AUTOMATED DRIVING

URBANISM NEXT EUROPE 2021

The implementation of automated road transport:

Predictions and implications for efficient and equitable transport planning

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PARALLEL SESSION 1.E.

9 June, 2021 | 16.00-17.30 CEST | #UNextEU

A.R.T.Forum
Automated Road Transport

Interreg
North Sea Region
ART-Forum
European Regional Development Fund

EUROPEAN UNION

Are we even prepared for automated mobility? Challenges among the transition pathway for adapting transport related innovations into the sustainable society

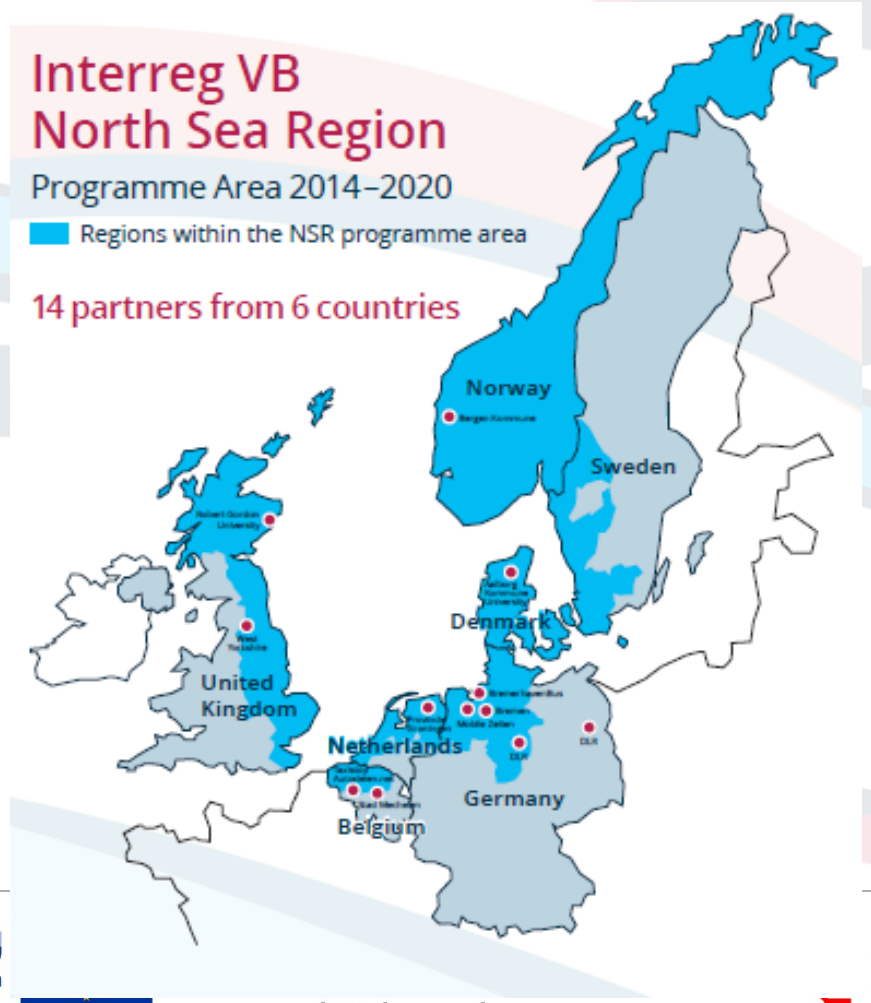
Torben Quickert

Policy Officer and EU Project Coordinator

City of Bremen

EU-Project Automated Road Transport Forum (ART-Forum)

INTERREG Region	**North Sea Region**
Programm Priority	Green transport and mobility
Lead Partner	Free Hanseatic City of Bremen
Project Partner	14 partners (from 6 nations)
Period	3 years (01.03.19 – 28.02.22)
Budget	4,30 Mio. Euro



Partners

Aalborg Kommune
AALBORG UNIVERSITY
AUTO DELEN .NET
BREMERHAVEN BUS
CITY OF BERGEN
DLR
MECHELEN
MOBILE ZEITEN
provincie groningen
ROBERT GORDON UNIVERSITY ABERDEEN
Taxistop
West Yorkshire Combined Authority

