# Being Mobility-as-a-Service (MaaS) Ready

*APTA International Study Mission / June 2-8, 2019*

*Vienna, Hamburg, Helsinki*

## FINAL REPORT

**APTA**

AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

# Introduction and Executive Summary

What does it mean to be Mobility-as-a-Service (MaaS) Ready? In June 2019, APTA conducted a study mission to Europe to find out with 29 public transportation agency and business members, visiting Vienna, Hamburg and Helsinki. Each city has taken a different approach to integrating new mobility services, but each is now taking a lead in developing the MaaS concept in practice. They all aim to provide customers with a full range of mobility options in a single digital mobility platform, leveraging public transportation as the network backbone.

The APTA delegation, led by APTA Chair David Stackrow and APTA's President and CEO Paul Skoutelas, included senior representatives from public transportation agencies and businesses large and small across the United States.

Throughout the week, APTA study mission members participated in presentations, panel discussions and site visits with the three cities' public transportation authorities, as well as local and national MaaS stakeholders from the public and private sector.

The mission started in Vienna to meet with the public transportation operator, Wiener Linien and Upstream, the public startup MaaS platform that aims to allow for the planning, payment and access to mobility services throughout the Vienna region. Participants discussed the value and lessons learned so far from this public MaaS business model.



Mission participants continued on to Hamburg, hosted by Hamburger Hochbahn, operator of bus and heavy rail, to gain insight into the development of their digital MaaS solution Switchh and see first-hand the physical integration of mobility services at Switchh-points. Participants also heard from the Hannover public transportation operator, USTRA, a pioneer in transforming itself from a transportation operator to a mobility management company. Through round table discussions with Hamburg, Hannover and other German MaaS stakeholders, participants gained an understanding of how the MaaS concept is maturing in Germany and the value of MaaS from both an operator and customer perspective.

The study mission ended in Helsinki where, in October 2016, MaaS Global was the first commercial startup to develop a MaaS subscription service through its Whim app. Participants met with MaaS Global and Demos Helsinki, a Nordic think tank, as well as with a variety of national and regional public actors. These included the Finnish Association of Public Transportation, the Helsinki Public Transportation Authority (HSL), which plans and organizes public transportation in the region and the Finnish Ministry of Transportation, to learn about the legislative approaches that have made Finland a global MaaS leader.

The study mission was a unique opportunity to explore host systems' approaches to building and maintaining an integrated, customer-centric mobility service and to gain insights into how cities, countries, agencies and businesses are applying the concept of MaaS. At the same time, study mission participants benefited from visiting world-class public transportation systems.

The study mission addressed a number of critical questions, including:

- What customer-facing strategies are these public transportation authorities using to build out a MaaS platform that includes trip planning and ticketing for all mobility options?

- Who is and should be taking the lead?

- What partnerships are required?

> **"Mobility-as-a-service (MaaS) represents a paradigm shift for cities and transportation providers. This trip was a deep dive into how international cities are connecting applications with assets to upgrade mobility options for the masses."**
>
> **— Ray Melleady**
>     **Executive Vice-President,**
>         **USSC Group**

> **"We saw firsthand how collective engagement, not more advanced technology, delivered integrated mobility solutions that strengthen the transportation backbone."**
>
> **— Paul Skoutelas**
>   **President and CEO, APTA**



- What are the most viable business models? and;

- How do we better integrate the physical mobility system, allowing for more seamless transfers between modes?

For APTA's purposes, MaaS is defined as the integration of a full range of mobility options in one single digital mobility platform offering, with public transportation as the backbone. Users may choose the most suitable solution based on their travel needs. MaaS is available anytime and offers integrated planning, booking and payment, as well as real time travel information to provide easy mobility and alternatives to the single occupant automobile. It provides comprehensive access to mobility services including public transportation, ride-sharing, car-sharing, bike-sharing, scooter-sharing, taxi, car rental and ride hailing.

