

PAS QUICKNOTES

Mobility as a Service

Mobility as a Service (MaaS) is a new approach to urban transportation that transforms mobility by providing users access to a wide range of transportation options, making personal vehicle usage less necessary. It involves creating an integrated digital platform that combines different transportation choices to maximize convenience for users. Effective implementation of MaaS requires from planners a comprehensive understanding of its technological aspects, alongside astute policy development and the establishment of long-term public-private partnerships. Embedding equity in the development of MaaS systems is crucial to ensure its benefits are equitably distributed among all community members.

BACKGROUND

Emerging from the need to address the increasing challenges of urban transportation, MaaS integrates various transportation modes—including public transit, ride sharing, and bike/scooter sharing—into a unified digital platform. This integration enables users to efficiently plan, book, and pay for their journeys through a single interface, offering options like single-charge end-to-end trips or monthly subscriptions. MaaS requires the establishment of an app-based system with different partners both from the public and private sectors. Implementing MaaS involves coordinating with different local government agencies, developing technology platforms, agreeing on data standards, establishing sustainable business models, and generating interest among users. This can be a complex and expensive process, as each of these elements has its own set of challenges.

MaaS deployments can be categorized into two main types: commercial-interest driven and public-service oriented. Accordingly, MaaS platforms can be developed and managed by various entities, including government agencies, transportation network companies (TNCs), and various technology companies and startups. While TNCs like Uber and Lyft offer worldwide MaaS platforms, at the local or regional level it is typically local governments or transit agencies that take the lead in MaaS integration and implementation.

MaaS got its start in Europe, where Finland was one of the first countries to apply this model. In October 2016, MaaS Global pioneered the commercial implementation of the first MaaS subscription service by introducing the [Whim](#) app in Helsinki, widely regarded as [the most extensive MaaS program](#) globally. In the United States, the [Move PGH](#) MaaS pilot program managed by the Pittsburgh Department of Mobility and Infrastructure from 2021 through 2023 combined public transit, shared e-scooters and bicycles, carpooling, and car-share service to offer users a one-stop-shop trip-planning app for their mobility needs within the city.

MAAS FRAMEWORKS

Definitions of MaaS often hinge on the concept of “integration,” categorizing it into four distinct levels, along with a preliminary stage:

Level 0 - No Integration.

Level 1 - Integration of Information. This level (for example, Google Maps) integrates route and mode options, but does not include booking or payment capabilities.

Level 2 - Integration of Booking and Payment. This level provides an integrated experience that includes routing, booking, and payment options for various modes of transportation.

Level 3 - Integration of the Service Offer. This level moves beyond one-off trip purchases to offer bundles or subscriptions to cover all daily mobility requirements.

Level 4 - Integration of Policy. This level allows for the integration of public policy objectives into the MaaS framework, such as promoting sustainable transportation, reducing congestion, or ensuring equitable access.

This PAS QuickNotes was prepared by Zhenia Dulko, Senior Associate, Research and Foresight, at the American Planning Association.



*MaaS integrates urban mobility options into a single digital platform.
Credit: PresidentKUMA/iStock/Getty Images Plus*



American Planning Association
Planning Advisory Service

Creating Great Communities for All

TNCs, such as Uber and Lyft, are examples of Level 2 MaaS platforms. They offer integrated booking and payment options for their services. However, their platforms primarily focus on ride sharing and, in some cases, additional options such as bike or scooter rentals, rather than a comprehensive range of transportation modes. In Colorado, the Regional Transportation District (RTD) has formed a [partnership with Uber](#) that allows residents of eight counties, including Denver, to use the Uber app for planning and purchasing public transportation services. This collaboration showcases the potential for other local authorities to consider TNCs as reliable partners in integrating local MaaS platforms.

MaaS can help integrate transportation options on a regional scale. A prime example is the Dallas Area Rapid Transit (DART) agency's multimodal [GoPass](#) app, which allows trip planning and fare purchases across North Texas for bus and rail services operated by DART, the Denton County Transportation Authority, Trinity Metro, and STAR Transit, as well as GoLink on-demand transit services provided through a [partnership with Uber](#). DART exemplifies an agency's role as an operator moving towards establishing a comprehensive MaaS system.

