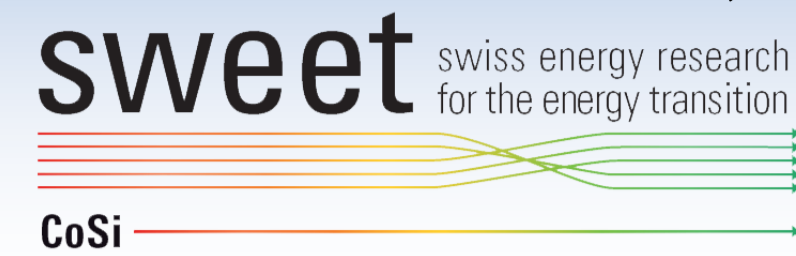


Architecture of perception for Behaviour-driven Demand Modelling

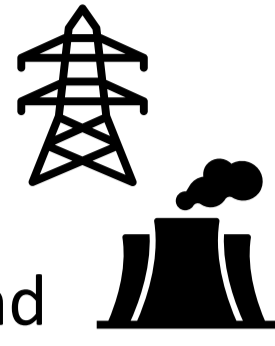
Amy Liffey and René Schumann

HES-SO Valais-Wallis University of Applied Sciences and Arts Western Switzerland, Switzerland



Motivations

Agent-based models (ABMs) for studying individual behaviours and decision-making in complex systems such as Energy systems.



Make simulation of individual behaviour more plausible



Perception plays key role in individual behaviour

Research questions



What are the suitable theories of perception to be implemented?



What are the most effective methods for evaluation and validation of these theories?

Key contributions



Enhanced perception component for more plausible modelling

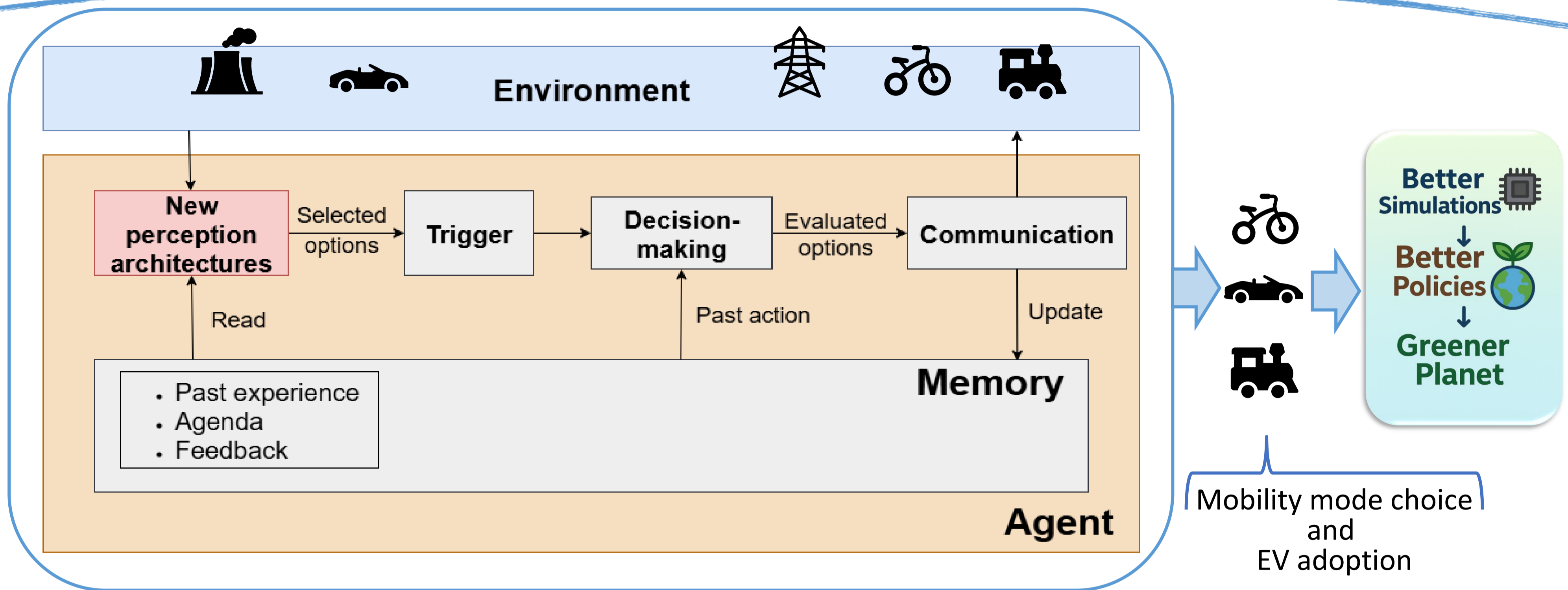


Interdisciplinary approach exploration of perception theories from different disciplines



