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Rail – A Key Component of Future Mobility

To lay the groundwork for future mobility, decision-makers and city planners have to strike the best balance between old and new. Rail transport is one of the mobility modes set for radical change. Railways will likely keep their central role in integrated future mobility strategies. But rail has to evolve to match the challenges that future mobility entails.

AGE OF SUBSCRIPTION

We are leaving the era of ownership and entering the age of subscription. Mobility will become a service. City dwellers are losing their appetite for owning mobility assets. They prefer to pay for use and engage their means of transportation instantly depending on time, place and destination. Summon a cab, activate a shared scooter service, hop on a train or jump on their bicycle. Enter Mobility-as-a-Service (MaaS). MaaS has quite a few characteristics. It requires flexibility from mobility providers, real-time and predictive information across the complete door-to-door journey of the traveler or commuter regardless of the chosen modes of transport, high speed and high bandwidth connectivity, and seamless payment systems to name just a few.

Rail transport, by train, streetcar and subway, will continue to be a core facility in the MaaS ecosystem of future mobility. In fact, its importance will actually grow, as more and more cities worldwide discourage the use of fossil-fuel-powered cars. Like any means of transport, rail has both advantages and disadvantages. It enables large scale transportation, relatively fast and over long distances. And it is a low-carbon way of moving around that matches sustainability strategies for fighting climate change. But rail is expensive to build and maintain. It lacks flexibility, as it takes a great deal of time and money to make adjustments to the rail infrastructure. So how to achieve more flexibility in rail transport and increase Return on Investment (ROI) at the same time? Digitization is key.

SEAMLESS, FRICTIONLESS JOURNEYS

The main strategic objective for railway decision making should be: to support seamless, frictionless customer journeys across the miscellaneous transport modes, rail included. This will lead to happy customers with a positive attitude towards rail transport, the foundation for higher revenues.

There are several viewpoints for improving rail transport so that it will meet the challenges of future mobility and contribute to positive customer experiences.

- Policy making: refocused and data driven

    First, decision makers need to shift their thinking. Typically they focus on their assets, their 'hardware', as the starting point for providing mobility. But it is citizen demand that mostly decides the success or failure of new modes of

travel – and that tends to occur before policy has caught up, as the introduction of electric scooter sharing or taxi service platforms have demonstrated. So to cope better with future developments, requirements and needs, decision makers should put the user first and adopt a people-centric approach.

Large scale collection and exchange of data is needed, as data sharing will improve strategic decision making and operational performance. And as data and insights will be widely available, planning will become a real-time activity rather than a long-term periodic task.

- Operations: operational excellence

The creation of digital twins of all elements and components of the rail infrastructure, of locomotives, turnstiles, railway points - even elevators at the station - and monitoring the performance of these objects in real-time will help to boost the quality and speed of operations. Having this Internet of Things (IoT) information increases the quality of planning, and enables reacting earlier to unexpected incidents and more timely rescheduling.

Predictive analytics enables the proactive maintenance of key components in the railway infrastructure, thus reducing unexpected downtime. Ultimately the quality of rail services, and predictably the costs and performance, will increase as well as the planning flexibility.

- People-centric: customer intimacy

To deliver seamless, flexible and integrated travel experiences, people, assets and third party apps and platforms need to be connected and integrated, letting users choose the most cost-friendly and efficient mode of travel in their door-to-door journey. This will also help rail transport services providers to understand

how to influence behavior in the first and last mile, as well as on the core network. Data on user behavior and on the performance of assets will help to establish predictive maintenance, to optimize services and to predict and steer mobility flows, for example by adopting flexible ticket pricing as we know from air travel.

RAIL WILL PERSIST

Rail's central position in mobility will persist in the future. But rail transport has to reach a high level of digitization to become integrated even better in the whole of mobility modes and to meet Mobility-as-a-Service (MaaS) developments. In a MaaS environment, data exchange is everything. Communication with the traveler, machine-to-machine communications (M2M), Internet of Things (IoT), Predictive Analytics …mobility strategists need to develop an architecture making it possible to create the digital shadow of their assets and connecting to their customers, to other mobility services providers and to third-party apps and platforms. This will enhance their decision making and planning capabilities, contributing to seamless, frictionless door-to-door customer journeys.

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