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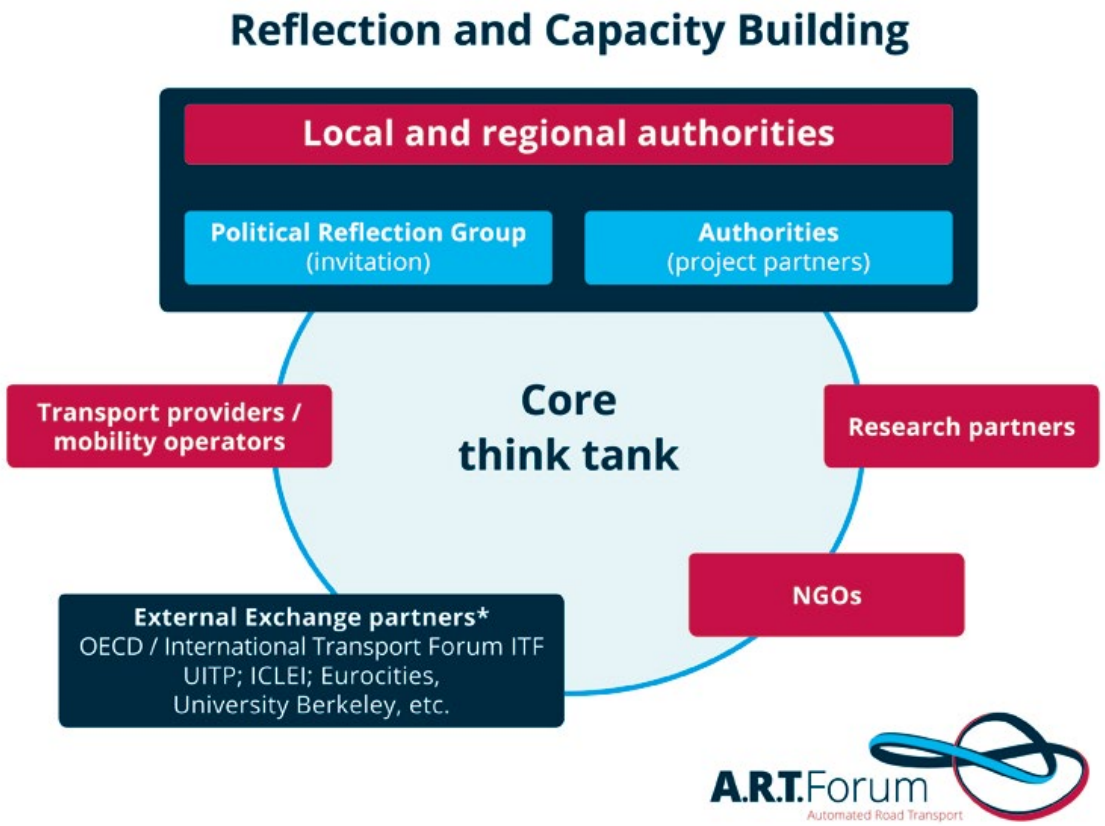
Freie Hansestadt Bremen und Wohnungsbau

