# WELCOME

## We will begin in a few moments

SCAG/AECOM/Arellano Associates

August 26, 2021

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# Mobility as a Service (MaaS) Feasibility White Paper
## MaaS Advisory Group Kick-off Meeting

SCAG/AECOM/Arellano Associates

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# MaaS Advisory Group AGENDA

**10 AM**
   1. Welcome (Kome Ajise, Executive Director)

**10:05 AM**
   2. Project Purpose and Today's Meeting
   (Priscilla Freduah-Agyemang, Project Manager)

**10:10 AM**
   3. Self-Introductions

**10:20 AM**
   4. Advisory Group Overview (David DeRosa,
   Susan DeSantis)
   A) Charter, Composition, Roles and Responsibilities
   B) Q&A

**10:30 AM**
   5. What have we learned about MaaS so far?
   A) Interview Highlights (Susan DeSantis)
   B) Existing Conditions Report (David DeRosa)
   C) Case Studies (Victor Xie)

**10:50 AM**
   6. Discussion Groups in Breakout Rooms
   (you will be assigned a breakout room and a
   moderator)
   A) Feedback on Existing Conditions
   B) Recommendations on Policy Frameworks

**11:45 AM**
   7. Report Outs (Moderators)

**11:55 AM**
   8. Wrap-Up and Next Steps (David DeRosa, Priscilla
   Freduah-Agyemang)

**12 PM**
   9. Adjourn

# Self-Introductions

- Charter
- Composition
- Roles and Responsibilities

Questions about the Advisory Group?

POLL1   Question #A.
- In today's on-demand society, the concept of ownership has been transformed.
We no longer own products; instead, we consume services. And key technologies – such as cloud, Artificial Intelligence (AI) and Internet of Things (IoT) – serve as the platform for this enormous shift.
- Please respond if you agree or disagree with the above statement:
    - ❑ AGREE
    - ❑ DISAGREE
    - ❑ NO OPINION

POLL1   Question #B.
- Fueled by new ride-sharing and e-hailing services like Uber and Lyft, the way we experience transport in the region in the future is via Mobility-as-a-Service (MaaS).
- Please respond if you agree or disagree with the above statement:
    - ❑ AGREE
    - ❑ DISAGREE
    - ❑ NO OPINION

# What is MaaS?

## Definition

MaaS integrates transportation services into a single mobility on-demand service.

MaaS provides alternative to using the private car that may be convenient, more sustainable, help reduce congestion and constraints in transport capacity, and be cheaper.

# So... What have we learned about MaaS so far?

Interview Highlights

- **Infrastructure**
  - *Investment in transit and mobility hubs*

- **Data & Technology**
  - *Common payment platform*
  - *Data privacy and Freedom of Information Act requests*
  - *Address cost barriers and unbanked populations*

- **Management & Operations**
  - *Key question: Multi-operator vs single-operator?*

# So... What have we learned about MaaS so far?

Interview Highlights

- Governance
  - *Agencies need a toolbox for best practices*
  - *Statewide, regional, and city policy framework needed*

- Institution
  - *Lack of philosophical alignment across sectors*
  - *Educate future public agency staff and empower them to make decisions*

- Finance
  - *Grant funding must be available*
  - *Universal Basic Mobility should serve as a goal*

- Public Education & Acceptance
  - *MaaS sounds like something that may already exist, and does to some populations, while others are excluded*
  - *Uneven attitude across the region regarding new modes*

- **Policy Framework**

  - Infrastructure

  - Data & Technology

  - Management & Operations

  - Governance

  - Institution

  - Finance

  - Public Education & Acceptance

# Preliminary Conclusions

- **Infrastructure**: Has solid foundation to start building a MaaS system.

- **Data and Technology**: Standards have a strong base and will help with MaaS implementation.

- **Management** and **Operations**:

  - Mode integration still far from the requirement of a mature MaaS system.