Automated workflow pipeline for theory integration & evaluation

Methodology



Enhancing BedDeM framework by more plausible theories of perception



This could help design more effective policies

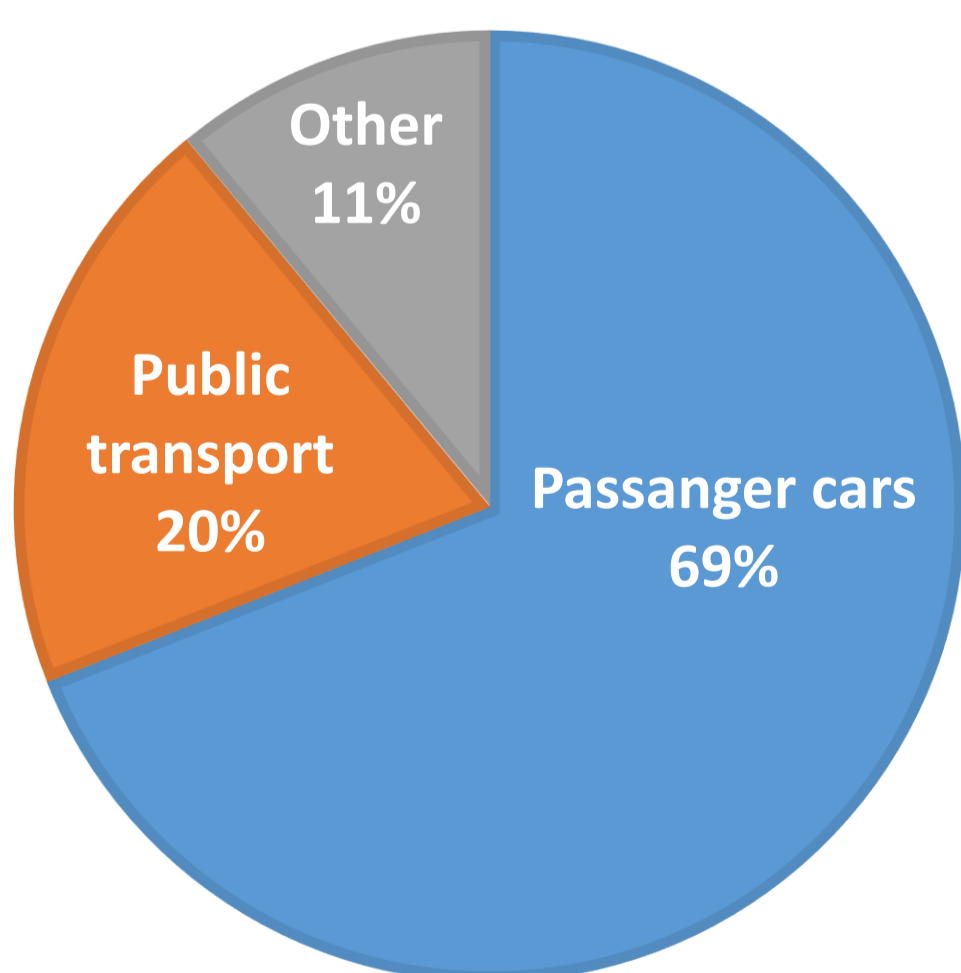


Using Meso-level validation developed for BedDeM to create evaluation scores

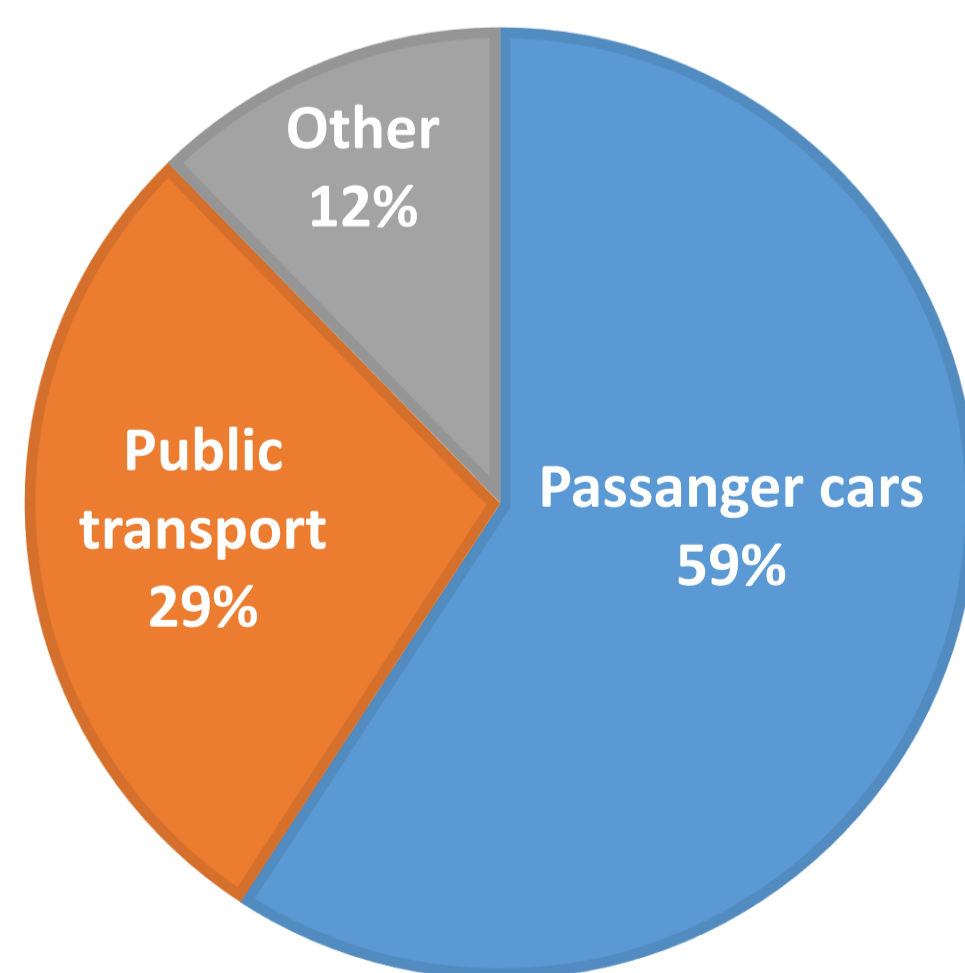
Baseline results

1 Share of transport usage by distance

SHARE OF TRANSPORT USAGE (DISTANCE) FSO 2021 (MICROCENSUS)



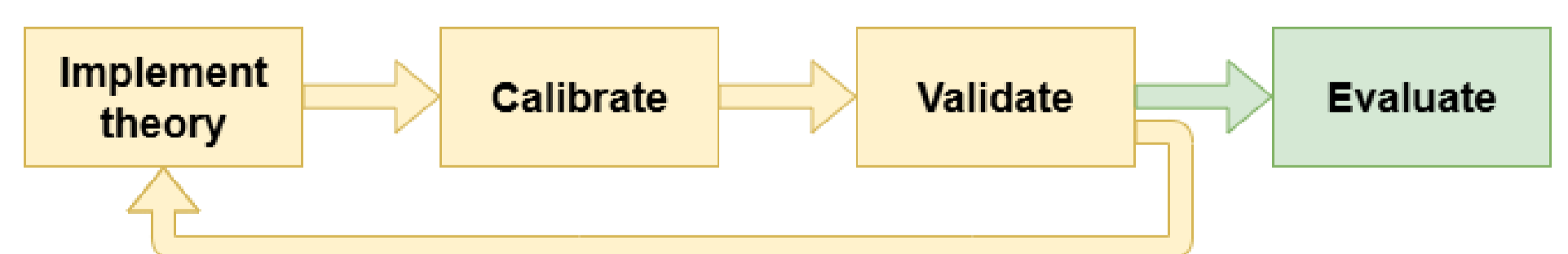
SHARE OF TRANSPORT USAGE (DISTANCE) BEDDEM 2021



2 Annual and daily mobility per Person

Distance per person (km)	BedDeM 2021	Microcensus 2021	Error (%)
Total Annual Mobility	14560	14926	2.45
Daily mobility in Switzerland	29.66	30.0	1.13

Workflow pipeline diagram



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Conclusions and Future Work

- Define research focus and validation methods
- Find suitable theories of perception
- Implement and integrate selected theories into the automated pipeline
- Evaluate plausibility by comparing to baseline results and meso-level validation