

# POLIS

CITIES AND REGIONS FOR TRANSPORT INNOVATION

ANNUAL  
CONFERENCE

# 2022

30 November  
1 December, 2022  
Brussels, Belgium



#POLIS2022



# Digital twin to double the benefit: Simulation and legal challenges of autonomous transport for passengers and goods

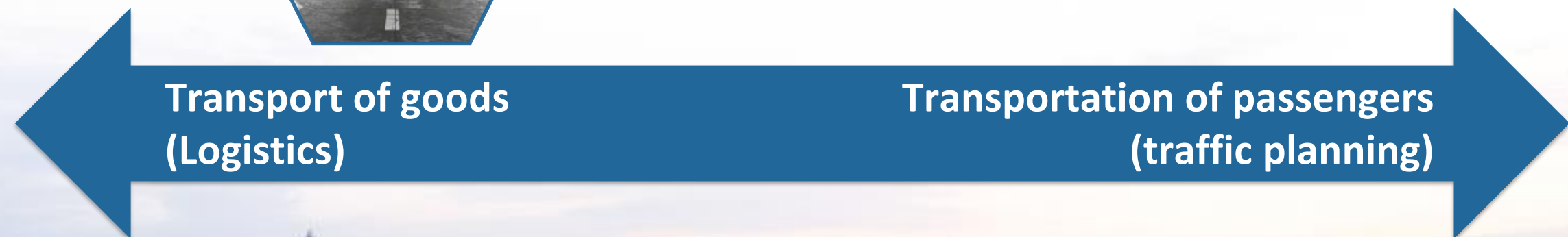
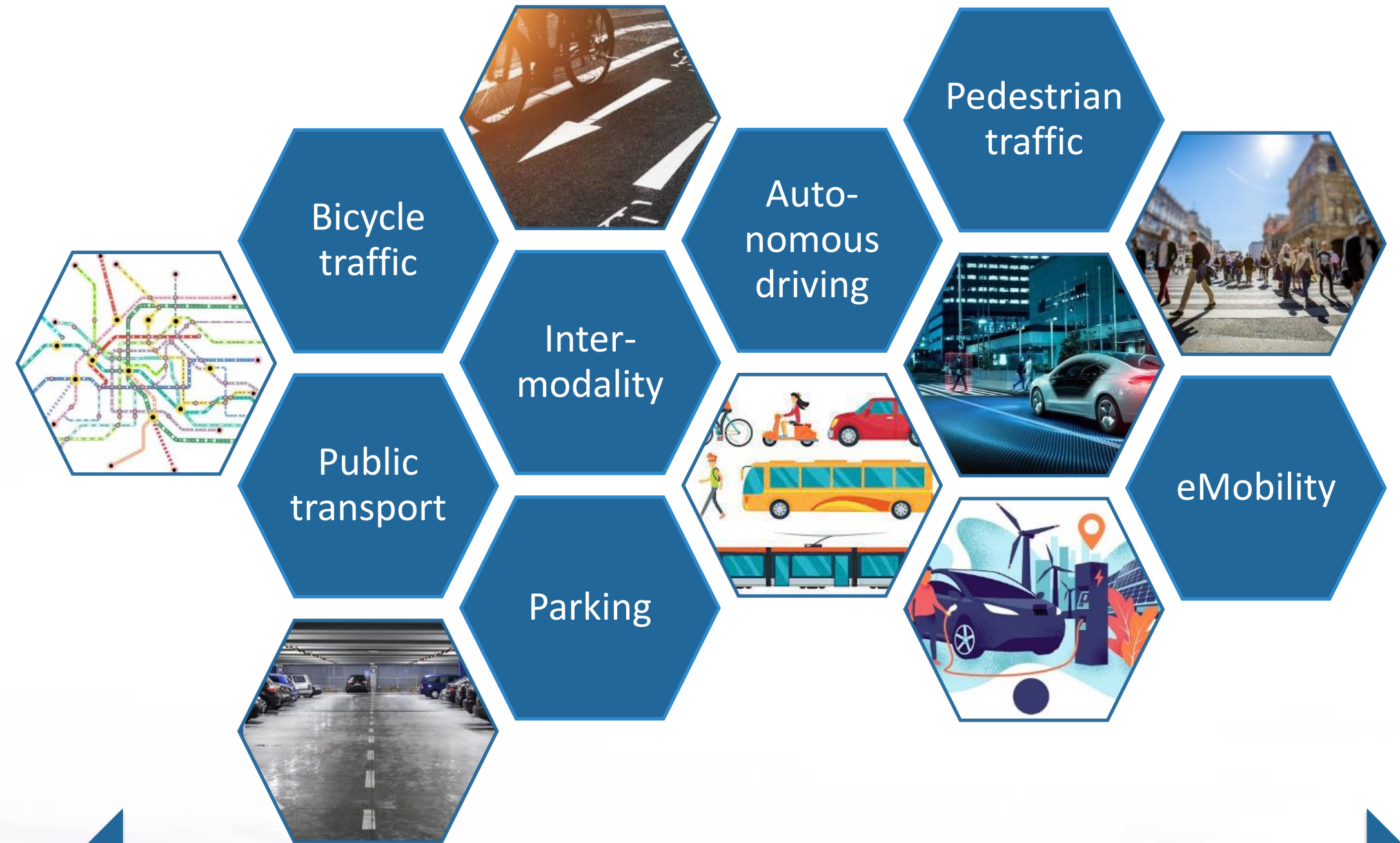
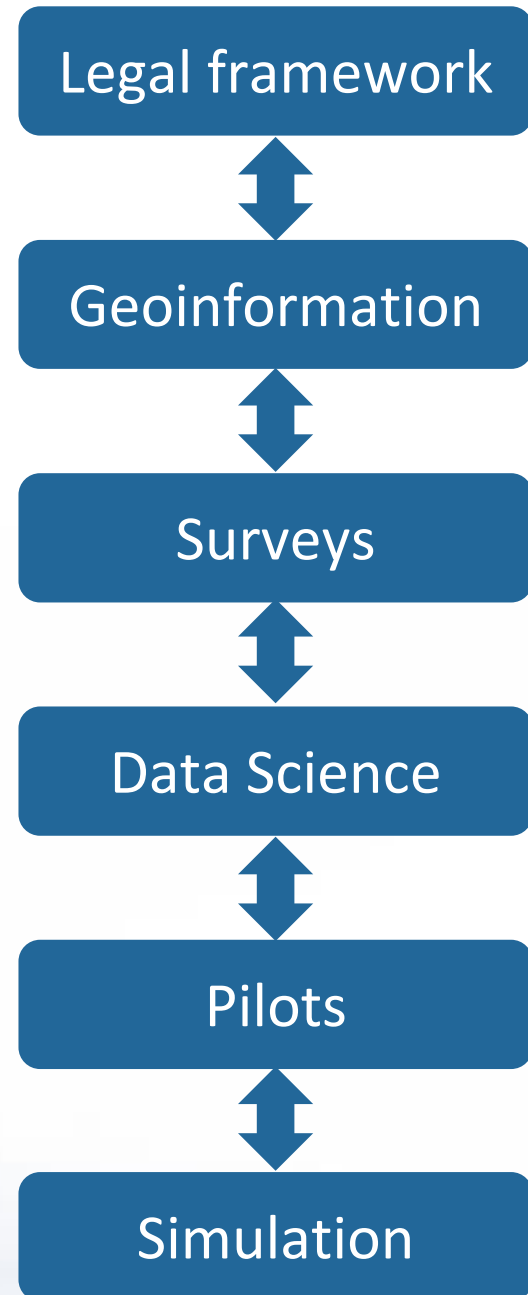
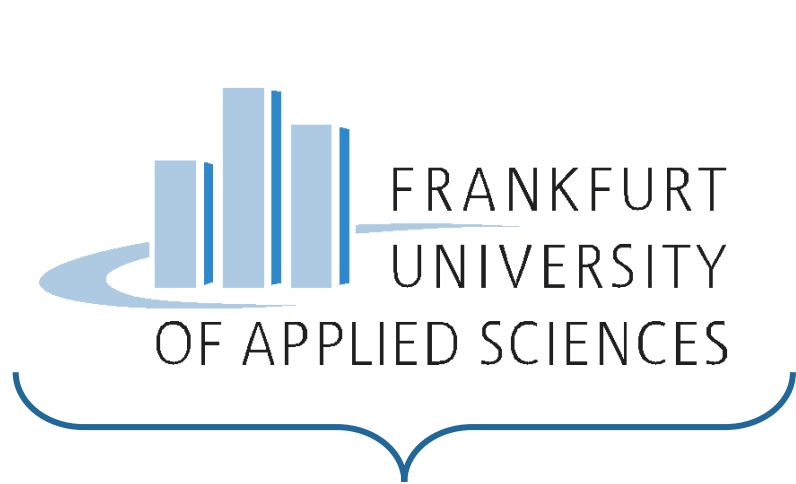
*Steffen Henninger, M.Sc.*