**The study mission underscored the importance of positioning public transportation as the backbone of the Mobility-as-a-Service (MaaS) concept. A clear vision of sustainable mobility, an excellent and well-integrated public transportation system and mobility partners willing to coordinate on a level playing field, are all necessary ingredients of successful MaaS.**

Each of the cities visited has a very well-developed public transportation system with a high modal share of local and regional trips. Yet, these cities continue to invest in organizational and system innovations to continually provide the best possible customer experience and remain a relevant mobility player in the future.
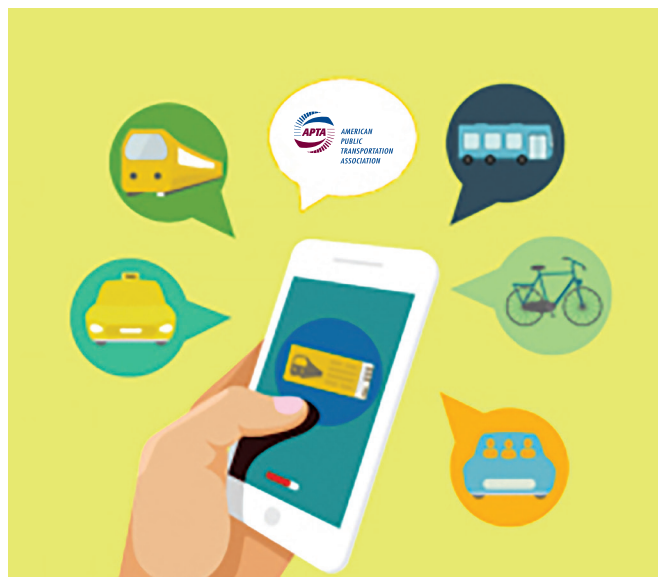
Key findings include:

1. The European systems visited see MaaS as an opportunity to capitalize on the full array of mobility options to reduce reliance on single occupant vehicles and private car ownership. It is one of many strategies for addressing broader issues such as healthy cities, strong regional economies, improved air quality and the environment, and equity and access for all.

2. A digital multi-modal mobility platform will be facilitated by a robust and well-integrated physical mobility system. Many of the systems are developing the concept of "mobility hubs" as an important element of their MaaS strategy.

> **"Public transportation is at the core of any viable Mobility-as-a-Service strategy and requires a new way of thinking and unified approach among public and private transportation providers to deliver shared outcomes and benefits."**
>
> **— Rob Gannon**
>   **GM, King County Metro**

3. Public transportation must be the foundation of an integrated mobility era driven by new customer expectations, new technologies, new startups and new mobility services. European public transportation agencies are of the collective mindset that the public sector is in the best position to look out for the public good and to offer a complete mobility solution.

4. Governance, not technology, is the key challenge when it comes to MaaS. It is clear that technology is outpacing policy developments. System governance was a consistent topic in each city visited.

5. Before public transportation agencies can take a central role in mobility service integration and in a MaaS platform, they need to understand and leverage the value of their own infrastructure and data, and transform organizational cultures to allow for more innovation and experimentation.

These findings are consistent with the Study Mission delegation's collective experience in the United States and Canada. The fundamental difference with Europe, however, is the greater role that public transportation plays in serving the general public. To a large extent, it is a "no-brainer" in Europe that public transportation agencies should be leading the integration of urban and regional transportation options, as transportation is in fact the backbone of the European transportation network. In North America, there is more work to be done in convincing local decision-makers that the transportation agency should be at the center of a MaaS-oriented system and in ensuring that the transportation agency is prepared and has the expertise to do so.

# ▌▌ Vienna

**In Vienna, the public transportation operator, Wiener Linien and the city infrastructure company, Wiener Stadtwerke, have jointly formed their own startup company, Upstream. Upstream is a public MaaS platform that allows for planning, payment and access to mobility services throughout the Vienna region. Participants engaged directly with Upstream and Wiener Linien to discuss the value and lessons learned so far from this public MaaS business model. This business model has highly localized service and builds on a well-integrated public transportation infrastructure with a 40 percent modal share.**

Public Shareholder Structure



Upstream is a business-to-business (B2B), publicly-owned company that strives to operate like a privately-owned company. It started as a 6 employees pilot project to create an integrated mobility platform for Vienna. Upstream tested the platform with 1500 users that showed a 26 percent increase in public transportation use and a 21 percent decrease in car usage. These results were convincing enough for the city to continue its investment in the startup. Upstream now has 50 employees running multiple platforms for other cities, including the backend platform for the Vienna public transportation agency's Wienmobil app. Their platform, which they call a disaggregated public MaaS platform, has an open interface so all apps can access and use it. They are starting to obtain some

revenue from customer service to the public sector, software licensing and data science. Upstream exists only to provide services for the public good and considers itself an IT development partner for the public sector, offering the public sector knowledge and independence.