  - Currently, only public transit agencies have launched agency-wide programs in the SCAG region. However, the case studies have shown that private mobility service providers are also feasible choices.

- **Governance** and **Institution**: Additional local organizations are needed. This advisory group can be a potential opportunity to formalize such an organization.

- **Public Education** and **Outreach**: As a relatively new concept for a large number of SCAG communities, more outreach programs are needed to educate the public and help improve public acceptance.

- **Overall**: Certain areas within SCAG have well-founded infrastructure and a solid data and technology development for MaaS implementation. However, more efforts need to be made on management and operation strategies, governance and finance, institutional practices, and public education. The implementation of MaaS should be phased if proven feasible

# How well do you know MaaS?

- POLL 2   Question.
  - Please identify the country/region you feel will lead MaaS Adoption globally?
    - ❑ US
    - ❑ China
    - ❑ Western Europe
    - ❑ Japan
    - ❑ Russia
    - ❑ Other

# What did we learn from the Case Studies
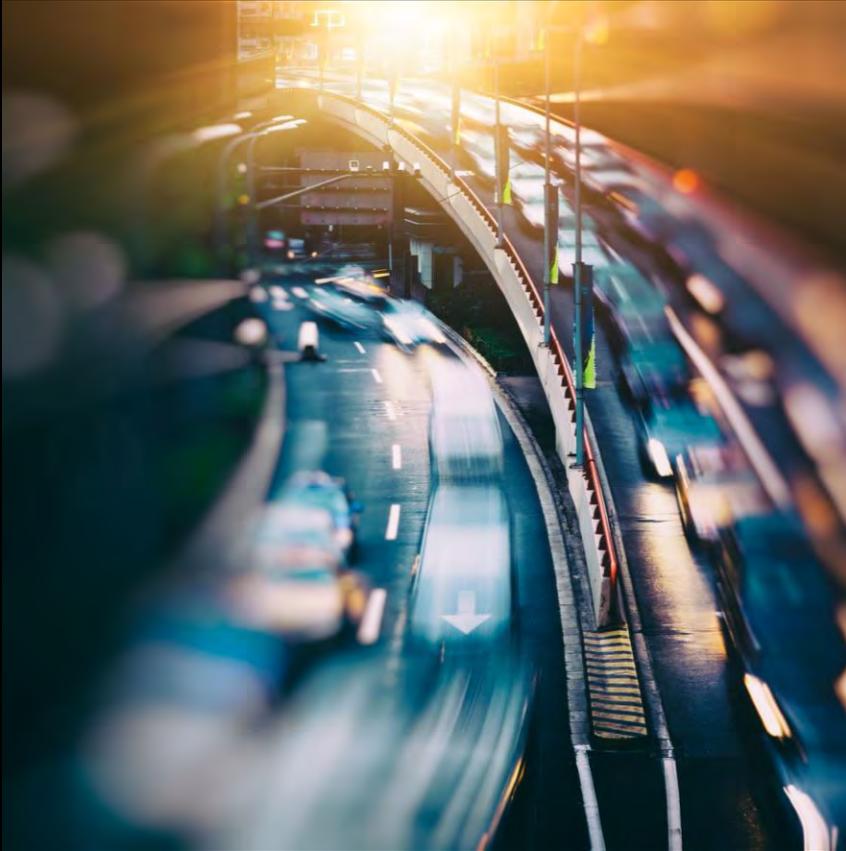


- Manchester, UK
- Helsinki, Finland
- Vienna, Austria
- Dublin, Ireland
- Stockholm & Gothenburg, Sweden
- West Midlands, UK
- European Union
- City of Pittsburgh, US

# Applicability to the SCAG Region

- Infrastructure
  - Well-established and integrated infrastructure is key to the successful MaaS operation (EU, West Midlands, Helsinki, City of Pittsburgh)
  - Robust and attractive alternative mobility options to private vehicles will propel MaaS implementation (Vienna)

