smart ticketing systems enable operators to collaborate with each other operationally and commercially which has the potential to address the shortcomings in the current MaaS concept. They are a mechanism that micro-transport networks can build upon using knowledge and experience gained from macro-networks.

MaaS takes on a user-centric approach using the Software-as-a-Service (SaaS) approach. However, as discussed, the integration of operators is fundamental to the operation of MaaS. As such, a new MaaS is proposed that includes Collaboration-as-a-Service (CaaS), defined as:

$MaaS2.0 = CaaS + SaaS$

CaaS is defined as providing operators with a low-cost, standard approach for integrating (similar to the macro-network) public and private operators. Smart ticketing systems already demonstrate aspects of the coordinated behaviour for delivering the CaaS approach. As such, they should form the basis for CaaS going forward.