Vienna, led by its public sector, is still at the beginning of its journey to provide full digital access to all of its mobility services but it is building on the Upstream platform to develop a subscription-based service. The city is focusing heavily on strategic partner management with other mobility providers, such as bike and car-sharing, and they meet twice a year with the partner network to improve the platform development process and product.
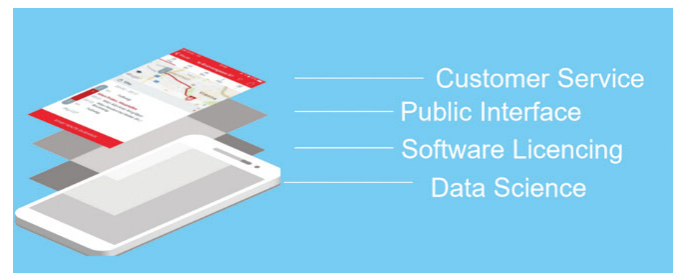
# III Hamburg and Hannover

**Hamburger Hochbahn, operator of bus and heavy rail, is developing a digital MaaS solution called Switchh to build on the physical co-location of mobility services via Switchh-points. Hannover's public transportation operator, USTRA, was a pioneer in transforming from a transportation operator to a mobility management company. It launched Germany's first multimodal bundle, Hannovermobil, in 2004 and an app-based mobility shop covering the entire customer journey in 2016.**

Hamburger Hochbahn wishes to be a neutral integrator of services, building on public transportation infrastructure and car and bike-sharing mobility hubs near its stations. The agency is creating a MaaS service using the Upstream platform as the backend and likely a privately developed app for the customer-facing portion.

Hannover's MaaS app, developed by the public transportation operator USTRA and the public transportation agency, provides access to its mobility shop and automatically develops an integrated bill for all mobility services used at the end of the month. When launched in 2016 this multimodal app completely replaced its "transit-only" predecessor. Currently the service provides access to transportation, rail, car and bike-sharing and taxis, with taxis and car-sharing prices reduced about 10 percent on average from what is available to the general public. The agency is now creating a broader "a la carte" menu of services with the aim of being the "Amazon" or "Netflix" of mobility.

# IV Helsinki

**The study mission ended in Finland, widely considered the birthplace of the MaaS concept. In Helsinki, MaaS Global is the first commercial startup to develop a MaaS subscription service in October 2016 through the launch of its Whim app. Whim now has 13,000 active users per month in Helsinki and has expanded its service to several other European cities, including Antwerp and Birmingham. It offers several levels of service, ranging from a pay-as-you-go option to an unlimited use package which includes public transportation, taxis, bike- and car-sharing.**

Currently the Whim app has less than 1.5 percent of the total mobility market but aims to shift the market from ownership to usership, with its unlimited package costing less than car ownership. Whim was enabled by Finnish Ministry of Transportation legislation, which itself was informed by the deregulation of their telecoms market, making it mandatory for public transportation to allow access to their Application Programming Interfaces (APIs) and ticketing systems on vendor platforms. Phase one of the legislation came into effect in January 2018, with phase two implemented in January 2019.