- Data & Technology
  - The ability to integrate different modes and the level of integration (Open API and user interface) determines the success of MaaS (Vienna, West Midlands, Manchester)
  - Roaming service is offered to users to bring services in different countries together in single platform. (Helsinki)
  - Real-time data is one of the main requirements of a MaaS system. (Stockholm & Gothenburg)

- Management and Operations:
  - Balance of flexible policies to encourage a wide range of operators to participate and regulation of the market (West Midlands)
  - Communication/partnership between service providers within MaaS is important (Helsinki, Vienna)
  - Management model needs to be adaptable and dynamic to meet an eclectic mix of user needs (Manchester)
  - The newly formed MaaS program should engage with white label MaaS solutions to trial solutions rather than a bespoke build. (Dublin)

- Governance:
  - Establishing MaaS framework and legislation is critical (Manchester, Dublin, Helsinki, West Midlands)
  - Finding the right regulatory balance will be essential for MaaS implementation (Manchester)
  - In Europe, transit agencies should lead the integration of transportation options. (EU)

# Applicability to the SCAG Region

- **Institution**
  - UbiGO and Spin in City of Pittsburgh are both good examples of a successful institutional cooperation that could gather several ITS and transport service providers and operators together. (Stockholm & Gothenburg, City of Pittsburgh)
- **Finance**
  - Despite using some commercial models for the financial management of the MaaS system, no robust evidence-base model exists that quantifies MaaS costs and benefits, or defines users needs. (Manchester)
  - R&D and institutional funding for the first phase. (Vienna, Stockholm & Gothenburg)
  - Compensation for not using private vehicle during the pilot. (Stockholm & Gothenburg)

- **Public Education & Acceptance**
  - People are always reluctant about accepting new technologies. (West Midlands)
  - UbiGO demonstrated a proven user acceptance, mainly because of providing a bundle of various mobility options with a flexible monthly subscription with an account shared within the family, among colleagues or friends. (Stockholm & Gothenburg)

# Keys To a Successful MaaS Implementation

- Public education on new technologies will be challenging but rewarding. Need to explore a variety of marketing strategies such as a phased implementation or shared account within close social network.

- Existing multimodal choices (infrastructure or other assets) are crucial for a successful MaaS deployment.

- In places where the offer of alternative services to private cars is robust, attractive, and can be integrated, MaaS has a higher chance of success.

- Strong (not necessarily strict) oversight and management on system operator(s) is pivotal.

- Collaboration and cooperation among all participants.

- Inclement weather is a hurdle for a multimodal MaaS implementation.

- The purpose of MaaS is propelling mode shift from private vehicles.

# Operational Options

| City Name | System Operator | Owner/Integrator |
|---|---|---|
| Manchester | Transport for Greater Manchester | Public |
| Helsinki | MaaS Global | Private |
| Vienna | Consortium → Whim | Public → Private |
| Gothenburg/Stockholm | UbiGo | Institutional Cooperation |
| West Midlands | MaaS Global | Private |
| City of Pittsburgh | Transit App | Public |

# Discussion Groups

You will now be automatically assigned to a breakout group.

Topics to discuss in your groups:

1. Review/Refine MaaS Definition
2. Policy Framework
3. Review Existing Conditions slides and help determine what's missing
4. Identify who the MaaS System should serve

# DISCUSSION GROUPS

**Governance, Finance, Infrastructure**

David DeRosa

Roderick Diaz (SCRRA)
Nicole Englund (LA Metro)
Kurt Brotcke (OCTA)
Lorelle Moe-Luna (RCTC)
Carrie Schindler (SBCTA)
Mark Baza (ICTC)
Martin Erickson (VCTC)
Seleta Reynolds (LADOT)

**Technology, Management and Operations**

Victor Xie

Robin O'Hara (LA Metro)
Marcel Porras (LADOT)
Nancy Strickert (SBCTA)
Gillian Gillett (Cal-ITP)
David Aguirre (ICTC)