EQUITY AND SUSTAINABILITY CONSIDERATIONS

To enable the full benefit of the urban mobility opportunities offered by MaaS, the creation and management of integrated local MaaS solutions is key. Planners can help local governments assume a leadership role in the implementation of MaaS and foster partnerships with private transportation providers and other stakeholders. The goal is to develop a useful service that fairly serves all parts of the community.

When the public sector plays a central role in overseeing and coordinating MaaS platforms, it can work to promote greater equity and sustainability in these solutions. This involves ensuring that MaaS is accessible to all community members and offers environmentally friendly transportation options. Equity-focused strategies include targeted deployment of micromobility services such as e-bikes and e-scooters in underserved areas and offering free or reduced-cost access to low-income residents, including through [guaranteed basic mobility programs](#) recently piloted in [Pittsburgh](#), [Los Angeles](#), and [Oakland, California](#). Because MaaS depends on access to mobile applications and credit cards or online banking, planners should also consider the barriers this can create to its use for those without access to such technologies and services.

MaaS aligns with global sustainability goals, aiming to reduce car dependency in cities worldwide, promote eco-friendly transport modes such as e-bikes and e-scooters, and enhance accessibility for all residents. The efficient integration of MaaS can lead to reduced parking demand, changes in street design, and increased access to public transit. Moreover, combining MaaS with technologies such as electric and autonomous vehicles can further transform urban environments, underlining the need for planners to consider these impacts in their work. [Waymo One](#) in San Francisco, the autonomous ride-hailing service that uses an all-electric fleet, showcases the initial steps towards the possible future of mobility.

CONCLUSIONS

MaaS could transform urban transportation in the United States by creating more cohesive, efficient, and eco-friendly mobility systems. For optimal effectiveness, MaaS works best when supported by a robust public transit network, safe infrastructure for walking and biking, and other travel options such as car sharing. This integrated approach enables diverse travel needs to be met without the necessity of owning a car.

Effective implementation of MaaS will require collaborative efforts among city planners, technology partners, and policy makers. By combining integrated digital platforms, supportive policy frameworks, and sustainable, equitable transportation solutions, MaaS can significantly contribute to achieving broader urban development and sustainability goals.

PAS QuickNotes (ISSN 2169-1940) is a publication of the American Planning Association's Planning Advisory Service (PAS). Joel Albizo, FASAE, CAE, Chief Executive Officer; Petra Hurtado, PhD, Director of Research and Foresight; Ann Dilleuth, AICP, PAS Editor. © 2024 American Planning Association, 205 N. Michigan Ave., Suite 1200, Chicago, IL 60601-5927; [planning.org](#). All rights reserved. APA permits the reproduction and distribution of PAS QuickNotes to educate public officials and others about important planning-related topics. Visit PAS online at [planning.org/pas](#) to find out how PAS can work for you.

FURTHER READING

Published by the American Planning Association

Gomez, Alexandra. 2020. "[Managing Shared-Use Micromobility](#)." PAS QuickNotes 86.

Hurtado, Petra, Benjamin Hitchings, and David Rouse. 2021. [Smart Cities: Integrating Technology, Community, and Nature](#). PAS Report No. 599. Chicago: American Planning Association.

Kaner, David. 2022. "[Oakland's Universal Basic Mobility Pilot Is Eliminating Transportation Barriers](#)." *Planning*, June 30.

Other Resources

Goodall, Warwick, Tiffany Dovey Fishman, Justine Bornstein, and Brett Bonthron. 2017. "[The Rise of Mobility as a Service](#)." *Deloitte Review*, Issue 20.

MaaS Alliance. n.d. [What is MaaS?](#)

Shared-Use Mobility Center. 2020. "[Towards the Promise of Mobility as a Service \(MaaS\) in the U.S.](#)" July.

Urbanism Next. n.d. [Mobility as a Service](#). The Nexus: Technologies.