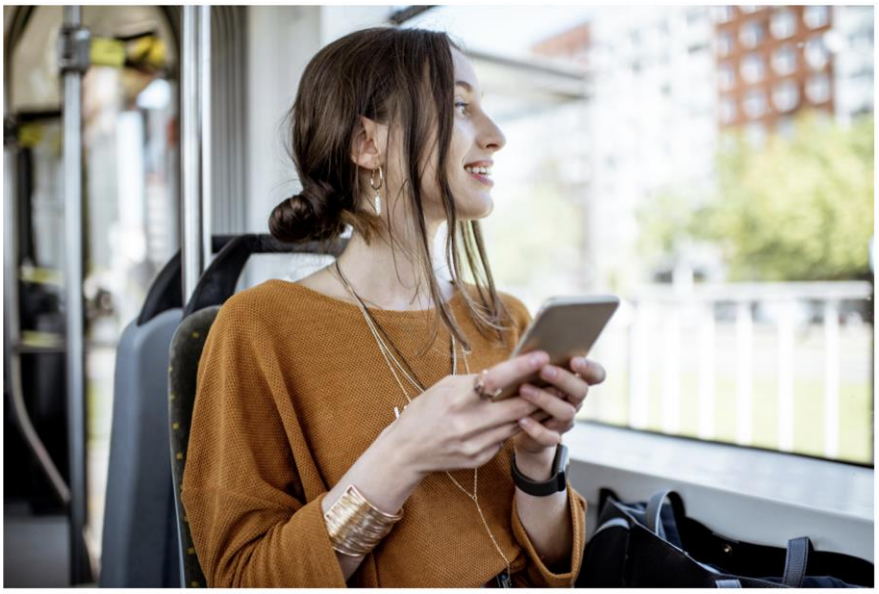
ITS AMERICA

Maas/MOD Platforms: Driving Transportation System Sustainability, Accessibility, and Efficiency.

An overview of MaaS/MOD opportunities by ITS America's Universal Basic Mobility Working Group



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Introduction

Over the past decade many new modes and tools have emerged to help address gaps in existing transportation networks and provide need-responsive service. Pilot programs and other deployments across the country and world are exploring how on-demand services, such as microtransit, ride hailing, micromobility, and more, as well as increasingly customizable platforms that integrate transportation data for improved trip payment and planning, can help to make multimodal travel more accessible and seamless. As these efforts continue to evolve, it is important to learn from past and ongoing programs and consider what may be needed to incentivize shifts in travel decision-making to promote sustainability, as well as make sure that these services are accessible to all.

Universal Basic Mobility (UBM), Mobility-as-a-Service (MaaS) and Mobility on Demand (MOD)

Universal Basic Mobility (UBM) is the concept of providing a foundational level of mobility to all members of society through partnerships and policies regardless of factors such as geographic location or income level, which can be realized through the deployment of Mobility-as-a-Service (MaaS) or Mobility on Demand (MOD) platforms. The MaaS concept, initiated in Europe and used worldwide, is defined by the MaaS Alliance. The integration of various forms of transportation services into a single mobility service, accessible on demand. For the user, MaaS offers added value through a single application to provide access to mobility with a single payment channel instead of multiple ticketing and payment operations. The U.S. Department of Transportation (USDOT) has defined Mobility on Demand (MOD) as "an innovative, user-focused approach which leverages emerging mobility services, integrated transit networks and operations, real-time data, connected travelers, and cooperative ITS to allow for a more traveler-centric transportation system-of-systems approach, providing improved mobility options to all travelers and users of the system in an efficient and safe manner". The similarities and differences between the MaaS and MOD concepts have been interpreted by various transportation professionals and industry resources, including the USDOT-sponsored MOD Operational Concept Report, published in 2017. One real-world example currently under deployment, Michigan Mobility Wallet Challenge, provides users with a digital wallet solution designed to enable seamless payment for multi-modal mobility options such as fixed route, ADA, micro-transit, demand-response, rideshare, and bikeshare, into a single mobile app, providing users with a safe, inclusive, and sustainable experience.

