Training session:

How to implement a MaaS system in your city
Housekeeping rules

• **This session is going to be recorded** (training materials will be made available on ELTIS.org after the session)

• **Please keep the microphone muted when not speaking**

• **Use the “Chat” box to write your questions** (this is an interactive session!)
First exercise:

• Please rename your profile as follows:

  First Name Last Name, City, Organisation
European support to prepare, develop and implement a Sustainable Urban Mobility Plan

- Guidance documents
- Initiatives
- Training opportunities
The Mobility Plans portal
www.eltis.org/mobility-plans

A wealth of information on how to develop and implement a SUMP, including:

- **Information** about the elements of a SUMP
- **Guidelines** on the process of developing and implementing a SUMP
- Selected **tools, guides, handbooks and reports** to support urban mobility professionals in their work
- **Case studies** that analyse selected local examples of the development and implementation of mobility plans
- A **database** on the involvement of cities in EU activities related to sustainable urban mobility planning
How is this training structured?

SESSION I
Introduction, context, setting the scene

- Introduction to the MaaS4Eu concept, frameworks and tools related to:
  business / end users and customers / technology and data / policies
- Challenges, lessons learnt and recommendations

SESSION II
Inspirational case studies and best practices

- The Budapest Pilot implementation: the main steps toward the implementation of the MaaS ecosystem
- The Luxembourg Pilot implementation: what are the challenges?
How is this training structured?

SESSION III
Hands-on exercise and final wrap-up

• Introduction to the group work exercise

• Hands-on exercise in small groups (breakout rooms): SWOT analysis for the implementation of a MaaS system in your city

• Plenary discussion on the group work, rapporteurs from each group

• Wrap-up and conclusions
The ELTIS Team of trainers

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Let’s introduce each other

• Where do you work?
  • City authority (technician)
  • City authority (decision maker)
  • Transport authority or operator
  • Mobility expert / consultancy
  • University / academia / researcher
  • Industry
  • Other

• Are you familiar with the concept of MaaS?
  • Yes
  • No
PART I:
Introduction, context, setting the scene
Introduction to the MaaS concept and MaaS4EU achievements related to: business / end users and customers / technology and data / policies

Vivian Kiousi – INTRASOFT International
akrivi.kiousi@intrasoft-intl.com

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 723176

June 16th, 2021
09:40 – 10:20
MaaS4EU Partners

Project Co-ordinator

Scientific and Technical Co-ordinator

Transport for Greater Manchester

BKK

AVV

Department for Transport

Maas Global

Sales-Lentz

Hayfield

TRT

inlecom

XIMEDES

TALL SERVICE
MaaS4EU Demonstration Areas

- Greater Manchester
- Greater Luxembourg
- Budapest
MaaS4EU definition for MaaS

Source: www.UITP.org

Source: Kamargianni et al, 2018
MaaS4EU Vision

Provide quantifiable evidence, frameworks and tools to enable the MaaS concept, by addressing challenges under four pillars:

1. Business,
2. End-Users,
3. Technology, and
4. Policy.
MaaS4EU Conceptual Architecture

Greater Luxembourg

P5 – MaaS Policy Framework
Dissemination and Exploitation
Major Achievements
Final business models were produced taking into consideration the pilots redesign.

Three different organizational structures for MaaS have been developed with the below ownership models:

- a private MaaS operator;
- a public MaaS operator;
- a public-private MaaS operator.

Layout of MaaS operators’ and MSPs’ cooperation agreements was finalised.

Design of MaaS4EU products for the pilot areas and pricing of the products
End Users

Achievements

• Market research design and implementation
• Estimation of behavioral demand models for MaaS products and user segmentation;
• Design of the questionnaires that were included in the demonstrations;
• Guidelines for data that should be collected
• Finalisation of the User Information Model.
MaaS and COVID-19

- Potential opportunity for MaaS to support both public authorities and travellers through enhanced data
  - Capacity information (how full are services?) to reassure passengers; safety information regarding precautions on different modes.
  - Availability of DRT and notifications for users (live changes to routes; event-management)
  - Potential support for tracing COVID-19 transmission
• Delivered the description and documentation of the design of MaaS4EU service integration framework

• Analysed and documented the requirements and logic of interaction and orchestration of services, information sharing and interoperability issues.