**Institution, Public Education and Acceptance**

Susan DeSantis

Marven Norman (CCAEJ)
Jessica Meaney (IIP)
Benjie de la Pena (SUMC)
Juan Matute (UCLA)
Sam Morrissey (UML)

# Report Out

Discussion groups to present feedback on:

1. MaaS Definition
2. Policy Framework
3. Existing Conditions
4. Who should the MaaS System serve

# Wrap up and Next Steps

## Upcoming Meetings

- ## Meeting 2 – October 2021

  - Update on Existing Conditions
  - Discuss Opportunities and Challenges
  - Discuss Goals and Objectives Setting

- ## Meeting 3 – November 2021

  - Key Strategies

- ## Meeting 4 – January 2022

  - Implementation Guide

# Appendix

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# Full Definition of MaaS

# What is MaaS?

## Full Definition for Reference (*source: MaaS Alliance*)

MaaS integrates various forms of transportation services into a single mobility service accessible on demand. A MaaS operator facilitates a diverse menu of mobility options to meet a customer's request, be they public transportation, ride-, car- or bike-sharing, taxi or car rental/lease, or a combination thereof. For the user, MaaS can offer added value by using a single application to provide access to mobility with a single payment channel instead of multiple ticketing and payment operations. For its users, MaaS should be the best value proposition by helping them meet their mobility needs and solve the inconvenient parts of individual journeys and the entire system of mobility services.

A successful MaaS service also brings new business models and ways to organize and operate the various transport options, with advantages for transport operators including access to improved user and demand information and new opportunities to serve an unmet need. MaaS aims to provide an alternative to using the private car that may be as convenient, more sustainable, help reduce congestion and constraints in transport capacity, and be even cheaper.

# Existing Conditions

Preliminary Conclusion: Have solid foundation to start building a MaaS system

- **Physical and Technological Infrastructure**
  - Payment: OCTA, LA Metro, LADOT, Omnitrans, RTA, GCT, VCTC, Metrolink
  - Mobility Hubs: ICTC, SANDAG, RTA and City of Hemet, SBCTA, VCTC, City of LA, SCAG, OCTA Study
  - Curb Space: City of LA, Santa Monica, WeHo, and Beverly Hills; SCAG Smart Cities & Mobility Innovations Call
  - Charging Stations: SCAG PEV Atlas, SmartHub Pilot
  - Parking: LA Express Park, LAWA

- **Social Infrastructure**
  - P3

# Data & Technology

Preliminary Conclusion: Standards have a strong base and will help with MaaS implementation

- Data Standards

- Technologies

  - Trip Planning: mode integration, route optimization, and real-time data feed and tracking

  - Payment: account-based mobile payment technologies such as contactless closed-loop multimodal transit card, open-loop credit/debit card, digital wallet (i.e., Apple Wallet and Google Pay) and/or QR code validation

- Cubic-Moovit Partnership (Umo Mobility)

# Management & Operations (Fare Programs)

Preliminary Conclusion: Mode integration still far from the requirement of a mature MaaS system. Currently, only public transit agencies have launched agency-wide programs in the SCAG region. However, the case studies have shown that private mobility service providers are also feasible choices.

- Caltrans: Cal-ITP (Monterey-Salinas Transit and SacRT Green Line)
  - Contactless Payment
  - Automating Discounts (Eligibility Verification)
  - Data Standardization for Real-Time Trip Planning
- LA Metro: TAP, Fare Capping, Fareless Transit
- Metrolink: Rail 2 Rail
- OCTA: Bus Mobile 2.0
- Mountain Transit: Fareless Transit
- VVTA: Umo Mobility App and Pass
- VCTC: Vcbuspass transferred to Umo Mobility

# Legislation Evaluation (Governance & Finance)

Preliminary Conclusion: Federal and State governments have shown support for MaaS development. At a local level, the interest in pursuing MaaS varies across municipalities.