*Deike A. Tamm, Dipl.-Jur.*

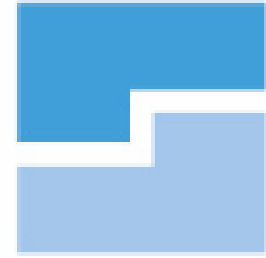
# Agenda

- I. Introduction: Research Lab for Urban Transport
- II. Research project „Kombinom“
- III. Legal challenges of autonomous shuttles for passengers and goods

# Introduction: Research Lab for Urban Transport



# Research project „Kombinom“



## K O M B I N O M \_ 2

Combined autonomous transport in rural areas



Data modeling and simulation of autonomous minibuses in rural areas for the combined transport of passengers and goods

November 2021 – December 2024

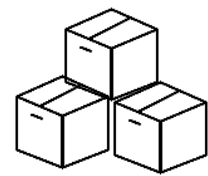
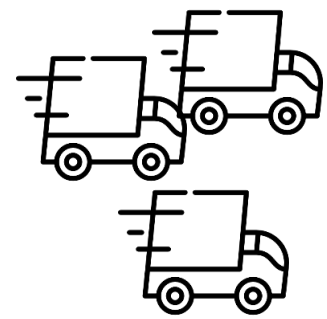


senozon



# Idea

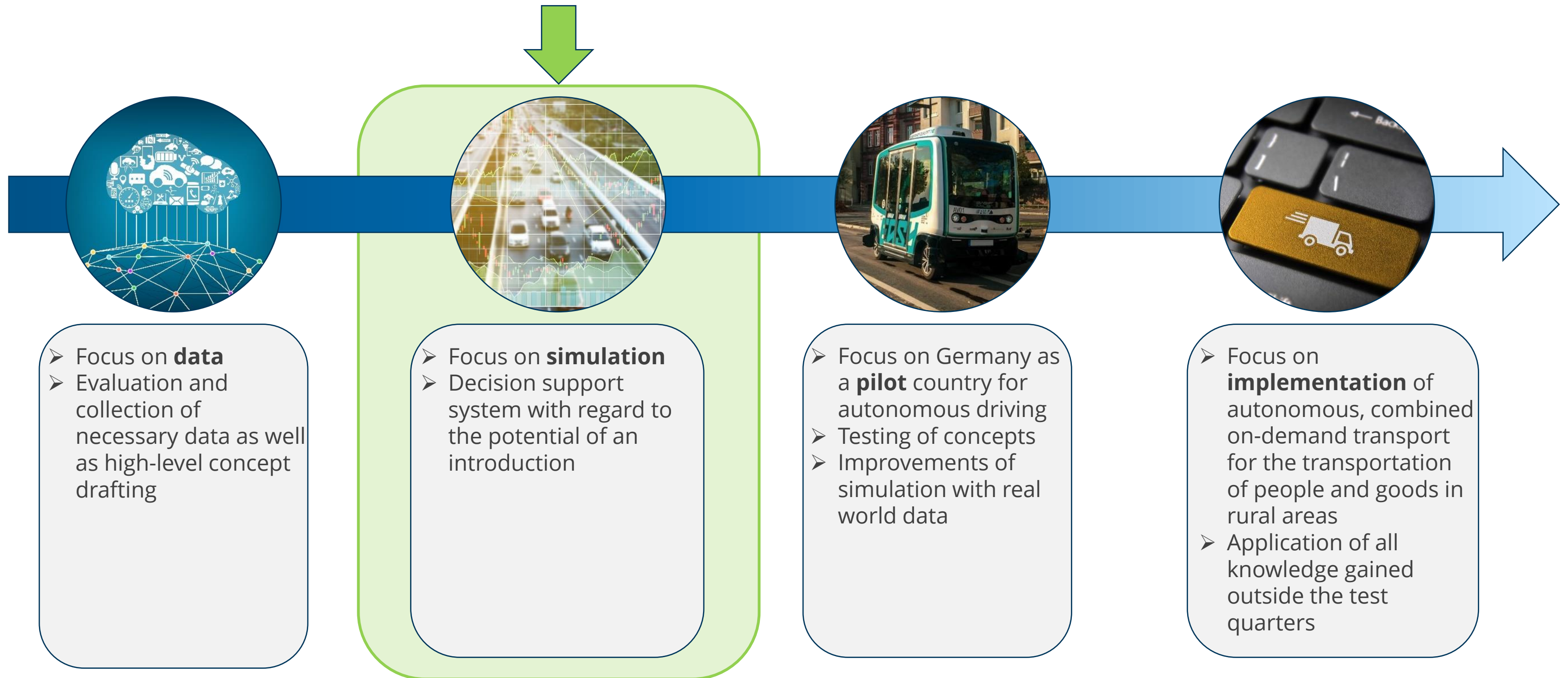
Pooling



On Demand

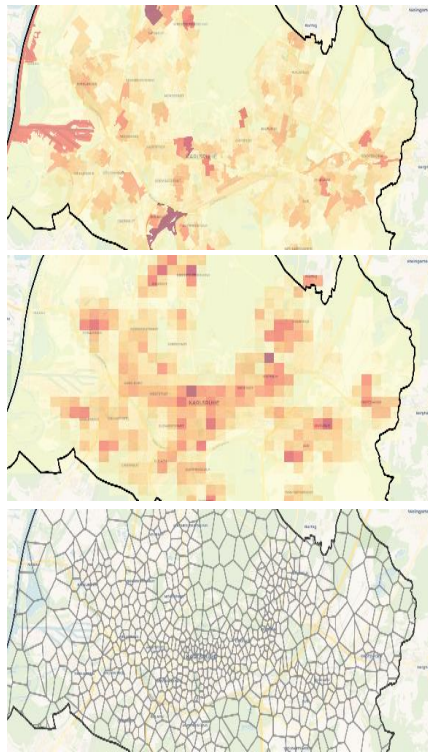


# Roadmap

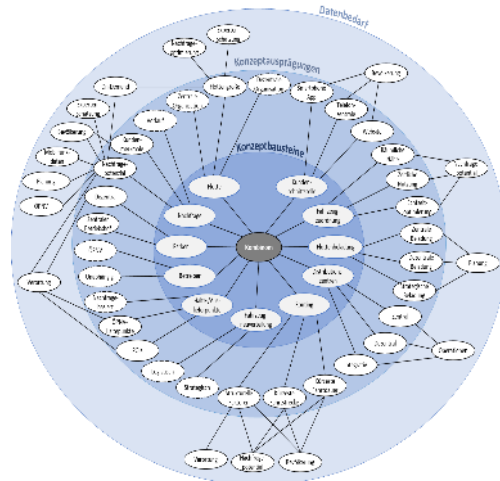


# Approach

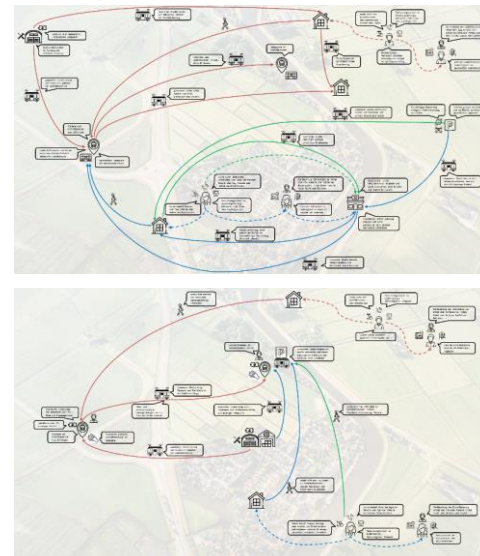
**Transferability**  
 Definition  
 Spatial prototypes  
 Focus on needs  
 Validation



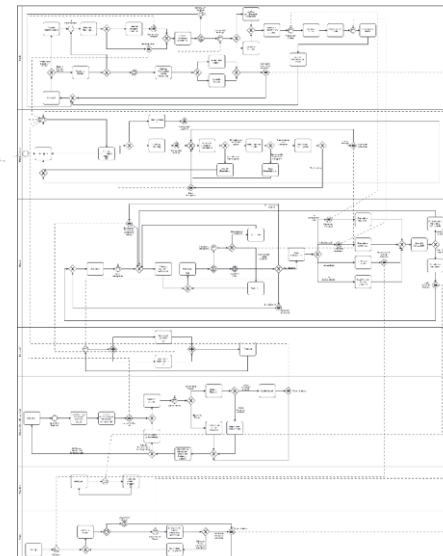
**Modelling**  
 Passenger transport model  
 Logistics model