• Defined and implemented the City Aware MaaS Plans Designer, a web-based dashboard that supports MaaS operators to select MaaS plans that make sense to travellers and potentially have the greatest acceptance, relying on city characteristics that affect the use of mobility modes by its inhabitants.

• Defined and implemented the MaaS Plans Recommender that assists MaaS travellers in choosing the most suitable mobility package that fits their mobility habits and needs

• Defined and implemented the MaaS Route Recommender which provides a personalised list of recommended routes, by identifying alternatives that match user preferences
Achievements (2)

• Developed the dynamic journey planner which integrates the mobility services included in the MaaS schemes and generates optimal multimodal routes that meet the requirements of the users and MaaS operators.

• Developed a suite of components as part of the implementation of the supply demand optimiser. These components receive real-time information from different sources and support the functionality of the journey planner accordingly.

• Delivered the MaaS4EU Platform catering for the below:
  • Integration of Maas4EU components
  • Scalability, reliability of the platform
  • Security and Data privacy issues addressed

• End user functionality and MaaS operator user functionality was provided successfully based on requirements set by the Pilot leaders.
Achievements Policy Framework

• Comprehensive analysis of the main regulatory issues concerning the MaaS concept and preparation of a set of recommendations and guidelines for policy stakeholders aiming to foster the development of MaaS platforms

• Conducted a series of interviews with stakeholders around Europe to understand their views and requirements regarding MaaS. Interviews ensured that meaningful inputs were captured taking into account cultural/socioeconomic and geolocation content as well as MaaS readiness

• Prepared a checklist for MaaS Operators designed to provide a list of items that should be complete before a stakeholder entering into new markets

• MaaS4EU collaborated with ELTIS and CIVITAS SUMPS-UP on the SUMP guidelines 2.0 providing inputs and contents to the ‘SUMP Topic Guide on MaaS’: Mobility As A Service and Sustainable Urban Mobility Planning.
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1253 Luxembourg

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THANK YOU

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 723176
MaaS demonstrations: Challenges, lessons learned and recommendations

Dr. Maria Kamargianni
Associate Professor of Transport & Energy, Head of MaaSLab
MaaSLab, Energy Institute, UCL

www.maaslab.org  Follow us: @maaslab_org  MaaSLab UCL
MaaS Projects’ Objectives

Provide quantifiable evidence, frameworks and tools to enable the MaaS concept, by addressing challenges under four pillars:

1. Business,
2. End-Users,
3. Technology, and
4. Policy.
The MaaS Concept

Supply side

Mobility Service Providers (MSPs)
- Transport Operators
- Mobility Supportive Services
  - Advance travelers experience

Demand side

MaaS Users (MUs)

MaaS Operator(s) (MO)
- Information & Planning Integration
- Payment & Ticketing Integration

- Intermodal Journey Planner
- Real Time Information
- Booking
- Payment
- Getting on board / Ticket
- MaaS Products
- User Account

The definition of MaaS

“Mobility-as-a-Service (Maas) is a user-centric, intelligent mobility management and distribution system, in which an integrator brings together offerings of multiple mobility service providers, and provides end-users access to them through a digital interface, allowing them to seamlessly plan and pay for mobility.”

Source: MaaSLab, 2018. The MaaS Dictionary. Available at: https://docs.wixstatic.com/ugd/a2135d_d6ffa2fee2834782b4ec9a75c1957f55.pdf
• Greater Manchester
• Luxembourg - Germany
• Budapest
# Living Labs’ Activities

