

# Piecing together the puzzle of Mobility as a Service

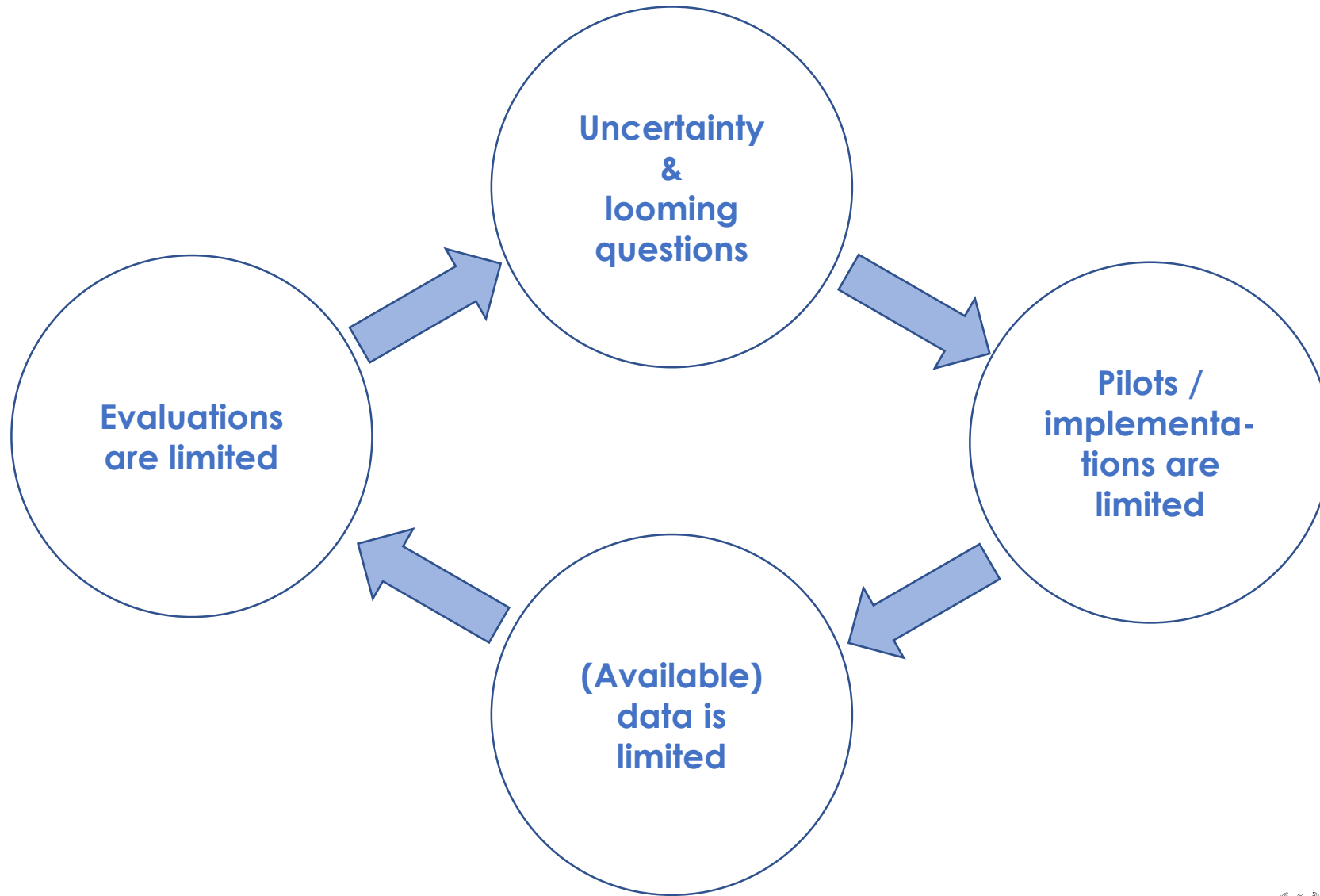
Insights from the user and service design perspectives

Jana Sochor, Ph.D., Senior Researcher  
RISE Research Institutes of Sweden  
& Chalmers University of Technology  
Gothenburg, Sweden

[jana.l.sochor@gmail.com](mailto:jana.l.sochor@gmail.com); [jana.sochor@ri.se](mailto:jana.sochor@ri.se); [jana.sochor@chalmers.se](mailto:jana.sochor@chalmers.se)

