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Robo-Taxi Service Design, Modeling and Simulation

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► **To cite this version:**

Reza Vosooghi, Jakob Puchinger, Marija Jankovic. Robo-Taxi Service Design, Modeling and Simulation. Journée de l'Ecole doctorale Interfaces, Dec 2017, VERSAILLES, France. 10.13140/RG.2.2.34088.62726 . hal-01899522

HAL Id: hal-01899522

<https://hal.science/hal-01899522>

Submitted on 19 Oct 2018

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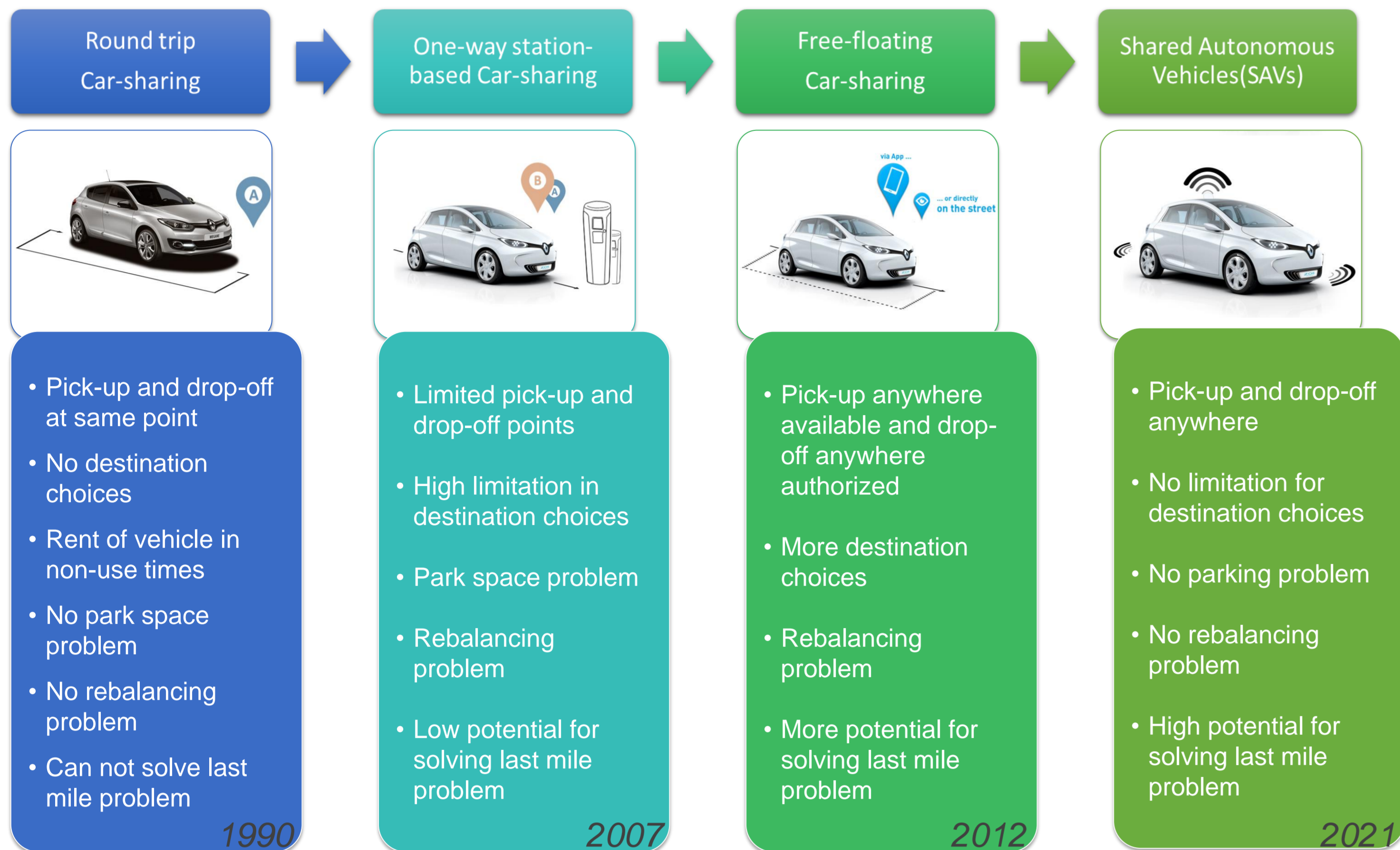
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Context

Bike-sharing
 Car-sharing
 Ride-sharing
 Scooter-sharing
 Ride-hailing
 ...