- Federal
    - The Advance Transportation and Congestion Management Technologies Deployment (ATCMTD)
    - Federal Transit Administration (FTA) 5312 Funds
    - FTA Integrated Mobility Innovation (IMI) Funds – including Mobility on Demand, Transit Automation, and Mobile Payment Integration programs.
    - Meeting Federal ADA requirements can be a challenge

- State
    - Article 3, Activity 10436.6 (2004) to assist with integrated operations and ticketing
    - Executive Order N-79-2 (2020) to foster a state-wide seamless transportation system

- Local
    - City of LA: The Urban Mobility in a Digital Age (2016), Technology Action Plans (updated annually)

# Public Education and Acceptance

Preliminary Conclusion: As a relatively new concept for a large number of SCAG communities, more outreach programs are needed to educate the public and help improve public acceptance.

Mobility on Demand Projects and Pilots that help raise awareness include:

- LAnow
- Metro Micro
- Via
- Big Blue Bus and City of Monrovia
- OC Flex
- BlueLA
- Bike Share and E-scooter Pilots
- Trip Planning Apps

# Case Studies

# Manchester, UK

- **Target:**
  - Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in Manchester

- **Status:**
  - Trial Phase – No MaaS currently operational in Manchester

- **Timeline:**
  - Phase 1 – Proof of Concepts / 39 participants / Jan 2018
  - Phase 2 – IMOVE / 62 participants / Aug 2019
  - Phase 3 – MAAS4EU / ~150 participants / Dec 2019
  - Phase 4 – MaaSEVOII – On hold due to COVID-19

## Impacts in Numbers

- 26% of participants said they were more willing to use public transport

- 21% were more willing to cycle and walk

- 20% incorporated active travel into their daily commute

- Longer term (5 months post trail) 20% started doing more active travel, 22% would consider giving up their car for a MaaS service, 40% sometimes travel on a new mode/route

# Helsinki, Finland

- **Target:** Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in Helsinki

- **Status:** Live since 2016

- **Timeline:**
  - Phase 1 – Creation of MaaS in Finland, 2016.
  - Phase 2 – Whim app launch, 2017.
  - Phase 3 – Developments, update, and testing operations, 2019 – ongoing

## Impacts in Numbers

- The Whim services target only a part of the population: mainly working people who are used to using several modes of transport. The 'unlimited offer', starts at €499 per month!

- One year after Whim services launched, **6%** (~ 70,000) of the population of the Helsinki region, had an active Whim account.

# Vienna, Austria

- **Target:** Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in Vienna

- **Status:** R&D in progress

- **Timeline:**
  - Phase 1 – Introducing SMILE project, 2012–2015. WienMobil
  - Phase 2 – Introducing Whim, 2019.
  - Phase 3 – Development and Testing, Ongoing

## Impacts in Numbers

- Public transport is the main means of transport in Vienna with a *39%* modal share.

- The parameters used for route calculation should be changeable and the user should authorize the use of the phone's GPS data (*50%* of people gave this authorization).

- The assessment of the Smile project, which foreshadowed the WienMobil application, showed a change in mobility practices among users of the Smile application, as follows:
  - *21%* reduction in car use
  - *22%* increase in the use of train
  - *10%* increase in bike sharing
  - *4%* increase in car-sharing
  - increase in intermodal journeys.

# Whim and WienMobil Comparison

| | whim Helsinki | WienMobil Vienna |
|---|---|---|
| Main line trains | ✕ | ✕ |
| Regional trains | 🟩 | 🟩 |
| Underground, Tram, Bus | 🟩 | 🟩 |
| Bike sharing | 🟩 | 🟨 |
| E-scooter sharing | ✕ | 🟨 |
| Moped sharing | ✕ | 🟨 |
| Car-sharing* | 🟩 | 🟨 |
| Taxis* | 🟩 | 🟨 |
| Car service with driver | ✕ | ✕ |
| Personal bike | 🟨 | 🟨 |
| Personal car | ✕ | 🟨 |
| Rental car | 🟩 | ✕ |
| Car park* | ✕ | 🟨 |