HSL, the Helsinki Public Transportation Authority, has focused on developing its own app and states that two-thirds of the Helsinki population has downloaded it. The app allows for integrated payment and ticketing
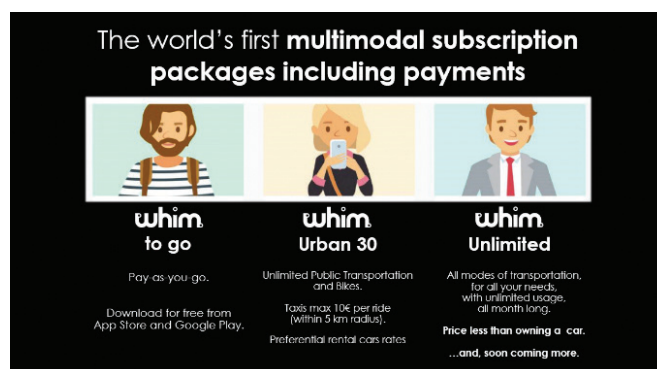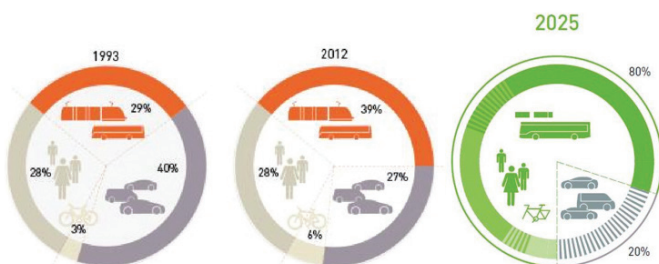


of all HSL public transportation modes (i.e. bus, streetcar, ferry, train, subway) as well as information about capacity of park and ride and city bikeshare stations. HSL is laser focused on improving the customer experience through the use of the app.

# V Key Take-Aways

**FIRST, it is the connection of MaaS to the broader set of regional goals that transportation agencies of tomorrow will need to address. These European systems see MaaS as a strategy for addressing broader issues such as healthy cities; strong regional economies; improved air quality and environment; reduced carbon emissions; and equity and access for all. MaaS is a means to capitalizing on the full array of mobility options to reduce reliance on single occupant vehicles and private car ownership. That is the end-game and not MaaS itself. These over-arching policy objectives are an opportunity to unite all public actors together under a common mobility gameplan.**

The official Vienna city strategy is to shift from car ownership to what they call "PT Plus" or public transportation-plus. Vienna aims for only 20 percent private car mode share by 2025 and sees this shift in mode share as a public responsibility. Wiener Linien stated "if we don't embrace mobility options, we will be under pressure and in danger [of losing our relevance]. Only through cooperation can we meet Vienna's goals of energy efficiency, climate mitigation and a [sustainable] modal split." Hamburg has an equally ambitious goal of reducing single-occupancy vehicle trips. And Finland has a nationwide goal of halving emissions by 2030, which will also require a decrease in individual car trips. Climate change concerns in all three countries are the consistent driver to actively implement MaaS initiatives.

> **"Cars will become more public, transportation more individualized."**
>
> — **Martin Roehrleef**
> **Head of Mobility Innovation, ÜSTRA Hannover**

Certainly, a holistic set of policies will help achieve the full benefits of MaaS. Congestion pricing, parking regulation, land-use and traffic management policies should all be part of an aligned strategy. Each is part of the solution to encourage mode shift.

SECOND, it was clear from the European cities visited that a digital multi-modal mobility platform will be facilitated by building on a robust and well-integrated physical mobility system. Many of the systems are developing the concept of "mobility hubs" as an important element of their MaaS strategy. These cities have also focused on a structured entry of Transportation Network Companies (TNCs) and micro-mobility options to allow time to think through their place in the mobility system.

## Vienna's sustainable mobility
### Modal Split 1993-2012-2025

> **"One thing we saw consistently as we visited these three cities was that they had a vision and strategy for moving toward MaaS."**
>
> **— Louwana Oliva**
> **General Manager, CATA**

Hamburg, in particular, has focused on physically connecting its transportation network with new mobility services, setting-up bike and car-sharing areas near its transportation stations, which are referred to as SWITCHH Points. Hamburg's goal is to have up to 70 of these micro-mobility zones located around the city. Vienna also plans to create mobility points strategically located around the city where users would find e-bikes, e-scooters, car-sharing, charging stations, bicycle storage space etc.
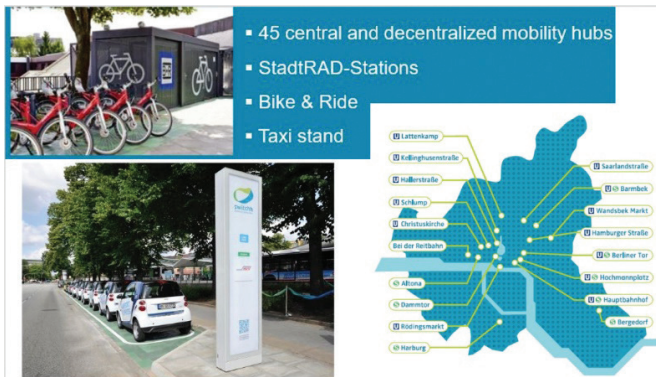