<table>
<thead>
<tr>
<th></th>
<th>Budapest</th>
<th>Greater Manchester</th>
<th>Luxembourg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Citizens involved:</strong></td>
<td>Wave 2: 54</td>
<td>Wave 2: not feasible (C-19)</td>
<td>Wave 2: not feasible (C-19)</td>
</tr>
<tr>
<td></td>
<td>Wave 3: 1203</td>
<td>Wave 3: 39</td>
<td>Wave 3: 18</td>
</tr>
<tr>
<td><strong>MSPs contacted for negotiations:</strong></td>
<td>6</td>
<td>9</td>
<td>10 (6 negotiations started)</td>
</tr>
<tr>
<td></td>
<td>(bikesharing, carpooling, public transport, car sharing, rail)</td>
<td>(public transport / several bus operators, carsharing, ridehailing, taxi, bikesharing, rail)</td>
<td>(public transport, taxi, bikesharing, e-scooters, car sharing, shuttle buses)</td>
</tr>
<tr>
<td><strong>Data collection rounds:</strong></td>
<td>• 3 waves for citizens</td>
<td>• 2 waves for citizens</td>
<td>• 2 waves for citizens</td>
</tr>
<tr>
<td></td>
<td>• 3 rounds of interviews with stakeholders</td>
<td>• 3 rounds of interviews with stakeholders</td>
<td>• 3 rounds of interviews with stakeholders</td>
</tr>
<tr>
<td></td>
<td>• On-line questionnaire with 21 companies (B2B)</td>
<td></td>
<td>• On-line questionnaire with 21 companies (B2B)</td>
</tr>
<tr>
<td><strong>MSPs provided services through the MaaS4EU app:</strong></td>
<td>5 (Bikesharing: MOL Bubi</td>
<td>Carpooling-crossborder: Motar</td>
<td>5 (Bikesharing: MOL Bubi</td>
</tr>
<tr>
<td></td>
<td>Car sharing: GreenGo)</td>
<td>(Public transport: TFGM/Metrolink, Ridehailing: Uber)</td>
<td>2 (Public transport: TFGM/Metrolink, Ridehailing: Uber)</td>
</tr>
<tr>
<td></td>
<td>2 (shuttle buses: FlibCo, NightRider - belong to the SLA group of companies)</td>
<td></td>
<td>2 (shuttle buses: FlibCo, NightRider - belong to the SLA group of companies)</td>
</tr>
<tr>
<td><strong>Citizens used the MaaS4EU app:</strong></td>
<td>1203</td>
<td>41</td>
<td>18</td>
</tr>
</tbody>
</table>
Hypotheses, Challenges & Lessons Learned

MaaS Operator Types

Initial assumption: The key consideration is that a Public Transport Authority is already responsible for all public transit modes/operators. Moreover, in most cases, it is the authority regulating and authorizing (or procuring) the operation of all the other private transport operators (i.e. taxi, car-sharing etc.). In addition, as a not-for-profit organisation, the PTA might be able to cultivate the trust needed for the uptake of the endeavour. However, on the downside, this might require an organisational change and flexible collaboration with other PTAs when addressing connectivity with other regions.

Tested in: Greater Manchester

Opportunities, Challenges & Lessons learned:
- PTA has already established relationships with all transport providers in the city. Easy access to them to discuss and explore new concepts.
- It takes time for a PTA to change organisational structures or secure approvals for a new service.
- Complexity in receiving the money from the MaaS products and distributing them to the MSPs.
- Difficult to operate outside its jurisdiction area; some areas left outside.
Hypotheses, Challenges & Lessons Learned

MaaS Operators Types

Initial assumption: A transport operator might also drive the MaaS Business Ecosystem by creating the conditions to attract other relevant service providers, who might appreciate the advantages of collaboration, as this may support cost savings in operation and co-investments. This effort is based on the notion of coopetition (collaboration between competing actors), as all the competitors in network industries are recognising the benefits of collaborating on innovative approaches.

Tested in: Luxembourg

Opportunities, Challenges & Lessons learned:
- It is too difficult for a TO to collaborate with competitors.
- Especially for TOs who offer a variety of mobility services, it is almost impossible to collaborate with others.
- Even setting up discussions with other MSPs was difficult.
Hypotheses, Challenges & Lessons Learned

MaaS Operators Types

Initial assumption: A trailblazer of MaaS services private company. A new actor dedicated to operate and drive the MaaS Business Ecosystem might be more equipped to support the above characteristics and promote trust, collaboration and coopetition amongst existing transport operators and travel service providers. Such an operator might also be in a better position to transverse existing boundaries and silos in the mobility sector. At the same time, a new actor might also face inertia and lock-in effects from previous efforts.