SHARED-USE VEHICLE SYSTEMS
 shifting the *private mobility* from *ownership* to *service use*

Shared-use vehicle systems evolution



Advantages of SAVs (Robot Taxis) over non-automated shared vehicles

- Obviating the need for continuing the rental while at their destination
- Not worrying about whether a shared vehicle will be available when the traveler is ready to departing.
- Anticipate future demand and relocate in advance to better match vehicle supply and travel demand.

Objectives

Two major research axes:

- Develop a design methodology for Robot Taxis systems
- Conduct sensitivity analysis by using multi-modal traffic simulation environment

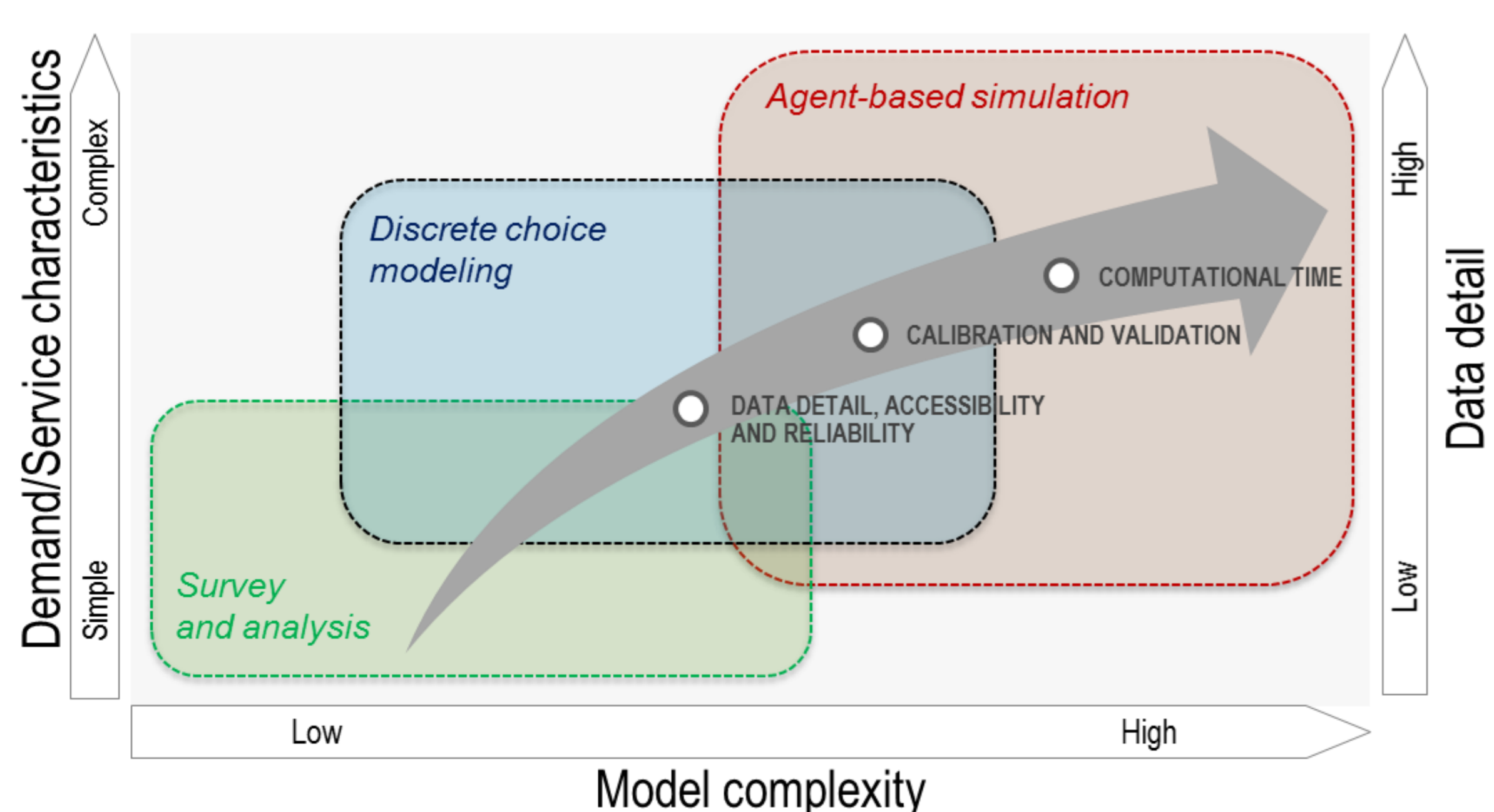
Current studies

- Predicting the usefulness of autonomous vehicles
- Estimating the number of shared autonomous vehicles needed to serve an existing demand