> **"We must be more intentional about connecting to all modes of transportation."**
>
> **— Jeff Parker**
> **CEO, MARTA**

THIRD, European public transportation agencies are of the collective mindset that public transportation must be the backbone of an integrated mobility era driven by new customer expectations, new technologies and new mobility services. Both private and public sector entities will look to MaaS to position themselves as the mobility platform and the mobility integrator. However, the public sector, including transportation agencies, is best positioned to look out for the public good, offer a complete mobility solution and reduce the hassle of finding the most suitable travel option for each individual trip. Their focus will be much more local and on local specifics than private sector solutions which will likely aim for standardized national and international services.

In short, public transportation agencies have a vision and they aim to be in the driver's seat to achieve it. Agencies consider technology to be key enabling infrastructure. Smart investments should be made with that perspective in mind.

> **"MaaS is a tool and in itself will not solve any problems."**
>
> **— Andrew Fremier**
> **Deputy Executive Director-Operations, MTC**

The public transportation agency should be actively involved in MaaS development, implementation and management, whether as a collaborator, enabler or manager. European transportation agencies expressed a desire to be the Amazon or Netflix of MaaS. In Vienna, for example, it is clear the public sector aims to take both the lead in MaaS development and also a strategic role in influencing how mobility goals are set and reached. Without such an active role, the core business of public transportation will come under pressure and could be compromised. Vienna's public sector feels it important to have the backend of MaaS in public hands to ensure equity and data access.

Creating Upstream as a public startup gives them the ability to have knowledge and independence. As Martin Roehrleef of USTRA Hannover stated: "Uber yourself before you get Kodaked."

FOURTH, governance, not technology is the key challenge for MaaS. System governance was a consistent topic in each city visited. While every region has a unique approach, all have faced and addressed questions of how to organize to implement MaaS and what institutional and regulatory frameworks are required.
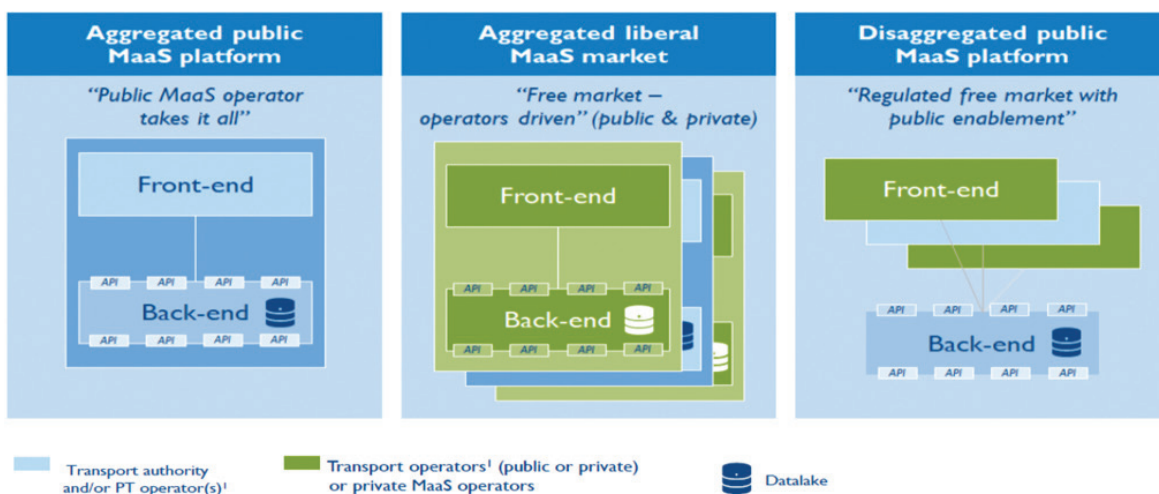
It is also clear that technology is outpacing policy developments. A level-playing field is required for data access and transparency. The speed of development is a challenge for the public sector worldwide. The role of government is about finding the right balance between framing and enabling a system.