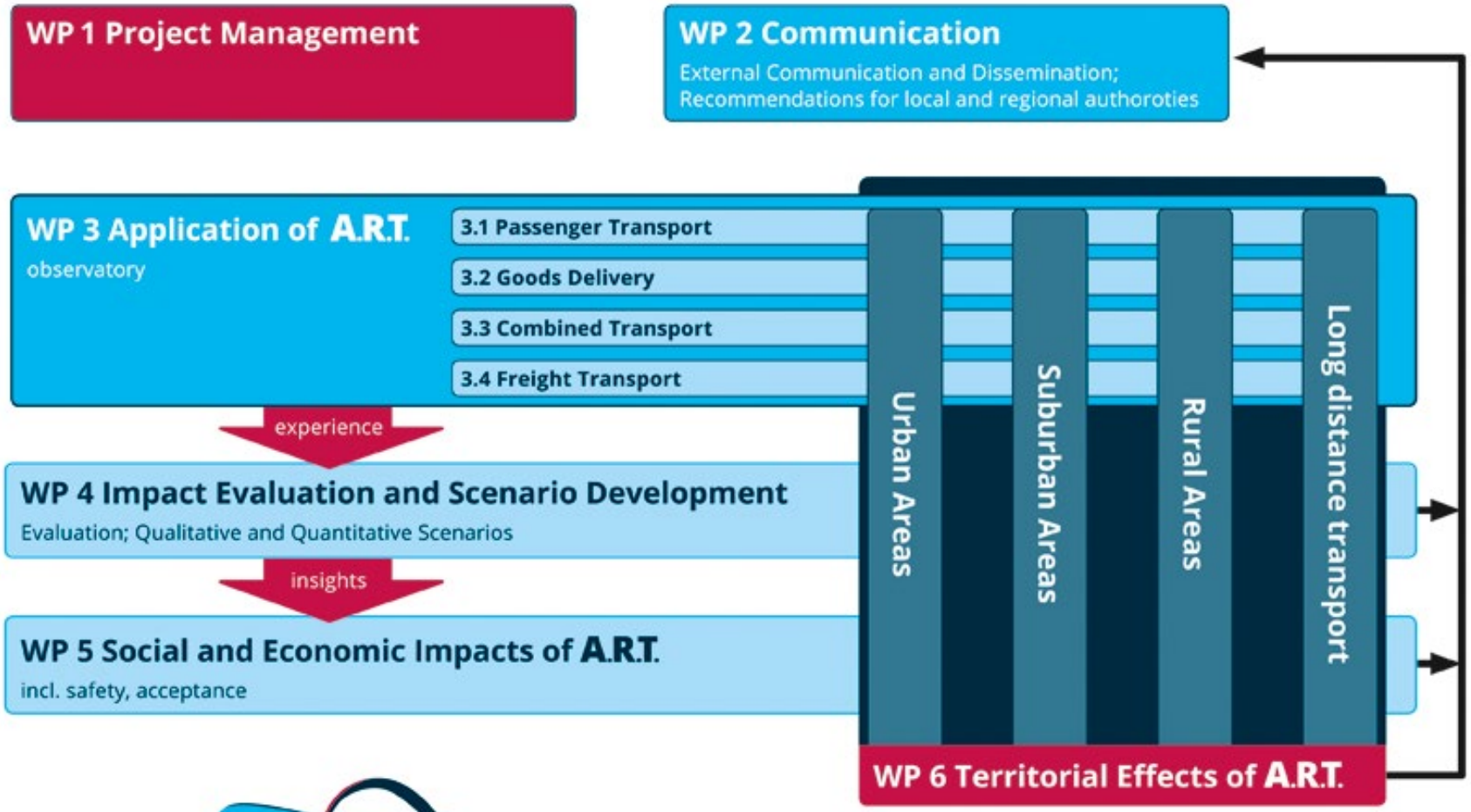
Key Facts ART- Forum



Overall objectives

- Raise awareness among public stakeholders
- Develop policy recommendations that enable local and regional authorities to take advantage of the opportunities of automated road transport
- Support sustainable transport and territorial development goals as well as improve quality of life in communities

Workpackages



Human Explorer Event at the European Mobility Week

Workshop – Bremen Dialogue on Automated Driving

Minibus Pilot in Aalborg, Denmark

Interactive Autonomous Lab

2nd question

In your opinion, what is the biggest challenge towards the implementation of automated transport?