MaaS, MOD, and Transportation Systems Management & Operations (TSMO)

The success of the Active Demand Management (ADM), a dimension of the Active Demand Transportation and Management (ATDM) component of the Transportation Systems Management and Operations (TSMO) framework, heavily depends on altering traveler mobility options and choices throughout the trip, including the choice of mode (e.g., a Single Occupancy Vehicle, rideshare, a transportation network company [TNC], or mass transit), route, and time of day. Prior studies such as the analysis conducted by Sebastian Bamberg, Icek Ajzen and Peter Schmidt that studied the choices of travel and the theory of planned behavior, have concluded

humans are influenced by their habitual behavior, and once a habit is formed, it takes a great deal to prompt a new behavior. Initiating behavior change requires a challenging "new habit cycle," by introducing a trigger to generate the desired action that eventually becomes a habit (new trigger-action-new habit). MOD or MaaS

platforms could act as the medium for ADM user-centric strategies but presenting just the mobility options will not necessarily result in travelers changing their behavior immediately or at all, otherwise trip-planning apps such as Google Maps would have resulted in significant alternate mode adoption. As such, the active engagement of travelers with those sustainable options through innovative means (e.g., gamification and incentives) is critical to trigger desired behavior changes.

This approach is not simply theoretical. Agencies have engaged in (or are exploring) MaaS/MOD deployments that aim to expand accessibility (increase access to mobility and opportunities), support sustainable travel options (non-SOV modes), and enhance transportation system efficiency (effectiveness and reliability).

An example of how this could be deployed can be seen through the efforts of the Texas Department of Transportation Houston District (TxDOT HOU) ConnectSmart deployment. ConnectSmart integrates the region's Transportation Systems Management and Operations (TSMO) and Active Demand Management (ADM) with multimodal travel options to improve safety, reduce congestion, improve air quality, and create a more accessible and equitable system to align with TxDOT's goals.

These deployments signal a new direction where capacity expansion could be more strategic and traditional Travel Demand Management (TDM) could be elevated and expanded to a user-centric ADM congestion-mitigation alongside other Intelligent Transportation Systems (ITS) applications and strategies as part of a dynamic management framework across the trip chain.

Table 1 summarizes selected deployments currently underway that could provide insights and lessons learned on various elements of an MOD deployment, such as customized Intermodal Trip Planners that integrate a variety of services, including ADA services, on-demand services and Autonomous Vehicles (AV) First/Last connections, innovative Mobility Wallets reflecting common payment systems and hands-free solutions, expanded data integration, and traveler engagement through behavior techniques to shift to sustainable modes, among others.

For more information on UBM/Mobility Wallets, please visit ITS America website's MOD Standing Committee page here.

Table 1: The following agencies have programs which have been identified as promising examples of current MaaS/MOD deployments which prioritize transportation system sustainability, accessibility, and efficiency.

Deployments	Objectives	Description
TxDOT Houston District ConnectSmart program. (https://www.houstonconnectsmart.com/), Houston, TX	Improve safety, reduce congestion, improve air quality, and create a more accessible and equitable system by making the Houston region less congested and more connected	Connect Smart's mobile app will provide end users with available and personalized intermodal travel mode options, transportation system updates, predictive travel times, intermodal navigation, travel costs, transit ticket purchase, and more while influencing traveler behavior in real-time to encourage the use of alternative mobility options and achieve operational objectives.
Contra Costa Transportation Authority INNOVATE 680 program. (https://ccta.net/projects/innovate-680/mobility-as-a-service/), Contra Costa, CA	Address corridor-wide congestion, travel delays, and long-standing operational challenges along Interstate 680 (I-680).	MOD app that will provide real-time, multimodal trip planning, a uniform payment system and incentives based on time of day and mode.
Michigan Mobility Wallet Challenge (https://www.michigan.gov/mdot/travel/mobility/initiatives/mobility-wallet-challenge), Statewide	Increase the interoperability of transit services and create greater access and equity to personal mobility for Michigan residents	A mobility wallet solution platform that enables transportation providers to integrate all their modes (fixed route, ADA, micro-transit, demand-response, rideshare, and bikeshare) into a single mobile app for a unified rider experience. The solution seeks to simplify the transit payment process by allowing to load funds and/or connect bank accounts to a single platform and create a streamlined mechanism for fare payment/collection. ,
Hopelink's One Call One Click System, Find-a Ride https://www.kcmobility.org, King County, WA	Connect community members to the transportation services that meet their needs through a centralized trip planning and ride requesting service	The service will allow users to sort options based on several preferences and needs and will include information on all partnering transportation services in the region, including specialized transportation programs like shuttles, deviated fixed-route services, and volunteer programs.
TriMet Integrated Mobility Innovation (IMI), Portland, OR	Advance the future of mobility by leveraging innovative, transferable, and technology agnostic solutions for extended payment; an improved travel experience for all customers; and data frameworks for assessing impacts, improvements, and efficiencies in transportation.	Initiatives that can be embedded into or used to further expand TriMet's MOD platform to reduce travel stress, make the multimodal trip payment experience more seamless for travelers and encourage customer behavior change towards more sustainable, multimodal trip options. In addition, development of a framework that allows agencies to meaningfully assess how mobility quality/effectiveness improves with the implementation of new innovations.