In Vienna, the transportation agency and city government jointly created a private startup "Upstream" to develop a MaaS platform. Upstream does the back-end work and has found ways to earn public revenue from services related to software licensing and data-analytics. Its goals are aligned with the public good and it is governed by the city. Vienna's public sector is a proponent of the disaggregated public MaaS platform where the customer-facing front-end (the MaaS app, so to speak) can be in the hands of any MaaS operator, whether private or public, but the back-end is firmly in the public realm. In addition, they see MaaS as a way to overcome administrative boundaries

## Three MaaS market models



| Aggregated public MaaS platform | Aggregated liberal MaaS market | Disaggregated public MaaS platform |
| --- | --- | --- |
| "Public MaaS operator takes it all" | "Free market — operators driven" (public & private) | "Regulated free market with public enablement" |

Transport authority and/or PT operator(s)¹    Transport operators¹ (public or private) or private MaaS operators    Datalake

Source: Arthur D. Little Future of Mobility Lab; 1) Make or Buy or combined industrial model

Arthur D Little

as it requires a high-level of coordination between the city, state and transportation provider(s).

In Finland, the federal government passed a law to encourage private sector involvement in MaaS through requirements for open data and access to public APIs. This law led to the rise of the private startup MaaS Global which developed its *Whim* app to be a MaaS platform. At the same time, the local public transportation authority created its own app, which has become Finland's second most downloaded app and is used at a much higher rate than *Whim*. There is some tension between the vision of an aggregated liberal MaaS platform where the front and back end can be in the hands of a public or private MaaS operator and an aggregated public MaaS platform, where both the back and front-end are firmly in the public sector's hands.

While MaaS looks different in each city, in each instance the transportation agencies have taken a central role and have worked closely with city and regional governments to ensure overall policy alignment. In North America, we need to take steps to do the same. This will require new integrated governance models and updated transportation-supportive policy structures. We are still too siloed in our institutional structures in the US.

> "Each [European] city we visited has programs to advance multi-modal transportation services that include private and public entities. I continue to be most impressed by the collaboration in each jurisdiction across sectors."
>
> — Nicole Fontayne-Bárdowell
>   Executive VP & Chief
>     Administrative Officer,
>     DART

> "No matter the public agency's role in the future technology architecture, certain organizational capabilities will be required including operations excellence, dynamic capital allocation, customer data and analytics, commercial negotiations and policy influence and engagement."
>
> — Christopher Click
>   Principal-Strategy, KPMG

FIFTH, for public transportation agencies to take a central role in mobility service integration and in a MaaS platform, they need to leverage the value of their own unique infrastructure, assets and data. They must also understand technology to make appropriate decisions driving innovation. This means expanding the skillsets available in the public transportation workforce, including hiring more software developers and data scientists. It begs the question of what is needed for transportation agencies to make the digital transformation. MaaS is really a new business approach requiring a transformation of organizational cultures to allow agencies and their employees to innovate and experiment.

In Hamburg, the various mobility stakeholders defined risk as "what happens if we do nothing". They are cultivating and rewarding risk-taking internally and giving riders credit for trying and liking something. At Hamburger Hochbahn they have gone as far as creating a physical workspace environment to support the environment for agile innovation teams.

> **"During the last mobility evolution, we were able to show the benefit of single car ownership. During this mobility evolution, our goal must be to show the benefit of socially equitable, equal-righted, accessible, sustainable mobility."**
>
> **— Jeanne Krieg**
> **CEO, Tri-Delta Transportation**

Last but not least, MaaS has the potential to revolutionize the customer experience and individualize the mass transportation and shared mobility experience. Decision-making kept simple! Fare payment made easy! It could expand mobility service coverage and reach, increasing access to the mobility system and bringing the right capacity to the right demand. But we need to remember that equitable access to a sustainable mobility system must be the ultimate goal, not MaaS itself.

# **VI** Conclusions

## As many on the study mission will confirm, participants came away with as many questions as answers:

- How do we ensure equitable access to integrated mobility solutions, especially for the unbanked and those without easy access to technology?