1st Regulation

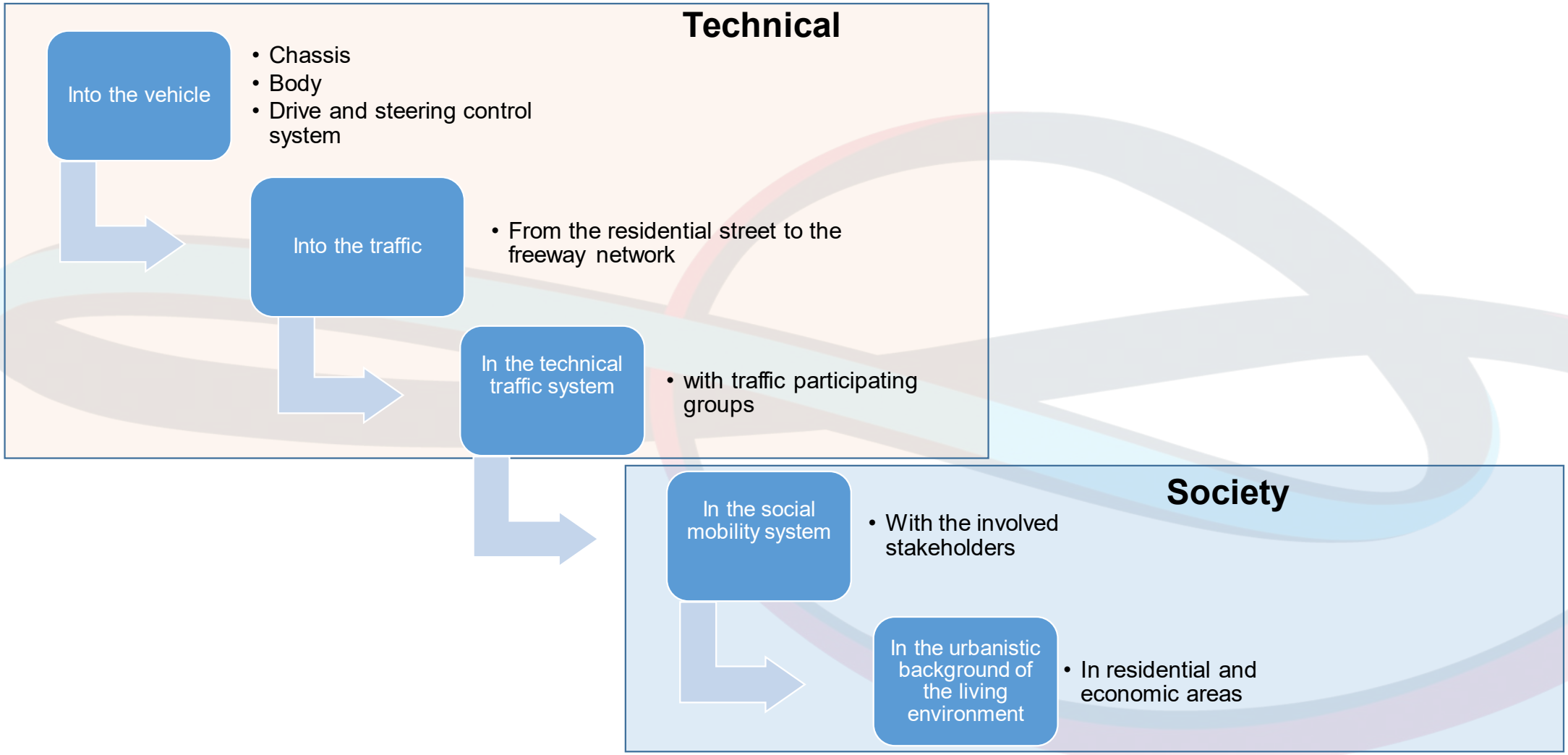
2nd Technical issues

3rd Acceptance

4th Ethical questions

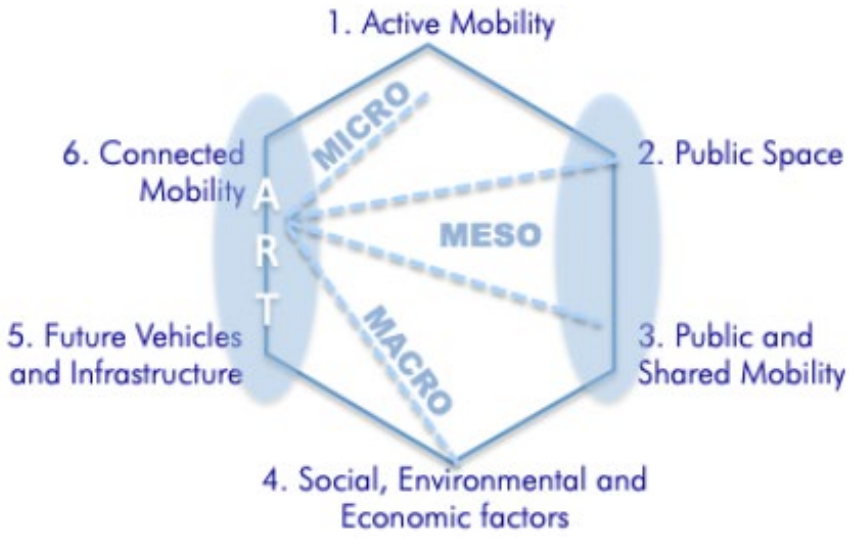
5th Integration into the traffic

Embedding in the mobility system (Dörr, 2017)