# "This was a lot harder than we expected"

Why? *In part, uncertainty leads to more uncertainty*



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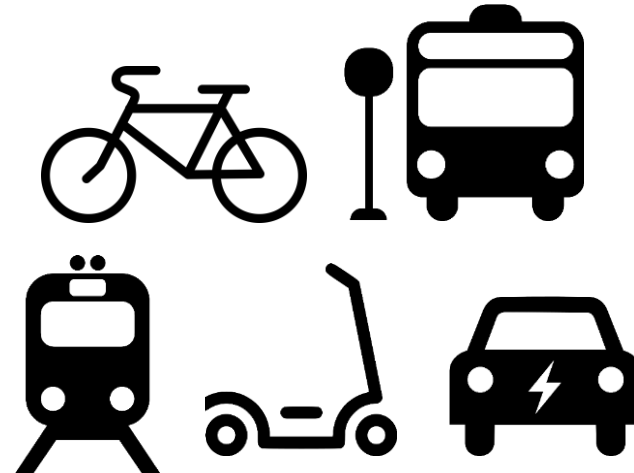
Why? *In part, underestimating complexities, linked to a lack of practical experience*

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

Customer segment?



Modes? Bundle?

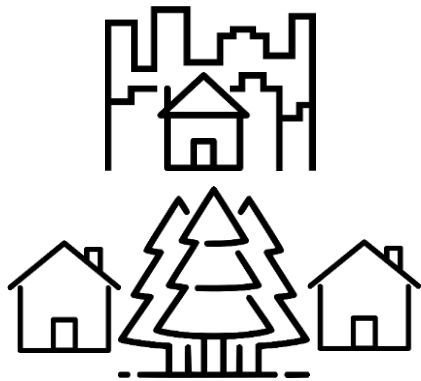


# "This was a lot harder than we expected"

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

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

Geographic context



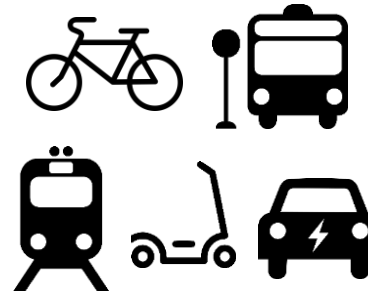
Infrastructure & mode access  
Costs of living  
Weather  
...

Family / household context



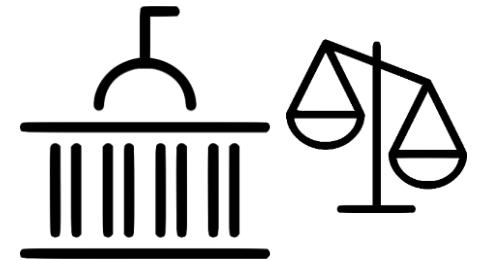
Financial resources  
(Mode) ownership  
Abilities  
Knowledge, habits  
Stress  
Identity, values  
Competing needs  
...

Service & org. context  
(Value proposition)



Service design  
Business models &  
(perceived) opportunities  
Interpretation of regulations  
Organizational goals  
Collaboration  
...