- What rules are required to govern mobility integration? How should urban data be treated to ensure both public usability and trust? How do we look at the regulatory environment more comprehensively—think about consequences on all fronts—and think holistically about setting policies while avoiding analysis paralysis?

- Does MaaS bring new revenue potential for transportation providers?

- Mobility has always been a service. Is MaaS promising anything new? Is there really a market for multi-modality?

Nonetheless, we can establish some key recommendations for the North American market on the best use and facilitation of MaaS:

1. **Connect to a Broader Vision and Strategy:** We need to articulate at the local level what challenges we are trying to address before implementing MaaS. There needs to be a compelling vision and the political will to implement that vision and achieve policy alignment. This means transportation agencies need to be better at telling our story at a city and regional level and get the political backup to be able to experiment. Cities and regional governments need to take an active and coordinated role in updating policy frameworks. Supportive policies involving parking, congestion

> **"Our public transportation governance structures are not sufficiently coordinated or aligned to meet the demands and expectations of MaaS."**
>
> **— Rob Gannon**
> **GM, King County Metro**

pricing, road pricing, land use and traffic management will play a large role in the ultimate success of MaaS.

2. **Be Prepared on Multiple Levels:** Pre-conditions for MaaS at the community level include a determination on technical readiness, the willingness for cooperation between service providers, the

> **"There is no perfect MaaS model as each city's transportation offerings are different and as such, MaaS will look different depending on what city you are traveling in"**
>
> **— M.J. Maynard**
> **Deputy CEO, RTC of Southern Nevada**

rules of engagement between partners (including on data governance), the robustness of the public transportation system and the physical integration between modes. MaaS solutions need to be tailored to the local context and will look different in every city.

3. **Develop Protocols for Data:** MaaS systems will be based upon and will generate a continuous wealth of data. Private companies involved in MaaS are often data companies. Protocols are needed for open mobility data and use of APIs. Data harvested can be used to right-size operations.  Data can also be used to allocate revenues in a MaaS system. Rules are needed for privacy protections.

> "Top European MaaS projects have learned and evolved from their past project failures. It is better to release a rough version of your product and get feedback than wait."
>
> — **Juan Martinez-Cabre**
> **Solutions Analyst, Cubic**

4. **Test, Fail, Succeed!:** We need more experimentation and pilots to foster a culture of innovation, with the incentives to take risks, fail fast and build on our learning. A competitive program could be launched at the federal level to test out new ways of doing business (patterned on the Smart Cities Challenges).

5. **Measure what Matters:** In conjunction, updated performance indicators are needed to measure the success of integrated and shared-use mobility systems. In an integrated MaaS network, increasing ridership on the transportation systems itself might not be the proper goal or even the intended outcome. Measuring the impact of the system as a whole must be the new metric.

> "Transportation agencies, [cities] and MPOs need to work more closely together to ensure we are capital-ready for MaaS."
>
> — **David Stackrow**
> **Chair of APTA and Immediate Past Chair, CDTA**

6. **Find Synergies in New Partnerships:** Solid partnerships are crucial. Partnerships have always been important, but the emerging travel needs and business markets that can be reached through MaaS suggest a new set of partnerships are required. Technology companies, auto makers, cities, universities, research institutions and planning organizations must all work together.

7. **Develop Appropriate Procurement Approaches:** New and less restrictive procurement models for MaaS are required. To deliver MaaS, we need a network of public and private transportation providers. Building this network goes far beyond our traditional procurement practices. The challenge is to build the procurement system that can make MaaS a reality, going beyond the "theory" of MaaS to proceed with the implementation. Procured services much be easy to understand, easy to use and easy to pay for and recognize the need for workforce training in the digital age.

> "In a car-centric community that we serve, this application might be the ticket to enticing new ridership in the Central Midlands."
>
> — **John Andoh**
> **CEO, Central Midlands Regional Transportation Authority**

8. **Focus on Public and Policy Education:** U.S. communities may face cultural resistance to transformational changes in personal ownership of cars and widespread ridesharing. We need to tell a potent story to elected officials and the public about the role of public transportation and its potential as the backbone of a well-integrated, shared-use mobility system for congestion relief, more efficient land-use, better air quality and more vibrant economic development.