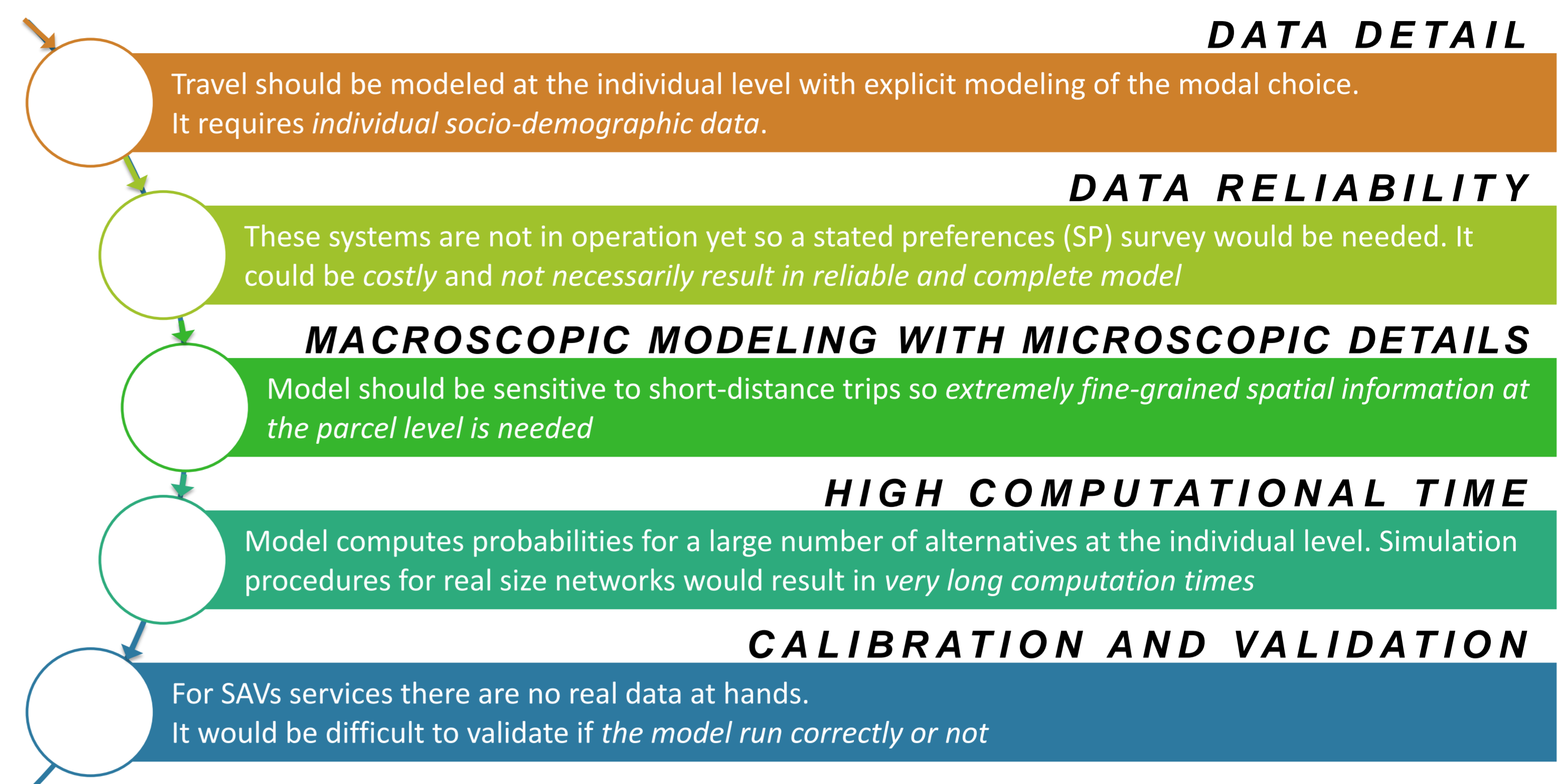
Expected results

- How the new travel mode would interact with existing travel options?
- How customer preferences influence the mode choice?