Tested in: Budapest

Opportunities, Challenges & Lessons learned:

- The beginning was quite difficult as there are no previous relationships between the MO and the MSPs.
- With the support of the PTA, communication channels were established with the MSPs.
- Wide participation of MSPs in the pilot.
- Some issues with MSPs in terms of the agreements and data sharing. It took time, but they were solved.
Lessons learned

• Establishing communication channels with MSPs takes time
  – New concept | Hypothetical and not concrete business models | Competition among MSPs

• Agreements with MSPs are very challenging
  – Need for clear and specific business models & clear incentives for the MSPs
  – Small scale MaaS pilots sometimes is a concern (limited number of customers;
  – Reluctance to devote resources with low return
  – Financial side and profit

• MSPs worry about commoditisation
  – Lose brand identity (especially big companies with mature platforms are not ready to
give this up) | Small MSPs are positive
  – Concerns about user experience and liabilities
  – Exclusivity is a selling point for big MSPs
Lessons learned

- **Data sharing agreement between the MO and the MSP is critical**
  - Customer data is part of the MSP’s business intelligence and future development:
    - Key interchange points (fleet management allocation and routes establishment)
    - Customer satisfaction
- **Value of co-creation among MSP who offer different services to create synergies**
- **Importance of clear goals and alignment with policy**

From the final interviews with MSPs who offered their services through the platform:

=> PTA is preferable to not act as a MaaS Operator, but rather sit above the MaaS Operator and help facilitate interaction between MO and MSPs;

=> PTA should provide policy goals/requirements to the MO to offer the services to end-users (i.e. Focus on walking trips/ first-last mile using certain modes etc.)
EU vs US: MaaS Business Ecosystem

Workshop during the IATBR 2018 conference in Santa Barbara, California | 20 participants from industry & academia

**EU**: the role and participation of PTAs is considered critical for a successful deployment of MaaS.

**USA**: PTAs have not that much power and emerging mobility service providers are more likely to be the champions of MaaS.
Challenges & Lessons Learned

- Several operators do not have the APIs needed to integrate to a MaaS platform (including booking, ticketing, payment, timetables)
- Reluctant to share access to APIs if they were available
- Payment systems – MSPs wanted to be in control of this (despite technology exists)
- Paper ticketing in some modes of transport – be ready to use legacy systems as we transition towards MaaS
- Pilot app
  - Payment was not an option for all modes
  - Still limited integration of services into the app
Challenges & Lessons Learned

• Importance of information provision and data sharing
  • Live data and updating information regarding travel routes

• Engage early with technology (basis for the rest of the solution)

• Flexibility with regards to implementation of different operators’ services - Interoperability (difficulty to get all on board with the same systems)
Challenges & Lessons Learned

• Recruiting users to participate
  – Pay their own money for this
  – Additional effort required (service was accompanied with surveys)

• The benefits of MaaS are difficult to be processed by end users before they use a MaaS service
  – Brand new solution
  – Information and explanation regarding what MaaS is and the potential benefits
  – Too many mobility apps

• Promising concept once it is explained: majority of end users like the idea
• Difficulty in competing with pricing from existing mobility services
  – Initial fears of locked-in to subscription services
End Users

Challenges & Lessons Learned

• Once they used the MaaS4EU app and had experience they were positive towards using such a service in the future
  • Young professionals who do not own a car are the most popular user group to target
  • Most of those who already own a car or a bike do not find high value in this service

• They had the opportunity to use modes that they did not consider before (demand management techniques)
MaaS and COVID-19

- Opportunity for MaaS to support both public authorities and travellers through enhanced data
  - Capacity information (how full are services?) to reassure passengers; safety information regarding precautions on different modes.
  - Availability of DRT and notifications for users (live changes to routes; event-management)
  - Potential support for tracing COVID-19 transmission
Challenges, Lessons Learned

- Passenger rights
- Liability
- Lack of data availability / APIs (openness/sharing requirements)
- Data interoperability
- Possibility to re-sell tickets in several occasions
  - In some occasions, when this is possible, the re-selling prices are higher
Challenges, Lessons Learned