**Scenario Creation**  
 Combined models  
 Definition KPIs for evaluation  
 User acceptance



**Simulation**  
 System boundaries  
 Interfaces  
 Decision support system



**Legal Framework**  
 Capture legal sources  
 Duties  
 Liability scenarios  
 D-A-CH

**Applicability**  
 Stake-holders  
 Competition  
 Business models  
 Public discourse

**Analysis**  
 Validation  
 Evaluation  
 Sensitivity analysis

## Project Outcome

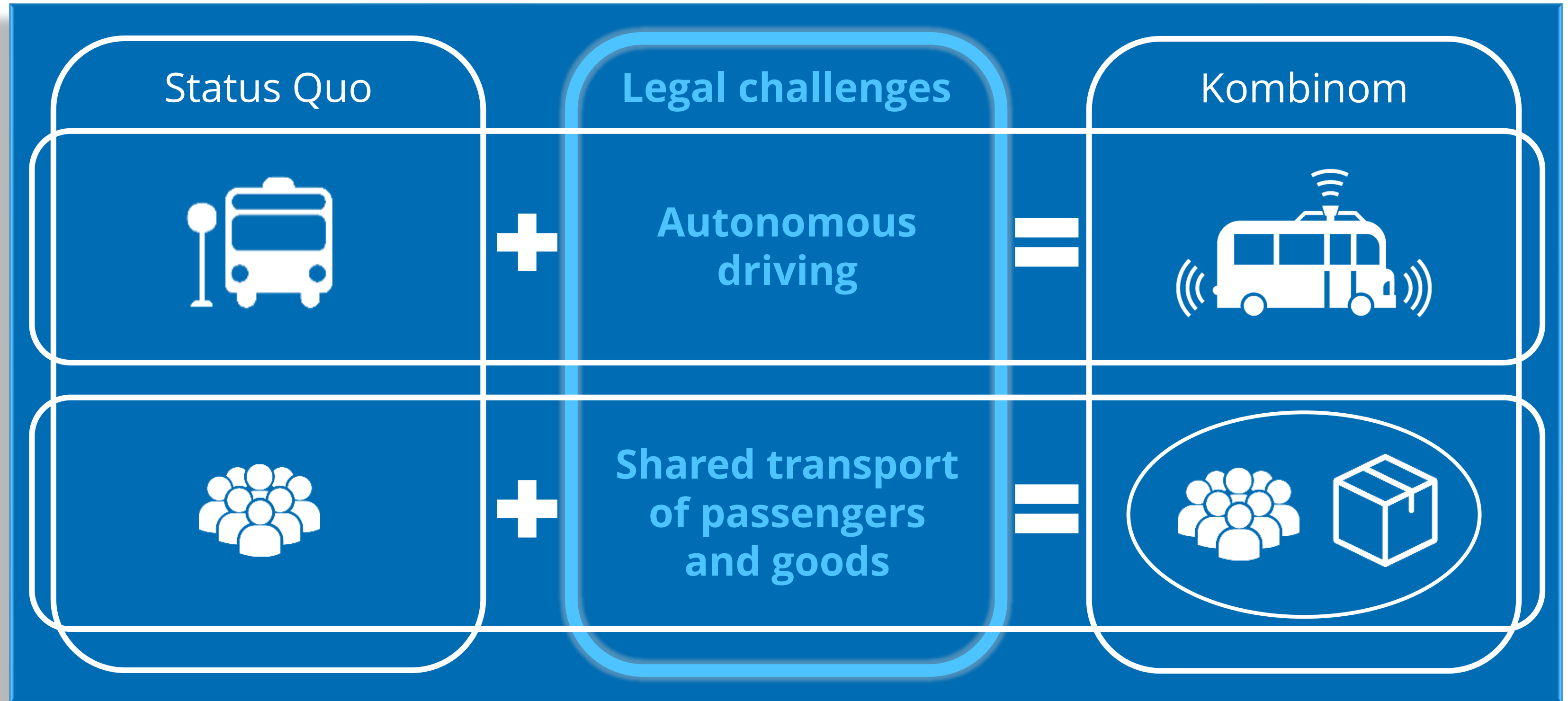
- Simulation tool for traffic planners, municipalities and interested parties
- Provision of analysis data with expected impacts vs. status quo
- Legal framework roadmap