Range of mobility services accessible via the MaaS application
🟩 Route calculation, booking, ticket purchase and validation
🟨 Route calculation only   ✕ Non-integrated service   * Some operators only

The WienMobil app provides some good services, but it falls behind the Whim app of Helsinki. WienMobil offers less service options, less service access options, and lower level of integration than Whim.

| | whim Helsinki | WienMobil Vienna |
|---|---|---|
| Pay-as-you-go | 🟩 | 🟩 |
| Public transport subscription | 🟩 | 🟩 |
| Package of mobility services | 🟩 | ✕ |

Formulas available via the MaaS application
🟩 Option available   ✕ Option unavailable

# Dublin, Ireland

- **Target:**
  - Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in Dublin

- **Status:**
  - MaaS Lite Live (Workplace focused Digital MaaS Platform with no commercial agreements in place) – Full MaaS at feasibility study stage

- **Timeline:**
  - Phase 1 – Workplace focused Maas Lite Proof of Concept/2018
  - Phase 2 – Workplace focused MaaS Lite Live/2019–2020
  - Phase 3 – MaaS Feasibility Study for Dublin City 2020–On-going

## Impacts in Numbers

- Thousands of bookings across all modes including bikes, ebikes, PT and nearly **900** trips by eCar.

- Reducing work travel emissions, associated with DLRCC staff trips, by around **2.5t** $CO_2$ per year.

# Gothenburg/Stockholm, Sweden

- **Target:**
  - Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in Gothenburg and Stockholm

- **Status:**
  - Testing in progress

- **Timeline:**
  - Phase 1 – Test in Gothenburg, 2014.
  - Phase 2 – Integration with Fluidtime, 2017.
  - Phase 3 – Launch in Stockholm, 2019.
  - Phase 4 – Testing and operation, 2017 – 2021

## Impacts in Numbers

- *90%* of bookings are made for public transport with the rest of *10%* pertain car sharing/rental cars.

- The revenue spilt is around *50/50* between the above two.

# West Midlands, U.K. (Failed Case)

- **Target:**
  - Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in West Midlands
- **Status:**
  - Temporarily suspended
- **Timeline:** n/a
- **Possible Reasons for Failure:**
  - Data integration attempts were made but failed
  - The balance between flexibility and regulation for operators was not managed properly
  - People are reluctant to use new technologies

## Impacts in Numbers

- Whim offers a variety of ways to pay for services, including monthly passes and pay-per-ride. Monthly "mobility packages" allow riders to choose consume mobility across all providers.
- The pilot is operated on a commercial basis without a subsidy.
- The MaaS scheme will also have to meet a customer trust challenge.
- In Helsinki, after the launch of the Whim platform, use of public transport increased from 48% to 74%

# European Union

- **Target:**
  - Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in Europe from a regulatory and governance viewpoint

- **Status:**
  - n/a.

- **Timeline:**
  - n/a

## Takeaways

- Infrastructure: Integrated infrastructure is key to the successful MaaS operation.

- Governance: It generally is widely acknowledged in Europe that transit agencies should lead the integration of urban and regional transportation options.

- Data and Technology: Transit agencies must understand technology to make appropriate decisions that drive innovation.

- Institution Practice: Expanding the skill sets available in the transit workforce, including hiring more software developers and data scientists.

- Governance, not technology, is the key challenge for MaaS

# City of Pittsburgh, US

- **Target:**
  - Identifying the Potential Role of Indicators Contributing to Paving a Path to MaaS in West Midlands

- **Status:**
  - Pilot study was launched in Pittsburgh, Pennsylvania, on Jul 9, 2021

- **Timeline:**
  - Phase 1 – June 2021: 23 mobility hubs are currently in operation
  - Phase 2 – Jun 2021 – Dec 2021: Further 27 set to be added

## Impacts to be further assessed