- Clear regulation over new modes introduced
- Public authorities should act as bodies overseeing transition to MaaS
- Help organisations to work together to deliver MaaS
- Support open engagement
- Ensure funding reaches the right modes and supports their integration
# Checklist for cities

<table>
<thead>
<tr>
<th>Domain</th>
<th>Item</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The MaaS Operator should:</strong></td>
<td></td>
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<tr>
<td><strong>End-user</strong></td>
<td>Ensure that the service provides equal access to all and does not discriminate against anyone</td>
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<td></td>
<td>Provide an easily accessible and available customer service channel</td>
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<td>Have in place clear procedural channels to address any complaints or issues that are raised</td>
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<tr>
<td></td>
<td>Have in place a clear policy for compensation or reimbursement for unsatisfactory services or when the trip is not carried out as planned</td>
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<td>Provide clear and fair reasons for the provision or denial of service</td>
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<td></td>
<td>Offer services in the local language(s)</td>
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<td></td>
<td>Provide accessibility and assistance at no additional cost for disabled passengers and passengers with reduced mobility</td>
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<tr>
<td></td>
<td>Provide information before purchase and at various stages of travel</td>
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<td></td>
<td>Give the consumer clear, accurate and consistent information so as to give the consumer the power to make decisions</td>
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<td></td>
<td>Fulfil the transport contract in case of disruption: mechanism for rerouting and rebooking</td>
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<tr>
<td></td>
<td>Provide clear and consistent information regarding the fares and fare structure for services offered</td>
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<tr>
<td></td>
<td>Understand the requirements and demands local users would have of the service in terms of travel patterns and habits to provide worthwhile services</td>
<td></td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
<td>Adhere to EU Competition law under which the following practices are prohibited</td>
<td></td>
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<tr>
<td></td>
<td>Clearly define and agree roles and responsibilities in the provision of services with local operators through service agreements and legal contracts</td>
<td></td>
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<tr>
<td></td>
<td>Align with the European standards of fare management systems of ISO EN 24014-1:2015</td>
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</tr>
<tr>
<td></td>
<td>Align with local regulations and requirements for travel and guidance from national and public authorities</td>
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<tr>
<td><strong>Technical</strong></td>
<td>Provide a reliable platform with mechanisms in place to deal with system failures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure services are provided via multiple platforms</td>
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<tr>
<td></td>
<td>Provide secure payment options</td>
<td></td>
</tr>
<tr>
<td><strong>Safety &amp; Security</strong></td>
<td>Provide privacy policy that is available and accessible to users</td>
<td></td>
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<tr>
<td></td>
<td>Be in line with GDPR in terms of data storage and protection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure that no personal data is used without explicit consent from the user. Consent must be freely given, with clear explanation of what data is being collected, who is collecting the data and what the data will be used for</td>
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<tr>
<td></td>
<td>Provide the option for users to opt-out from the data being collected</td>
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<tr>
<td></td>
<td>Carefully select operators to work with to make sure end-users are provided with a safe and secure service at the end point</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Be prepared to comply and support changes towards public safety requirements and suggestions from local and national authorities</td>
<td></td>
</tr>
</tbody>
</table>
Which pillar hinders the most the implementation of MaaS?

- Business
- Technology & Data
- End Users
- Policy
Take aways

• If a MaaS service/business model does not work in one area, it does not necessarily mean that it will not work in another areas
• Not one MaaS solution for all
• MaaS is a general concept that can be adapted to the needs of any local or national and international content
The MaaS Business Ecosystem

More Information

You can find more information at: https://www.maaslab.org/projects-2
PART II: Inspirational case studies and best practices
Introduction

Mobility-as-a-Service

• planning
• booking
• ticketing
• payment
MaaS4EU overview

P1 - MaaS Business Model
- Value Proposition (Products, Services, Pricing, Positioning)
- Financing Structures
- Communication Channels
- Legal Requirements

P2 - End-Users
- Market Research
- End-users Requirements
- Users’ data ownership
- User Taxonomy
- MaaS Demand Models
- Passenger Rights