9. **Design for Social Equity and Access for All:** We must understand where shared-mobility and automated services might exacerbate mobility inequity or cause other social disbenefits such as traffic congestion. New research suggests TNCs can often draw customers away from fixed schedule / route public transportation services and undermine the existing public transportation network. Other studies show that TNCs are contributing to increased congestion on city streets. A policy framework involving curb management, pricing and contractual relationships between the public sector and TNCs can help anticipate and head-off these threats.

> **"Design the system for the most vulnerable customers."**
>
> **— Nadine Lee**
> **Chief of Staff, LA Metro**

# APPENDIX—
# 2019 International Study Mission Participants

**David M. Stackrow, Sr.***
APTA Chair, 2018-2019
Immediate Past Chair, Capital District Transportation
    Authority
Albany, NY

**Paul P. Skoutelas**
President and CEO
American Public Transportation Association
Washington, DC

**John C. Andoh**
Executive Director/CEO
Central Midlands Regional Transportation Authority
Columbia, SC

**Christopher A. Click**
Principal, Strategy
KPMG
Dallas, TX

**Francis 'Buddy' Coleman III***
Chief Customer Officer/Principal
Clever Devices
Woodbury, NY

**Donna DeMartino****
Chief Executive Officer
San Joaquin Regional Transportation District
Stockton, CA

**Christopher 'Chris' Desany**
Vice President of Planning and Infrastructure
Capital District Transportation Authority
Albany, NY

**Nicole Fontayne-Bardowell**
Executive Vice President, Chief Administrative Officer
Dallas Area Rapid Transportation
Dallas, TX

**Andrew Fremier**
Deputy Executive Director, Operations
Metropolitan Transportation Commission
San Francisco, CA

**Robert 'Rob' Gannon****
General Manager
King County Metro
Seattle, WA

**Arthur 'Art' Guzzetti**
Vice President – Mobility Initiatives and Public Policy
American Public Transportation Association
Washington DC

**Daniel Hauber**
Vice President
Transportation Resource Associates
Philadelphia, PA

**Kevin J. Holzendorf***
Chairman
Jacksonville Transportation Authority
Jacksonville, FL

**Karen H. King***
Chief Executive Officer
Golden Empire Transportation District
Bakersfield, CA

**Katherine A. Kortum**
Senior Program Officer
Transportation Research Board
Washington, DC

**Jeanne Krieg***
Chief Executive Officer
Eastern Contra Costa Transportation Authority
Antioch, CA

**Nadine Lee**
Chief of Staff
Los Angeles County Metropolitan Transportation
    Authority
Los Angeles, CA

**Juan Martinez-Cabre**
Solutions Analyst
Cubic Transportation Systems, Inc.
San Diego, CA

**C. Jack Martinson***
Vice President/Customer Director
Alstom
Avondale, PA

**M.J. Maynard****
Deputy CEO
Regional Transportation Commission of
    Southern Nevada
Las Vegas, NV

**Kevin Parks McDonald**
Deputy Executive Director
Foothill Transportation
West Covina, CA

**Raymond Melleady**
Executive Vice President
USSC Group
Exton, PA

**Petra Mollet**
Vice President–Strategic and International Programs
American Public Transportation Association
Washington DC

**Katina Morch-Pierre**
AVP, Payment Systems & Statistical Reporting
Dallas Area Rapid Transportation
Dallas, TX

**Louwana S. Oliva**
General Manager
Centre Area Transportation Authority
State College, PA

**Jeffrey 'Jeff' Parker****
General Manager/CEO
Metropolitan Atlanta Rapid Transportation Authority
Atlanta, GA

**Gary C. Thomas****
President/Executive Director
Dallas Area Rapid Transportation
Dallas, TX

**Emmanuelle Toussaint**
Vice President, Legal, Regulatory & Public Affairs and
    External Communications
Volvo, Nova Bus and Prevost Divisions
Plattsburgh, NY

**Latrice Virola**
Director of Planning
Stark Area Regional Transportation Authority
Canton, OH

---

**APTA**

AMERICAN PUBLIC TRANSPORTATION ASSOCIATION