Piecing together the puzzle of Mobility as a Service
Insights from the user and service design perspectives

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“This was a lot harder than we expected”

Why? In part, uncertainty leads to more uncertainty

- Evaluations are limited
- Uncertainty & looming questions
- Pilots / implementations are limited
- (Available) data is limited
"This was a lot harder than we expected"

Why? In part, underestimating complexities, linked to a lack of practical experience

An eager, but naïve, technology-driven approach – “if you build it, they will come”

Customer segment?

Modes? Bundle?
"This was a lot harder than we expected"

Why? In part, underestimating complexities, linked to a lack of practical experience

A more systematic approach – the "user" in a societal context

Geographic context
- Infrastructure & mode access
- Costs of living
- Weather

Family / household context
- Financial resources
  - (Mode) ownership
  - Abilities
- Knowledge, habits
- Stress
- Identity, values
- Competing needs

Service & org. context
- (Value proposition)
- Service design
- Business models & (perceived) opportunities
- Interpretation of regulations
- Organizational goals
- Collaboration

Societal, legal & regulatory contexts
- Trends and norms
- Taxation
- Transportation-related policies e.g. parking
- Urban planning and land-use policies
Implementing Mobility as a Service is complex

IRIMS analytical framework to identify institutional factors (enablers and barriers) affecting the development and implementation of MaaS

Aligning the user, business and societal perspectives

Maximizing matches, minimizing mismatches, identifying gaps. What trade-offs are acceptable and who decides?

Developing MaaS services (& offers) that can meet users’ needs and add value, while promoting societal goals. For example:

<table>
<thead>
<tr>
<th>Users (needs/motives)</th>
<th>Service (offer)</th>
<th>Societal goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>People who primarily walk and bike, low costs</td>
<td>←?→</td>
<td>Avoid inducing demand for less sustainable modes</td>
</tr>
<tr>
<td>Multi-modals who use cars semi-frequently or people looking to access cars</td>
<td>←?→</td>
<td>Offset car purchases</td>
</tr>
<tr>
<td>Households looking to downsize, economize, etc.</td>
<td>←?→</td>
<td>Reduce the number of private cars (selling the secondary or primary car)</td>
</tr>
<tr>
<td>Households with limited or no access to a public offer</td>
<td>←?→</td>
<td>Improve access to the nearest public offer AND/OR increase sharing e.g. P2P</td>
</tr>
<tr>
<td>Everyone</td>
<td>←?→</td>
<td>Improve occupancy and utilization rates; increase sharing; shift towards more sustainable modes</td>
</tr>
</tbody>
</table>

Diagram:
- Users
- Business
- Society
Adopting an innovation (product or service) is a process

The process is easily disrupted, and users need support throughout this process. (In fact, innovation is a process many organizations need to undertake too.)

Knowledge – Persuasion – Decision – Acclimatization – Normalization – Confirmation

The (potential) adopter evaluates the innovation based on e.g. relative advantage, complexity, trialability, observability, etc.

Remember what is being asked of (potential) MaaS users.

– understand a new service concept in general (MaaS), as of now largely unobservable and untestable
– understand a specific manifestation of MaaS with a specific, detailed service offer (Service X)
– reflect on one’s transport needs and use (probably for the first time)
– estimate how well Service X may or may not match one’s needs and use
  (note that transportation use patterns may change due to using the service)
– decide whether or not to risk becoming a customer at all, let alone decide how much one is willing to pay
  (note that this may entail dealing with a new service’s ”growing pains“)
– undertake behavioral change (learning to use a new service, test new behaviors and potentially reorganize one’s life and use of transport)
– get everyone on board and coordinate all this with one’s household and extended family

How can we support their change process?

What do we know about MaaS and its users?

Not enough, and even less based on empirical studies. We need to change that to facilitate learning from each other’s experiences and leapfrogging.

It is the relative advantage of MaaS that must be considered, rather than specific socio-demographics or mode-use characteristics. MaaS must be perceived as better in some way(s), proportionate to the costs (e.g. money, effort) compared to the user’s current solution (i.e., relative advantage will differ from user to user).

What users want/like/are motivated by, and what MaaS service design attributes have proved advantageous…

– Tailored solutions to daily challenges/customization
– Make it easy to test new options (trialability)
– A safe, secure, pleasant, comfortable, convenient trip
– Minimize stress and uncertainty
– Economy, price-worthiness
– The transportation smorgasbord (selection)
– Improved access
– Convenience, flexibility
– Simplicity and ease of use
– Curiosity

But MaaS cannot be perceived as…

– More expensive (without enough other added value)
– More inflexible, inconvenient, or inaccessible (“too far away” from infrastructure, needing multiple car seats)
– Too difficult to understand and use, e.g. learning how to be a customer incl. onboarding, to use the app, to access vehicles
– Incomplete in some way, e.g. inadequate range of modes, app functionalities, or service features

Can MaaS lead to more sustainable travel behavior?

Yes, but it will depend on the service design and offer, as well as on changes in a wide range of public policies.
A few additional questions for decision makers to ponder

How can we better incorporate the user perspective throughout the MaaS process (development, implementation, and use), e.g. other tools or methods?

How can we better support users throughout the adoption process, including trialing new modes and behaviors?

How do we make private/non-shared/fossil-fueled car ownership and use relatively less advantageous?
How can we encourage and incentivize more sustainable travel behaviors for both those who are already relatively more sustainable and those who are still relatively less sustainable? – via service design, via urban planning, via public policy, etc.

How can we ensure thorough evaluations of MaaS so that we all learn more about what works where and why? – with enough people, over long enough time, in various geographical and legislative/regulatory contexts – about traveler behavior, sustainability impacts, service design, conflicts and trade-offs between perspectives and types of sustainability, etc.
Thank you!

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Currently: SEAMLESS (PI), LIMA Evaluation WP leader
Previously: UbiGo Gothenburg pilot, IRIMS, MaaSiFiE, MaaS Baseline, IMOVE, KOMPIS, etc.

Examples of MaaS implementation and research projects in Sweden

- Go:Smart / UbiGo pilot (B2C)
- LIMA (MaaS for employers and employees)
- MoJo (MaaS for employees)
- EC2B at BRF Viva (MaaS integrated into housing)
- Linköping MaaS (city-wide MaaS)
- DalMaaS (rural MaaS)
- KomiLand (rural MaaS)
- IRIMS (institutional conditions, barriers and enablers)
- KOMPIS (Swedish roadmap + pilot support + evaluation framework)
- SEAMLESS (meta-analysis of pilot/service data)
- MaaS Baseline (assessing customer potential in Sweden)
- MaaSiFiE (European roadmap, CEDR)
- IMOVE (unlocking large-scale access, EU H2020)
- Stronger Combined (MaaS in rural areas in the North Sea Region, Interreg)
MaaS RESOURCES – JOURNALS & BOOK CHAPTERS


MaaS RESOURCES – THESSES, REPORTS AND WORKING PAPERS

- MAASiFE project funded by CEDR http://www.vtt.fi/sites/maasife/results (downloadable deliverables and webinar link+pdf) including:
  Deliverable 2: European MaaS Roadmap 2025.
  Deliverable 3: Business and operator models for MaaS.
  Deliverable 4: Impact Assessment of MaaS.
  Deliverable 5: Technology for MaaS.

Jana Sochor – ITF Roundtable on Integrating Public Transport into MaaS, October 12, 2020
MaaS RESOURCES - REFERREED CONFERENCES (selected)