P3 - MaaS Technology Hub
- Advanced travel planning
- Deployment of services
- Scalable Storage
- Data and Service Providers
- P5 - MaaS Policy Framework
- Dissemination and Exploitation

MaaS4EU Demonstration & Proof of Concept
- Greater Manchester, UK (urban, intercity trips)
- Luxemburg - Germany (urban, cross-border trips)
- Budapest (urban, intercity and cross-border trips)

MaaS Living Labs & Pilots Design
- Data Collection (3 wave surveys)
- MaaS Impact Quantification on Users, Transport Operators, City Mobility
Budapest pilot

Budapest

- urban and cross-border trips
- locals and tourists
- Toll Service is the MaaS operator

Participants

- BKK: bus, metro, tram
- Mol BuBi: bikes-sharing
- Taxi: on demand
- MÁV-Start: railway
- Oszkár: ride sharing
- GreenGo: car sharing
- ITM: ministry of development
- KTE: transport association
Market analysis

MaaS applications on the market

- Number of MaaS introductions per year
- Number of available applications
MaaS integration levels

- ICT integration
- Ticketing and Payment
- Mobility package

Bar chart showing the integration levels.
Penetration of applications
Service types

Type of MaaS operators / Share of service platforms
Data collection

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS
FACULTY OF TRANSPORTATION ENGINEERING AND VEHICLE ENGINEERING
Workshop

- BKK Centre for Budapest Transport
- Municipality of the City of Budapest
- Ministry of Innovation and Technology
- KTI Institute for Transport Sciences
- Moving Mass Association
- Motar car-pooling
- GreenGo car-sharing
- City Taxi
- MÁV-START railways
- National Mobile Payment
- MaaS.global
- Here technologies
Criteria of successful implementation

- Service reliability
- Real time information
- Privacy
- Include all transport means available in the city
- Integrate other services apart from mobility services
- Loyalty rewards
- Secure payment options
- Promote use of public transport
- Provide data back to the involved actors
Data collection
### Level of integration

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Routing</th>
<th>Booking</th>
<th>Ticketing</th>
<th>Payment</th>
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</thead>
<tbody>
<tr>
<td><strong>Public transport (BKK)</strong></td>
<td>MaaS4EU app</td>
<td>N/A</td>
<td>routing with vending machine</td>
<td>at vending machine</td>
</tr>
<tr>
<td><strong>Bike-sharing (MOL-BuBI)</strong></td>
<td>MaaS4EU app</td>
<td>MaaS4EU app</td>
<td>N/A</td>
<td>MaaS4EU app</td>
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<tr>
<td><strong>Car-sharing (GreenGo)</strong></td>
<td>MaaS4EU app</td>
<td>MaaS4EU app redirects to GreenGo app</td>
<td>MaaS4EU app</td>
<td>MaaS4EU app</td>
</tr>
<tr>
<td><strong>Taxi (CityTaxi)</strong></td>
<td>MaaS4EU app</td>
<td>MaaS4EU app</td>
<td>N/A</td>
<td>partially through MaaS4EU app</td>
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<tr>
<td><strong>Ride-sharing (Motar)</strong></td>
<td>MaaS4EU app</td>
<td>MaaS4EU app redirects to Motar app</td>
<td>N/A</td>
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## MaaS package choices

<table>
<thead>
<tr>
<th>Package</th>
<th>Public Transport</th>
<th>Taxi</th>
<th>Car-sharing</th>
<th>Bike sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Monthly pass</td>
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<td>1 hour</td>
<td>Monthly pass</td>
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<td>Sharing Start</td>
<td>Monthly pass</td>
<td>3 000 HUF</td>
<td>1 hour</td>
<td>Monthly pass</td>
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<td>Sharing Max</td>
<td>Monthly pass</td>
<td>9 000 HUF</td>
<td>3 hours</td>
<td>Monthly pass</td>
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<td>Combo Start</td>
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<td>Full Max</td>
<td>Monthly pass</td>
<td>6 000 HUF</td>
<td>3 hours</td>
<td>Monthly pass</td>
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MaaS4EU application