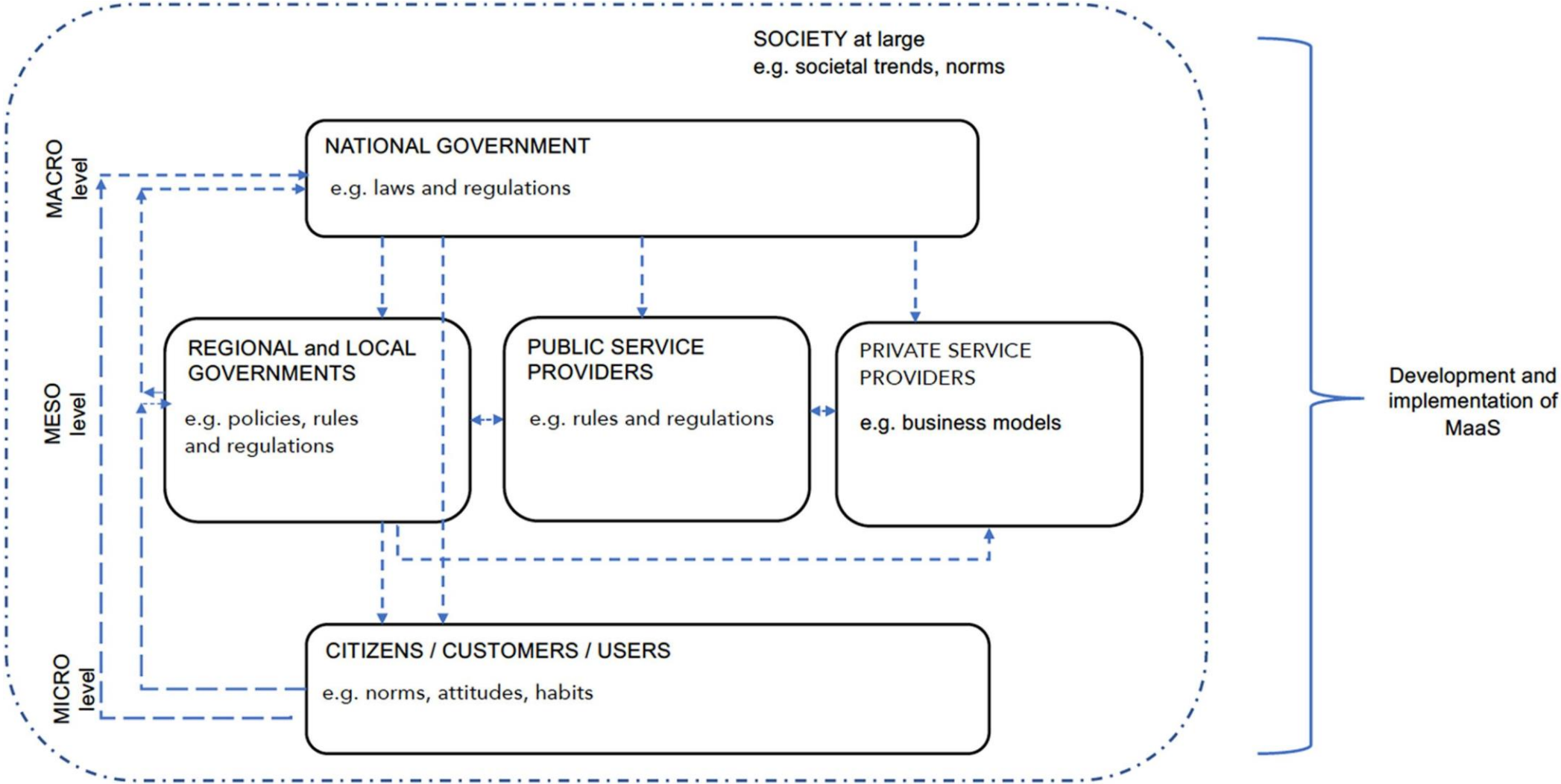
Societal, legal & regulatory contexts



Trends and norms  
Taxation  
Transportation-related policies e.g. parking  
Urban planning and land-use policies  
...

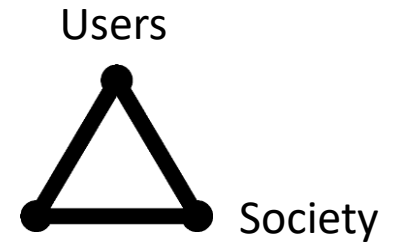
# Implementing Mobility as a Service is complex

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:

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

# 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!



Jana Sochor, Ph.D.

Senior Researcher

RISE Research Institutes of Sweden

& Chalmers University of Technology

Gothenburg, Sweden

[jana.l.sochor@gmail.com](mailto:jana.l.sochor@gmail.com)

[jana.sochor@chalmers.se](mailto:jana.sochor@chalmers.se); [jana.sochor@ri.se](mailto:jana.sochor@ri.se)

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)

KomLand (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)

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- Smith, G. (2020) *Making Mobility-as-a-Service: Towards Governance Principles and Pathways*, PhD Dissertation, Chalmers University of Technology, Gothenburg, Sweden. [https://research.chalmers.se/publication/516812/file/516812\\_Fulltext.pdf](https://research.chalmers.se/publication/516812/file/516812_Fulltext.pdf)
- MAASiFiE project funded by CEDR <http://www.vtt.fi/sites/maasifie/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
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