# Legal challenges

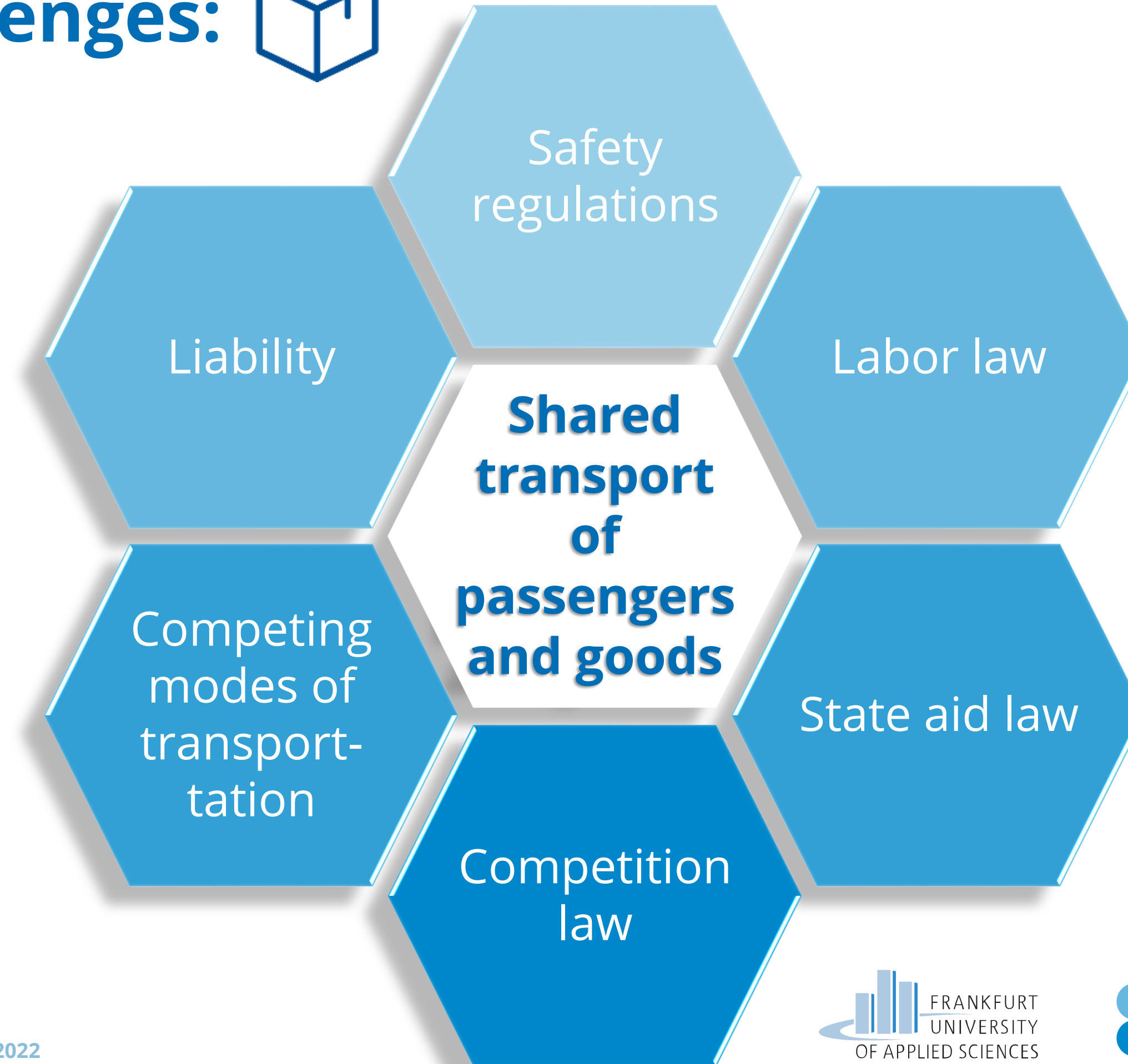
# Legal challenges



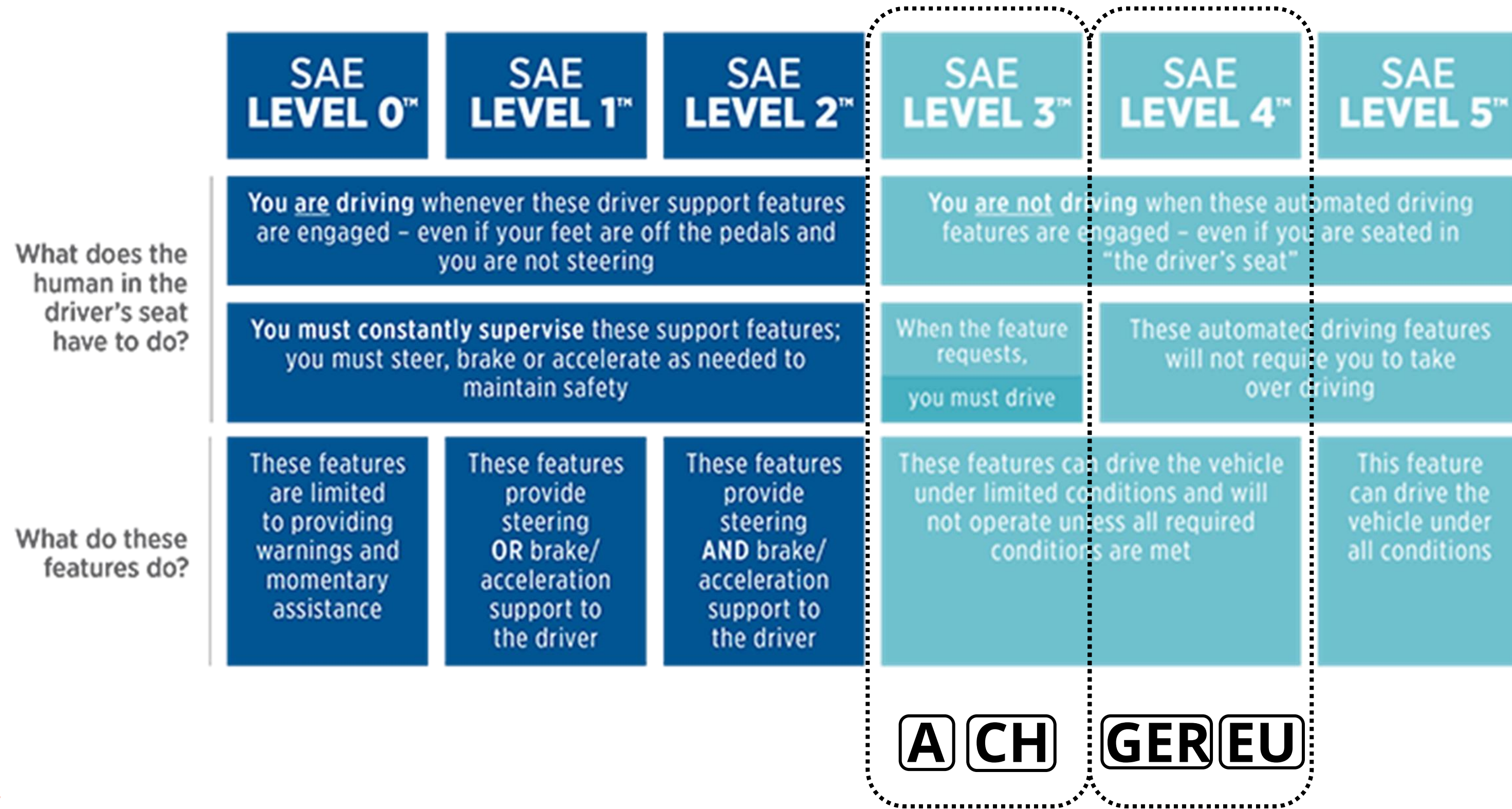
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# Legal challenges:



# Legal challenges:



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# Legal challenges:



**Liability issues:** Who should be responsible in case of an accident?



## Legal challenges for autonomous shuttles



**Ethical dilemmas:**  
E.g. “trolley problem”



# Legal challenges:

## EU framework for autonomous driving

*July 2022:*  
Regulation (EU) 2019/2144

Adaptation of type-approval requirements to enable the introduction of automated vehicles  
→ see Art. 11

*August 2022:*  
Implementing regulation (EU) 2022/1426

Tangible technical requirements for automated vehicles

- ❖ Annex I: Information document for EU type-approval
- ❖ Annex II: Performance requirements
- ❖ Annex III: Compliance assessment



# Thank you for your attention!

For questions:

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