- **Full Start**: 8500 HUF
  - Public Transport: monthly budapest-pass
  - Taxi: 3000 huf
  - Car sharing: 999 minutes
  - Bike sharing: mol bubí monthly pass
- **Expiration Date**: 10/12/2019 22:47

- **Selected Route**
  - Duration: 73 min
  - 23:07 - 00:20
  - 14'  Walk 869 m
  - 30'  Bus Line 133E
  - 2'  Walk 135 m
  - 2'  Pickup bike

- **Your Current Trip**
  - Budapest, Fehérvári út, Magyarország
  - 4'  Walk 314 m
  - 1'  Pickup Car
  - 9'  GreenGo
Data collection

- Workshops
- Personal Interviews
- Focus Groups
- MSPs, Authorities

End-Users

Wave-1 Survey

Focus Groups

MVP

Wave-2 Survey

Final MaaS4EU product

Wave-3 Survey

Y0

Phase 1

Y1

Phase 2

Y2

Phase 3

Y3

Phase 4
Promotion
Willingness to use

- Public transport
- Car sharing
- Bike sharing
- Taxi

very likely | likely | average | not likely | very not likely

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS
FACULTY OF TRANSPORTATION ENGINEERING AND VEHICLE ENGINEERING
Acknowledgement

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THE BUDAPEST PILOT IMPLEMENTATION

DOMOKOS ESZTERGÁR-KISS
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transportation.bme.hu
How to implement a MaaS system in your city: The Luxembourg Pilot implementation: what are the challenges?

Babis Ipektsidis – INTRASOFT International
Babis.ipektsidis@intrasoft-intl.com

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 723176
MaaS4EU and the Luxembourg Pilot

General info

• Initial pilot: Aachen – Luxembourg Region
• Problem: No actual corridor between these 2 regions – bus, train, car
• Possible idea: creating a service for students from Luxembourg in Aachen (car pooling, shuttle service from SLA)
• There was no response/interest coming from the student’s association
• New Pilot Area: Luxembourg and Greater Region due to the trans-border traffic between Luxembourg and Germany, Belgium and France
Background of pilot area

Plans for the trial
• Urban trips, cross-border trips, B2B service
• Integrated journey planner to support all kind of the transport modes above and the services of the different MSP’s

Priorities for the project
• Discovering the MaaS concept as a private company and the feasibility to become a MaaS operator
• Check out the crossborder aspects of MaaS

Questions from the Operators
• Can the payment procedure be kept by the operator?
• Will operators be paid to participate?
• What other operators will be on board?
• What do operators need to provide? (API’s)
Setting up the pilot

Process of recruitment of operators

- Several operators were contacted by mail and phone in order to present the project and ask if they would be interested to join
- With some operators there were physical meetings in order to discuss in person
- Workshop in Luxembourg where several operators were invited
- Operators: Taxi, e-scooter, bike sharing, car sharing, public transport, CFL (railways), ACL (Automobile Club)
Setting up the pilot

Key challenges and difficulties in the setup

• Getting in touch with the potential operators
• First interest was there and information exchange was constructive but unable to get operators on board afterwards

Reasons for lack of interest

• No Funding
• No available APIs
• No will/possibility to invest time/manpower
• Operators did not want to give away the influence on the payment procedure
  Several operators mentioned that they wanted to provide the API in order to locate their product but not give access to the payment API. Once it was so far interest dropped and access was not provided
Setting up the pilot

Public transport has own plans on MaaS and therefore majority of providers wait for that initiative

• Public/private MaaS initiative with several operators that were contacted by SLA
• This made it difficult to create a competitive product including public transport

Despite several meetings and relaunches the authorities did not show interest in joining/ the MaaS4EU project

Important development: Free public transport in Luxembourg as from 2020

• MaaS commercialisation and business model need to be adopted to a new reality
• Mobility providers need to re-assess the situation
Impact of COVID-19

The extent of the restrictions as a result of COVID in Luxembourg area

• Total lockdown, schools closed, bars/restaurants/nightlife
• Public transport down to a minimum, massive switch to home office, airport closed.