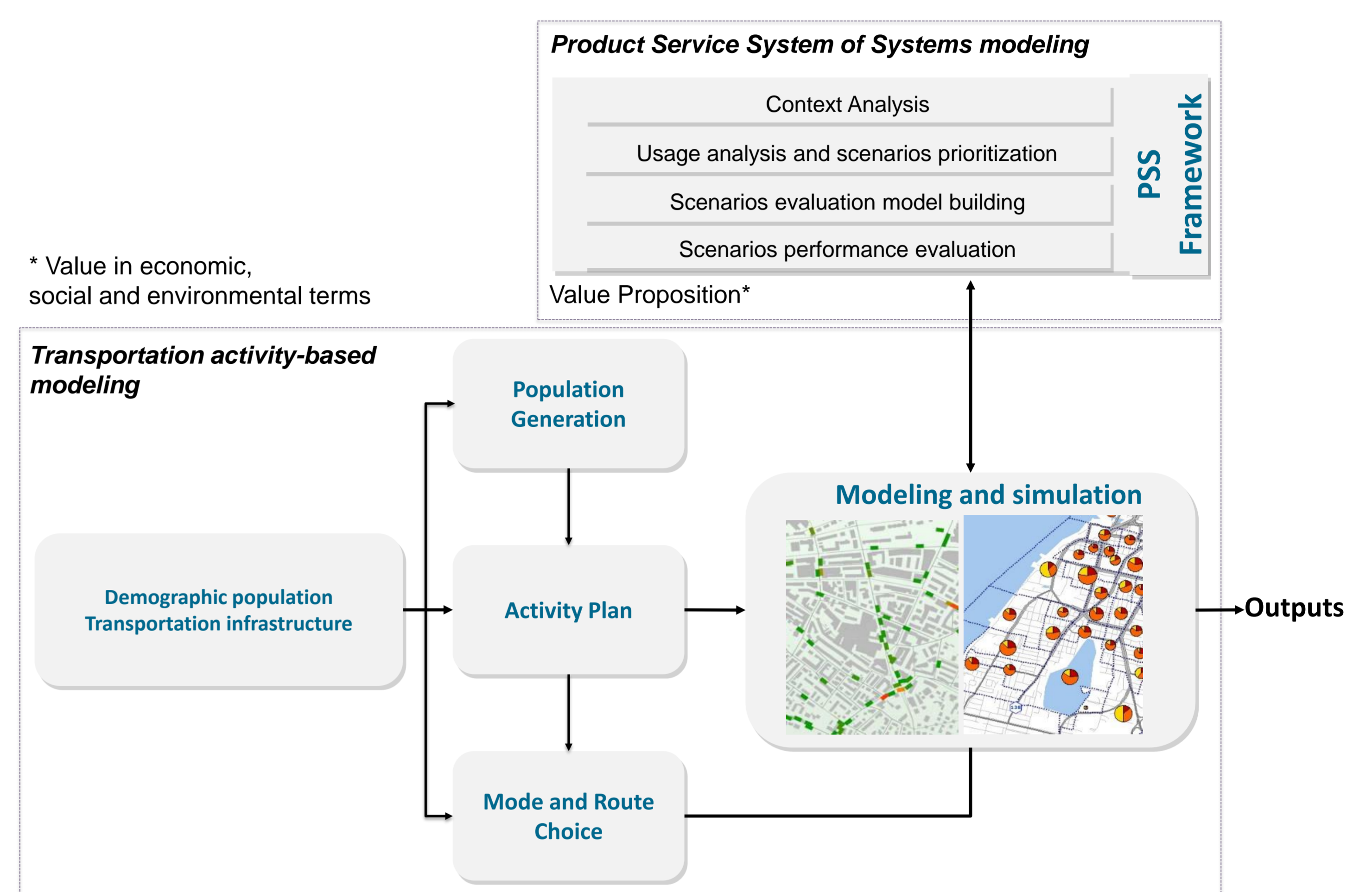
Approaches



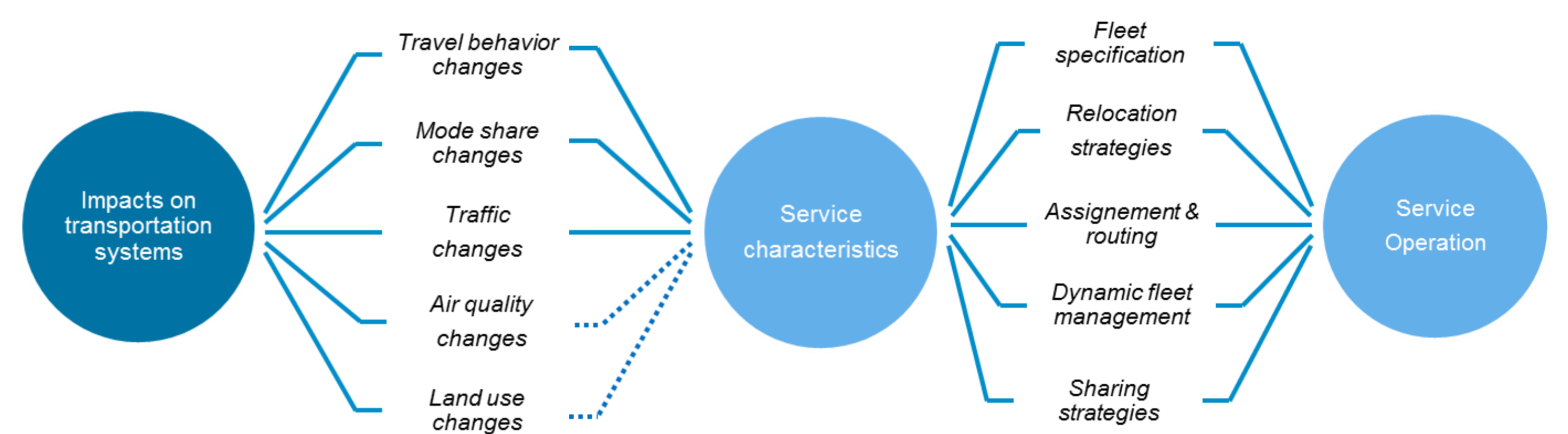
Challenges



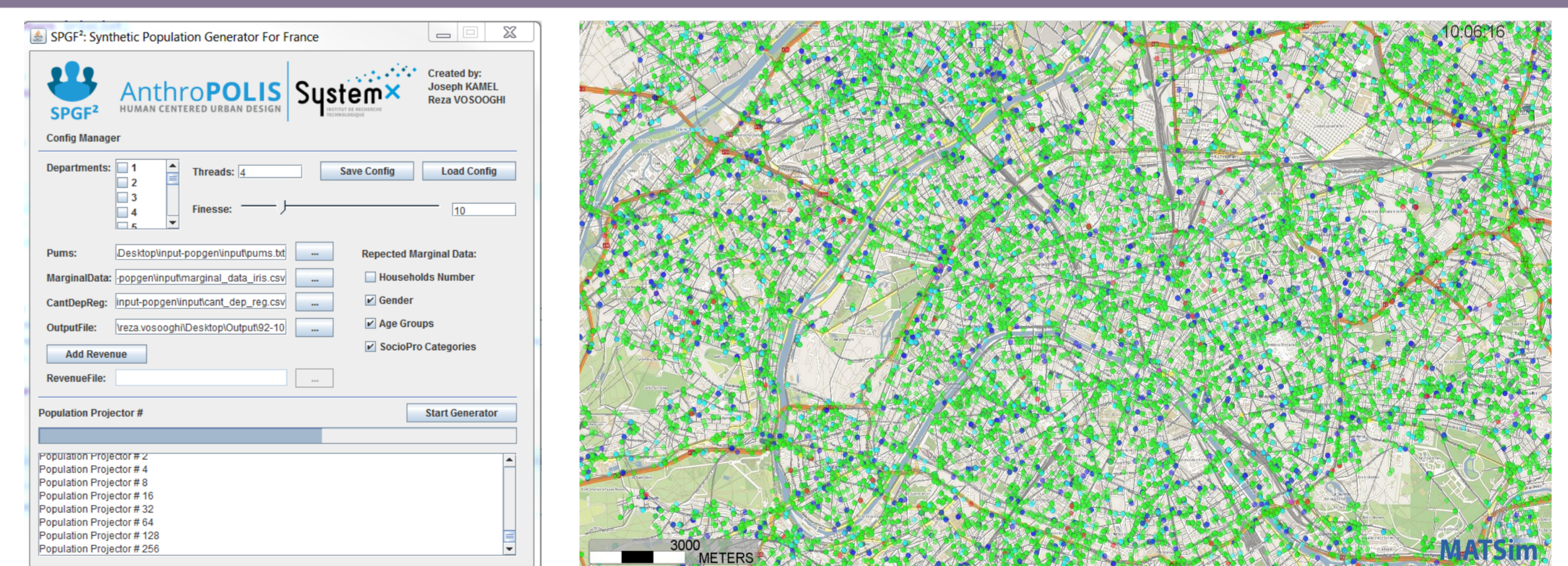
Design and Modeling Framework



Expected Results



Contributions



Bibliography

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