Statistics and impacts on travel behaviour

• Public Transport down to 1/2 or 1/3 of the usual capacity (Number of busses serving)
• Single car use potentially raised because of the fear to be exposed to COVID
• Home office reduced traffic (visible during rush hour)
Impact of COVID-19

We had to run a Virtual pilot

• Fear of using Public transport even if free of charge
• Several other services were frozen (e.g. airport shuttles or Nightrider)
• Other private actors e.g. car-sharing or taxi that had decided not to join our pilot (not 100% COVID related but COVID also impacted)
Final products

Products designed for the area

• Plans were created with all the potential MSP’s that are available in Luxembourg
• Plans combined public transport for free, car sharing, taxi, e-bike, airport shuttles, door-to-door night bus
• Several time ranges (daily, weekly, monthly) and prices according to the volume of services
Lessons Learned

Key lessons learned from the project

• Difficult to get actors on board
• A general interest but a lack of willingness to invest time & manpower
• API’s – a very complicated subject – not every actor has an API available
• A private actor like SLA can be seen as a competitor – possible explanation for the lack of interest among other private actors
• Public authorities not on board.
• Language barriers (FR/GER/LUX/EN)
• Surveys took too much time – people were not interested in spending so much time
  → Research project vs commercial application
Lessons Learned

Seek support from public authorities
- Have them on board in an active role on MaaS (act as enabler)
- Public authorities are seen as neutral and as a guarantee for equal play field among competitors (enhances trust)
- Public initiatives can attract more private MSP’s (without being in competition).

As a private transport providing company, influence is not strong enough
- Mobility service providers are reluctant to provide data/APIs due to fear of competition
- Mobility service providers/competitors are not paid to participate so interest is lower
- Difficult to move from Competition to Coopetition
  - Coopetition the act of cooperation between competing companies; businesses that engage in both competition and cooperation
Mr Babis Ipektsidis

INTRASOFT Intl. N.V. /S.A.
Tour Bastion
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1050 Brussels

https://intrasoft-intl.com/
PART III:
Hands-on exercise and final wrap-up
The MaaS Concept

Supply side

Mobility Service Providers (MSPs)
- Transport Operators
- Mobility Supportive Services
- Advance travelers experience

Demand side

MaaS Operators(s) (MO)

MaaS Users (MUs)

MaaS Platform(s)
- Intermodal Journey Planner
- Real Time Information
- Booking
- Payment
- Getting on board / Ticket
- MaaS Products
- User Account

Information & Planning Integration

Payment & Ticketing Integration

The definition of MaaS

“Mobility-as-a-Service (Maas) is a user-centric, intelligent mobility management and distribution system, in which an integrator brings together offerings of multiple mobility service providers, and provides end-users access to them through a digital interface, allowing them to seamlessly plan and pay for mobility.”

Source: MaaSLab, 2018. The MaaS Dictionary. Available at: https://docs.wixstatic.com/ugd/a2135d_d6ffa2fee2834782b4ec9a75c1957f55.pdf
The three MaaS pillars

- Business
- End Users
- Technology & Data
Group exercise rules

• You will be divided into 3 rooms, each one focusing on a MaaS pillar
  • Room A: Business
  • Room B: End Users
  • Room C: Technology and data

• In a SWOT analysis, add the key items related to the MaaS pillars

• The group exercise will last for 40’

• The outcomes of the work group exercises will be discussed in the final plenary session
### MIRO whiteboard

**ROOM A**

**Business**

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<th>OPPORTUNITIES</th>
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What’s next?
References

- **SUMP topic guide “Mobility As A Service (MaaS) and Sustainable Urban Mobility Planning”**
- **Maas4EU project**
Next training session

Planning for more resilient and robust urban mobility

It examines the concept of resilience, and provides a series of transferrable case studies and recommendations on how to plan for resilience and mobility at a time of crisis.

A hand-on exercise gives participants the opportunity to work in small groups on measure planning with resilience.

The session will take place on 29 June 2021 from 9.30 to 12.30 am CEST.

See more on ELTIS: https://www.eltis.org/participate/events/online-training-session-planning-more-resilient-and-robust-urban-mobility
Thank you!

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Simone Bosetti  
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