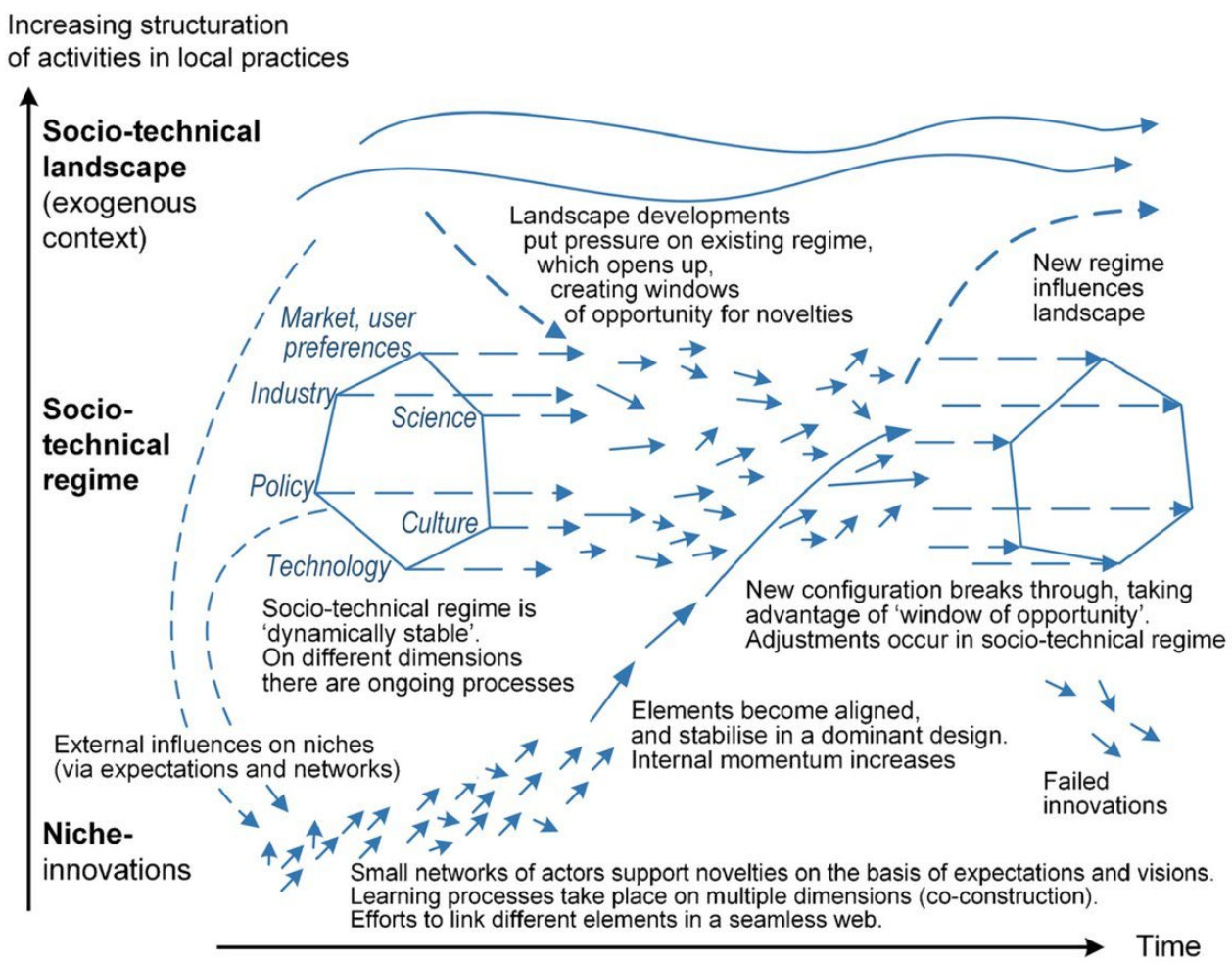


System Approach of Fusion Mobility (Neun et al, 2020)

- **Sustainable mobility** policies need to include the potentials of digitalization
- Increasing the **capacities** of individuals, organizations, companies, networks
- Priotorising the **human scale**



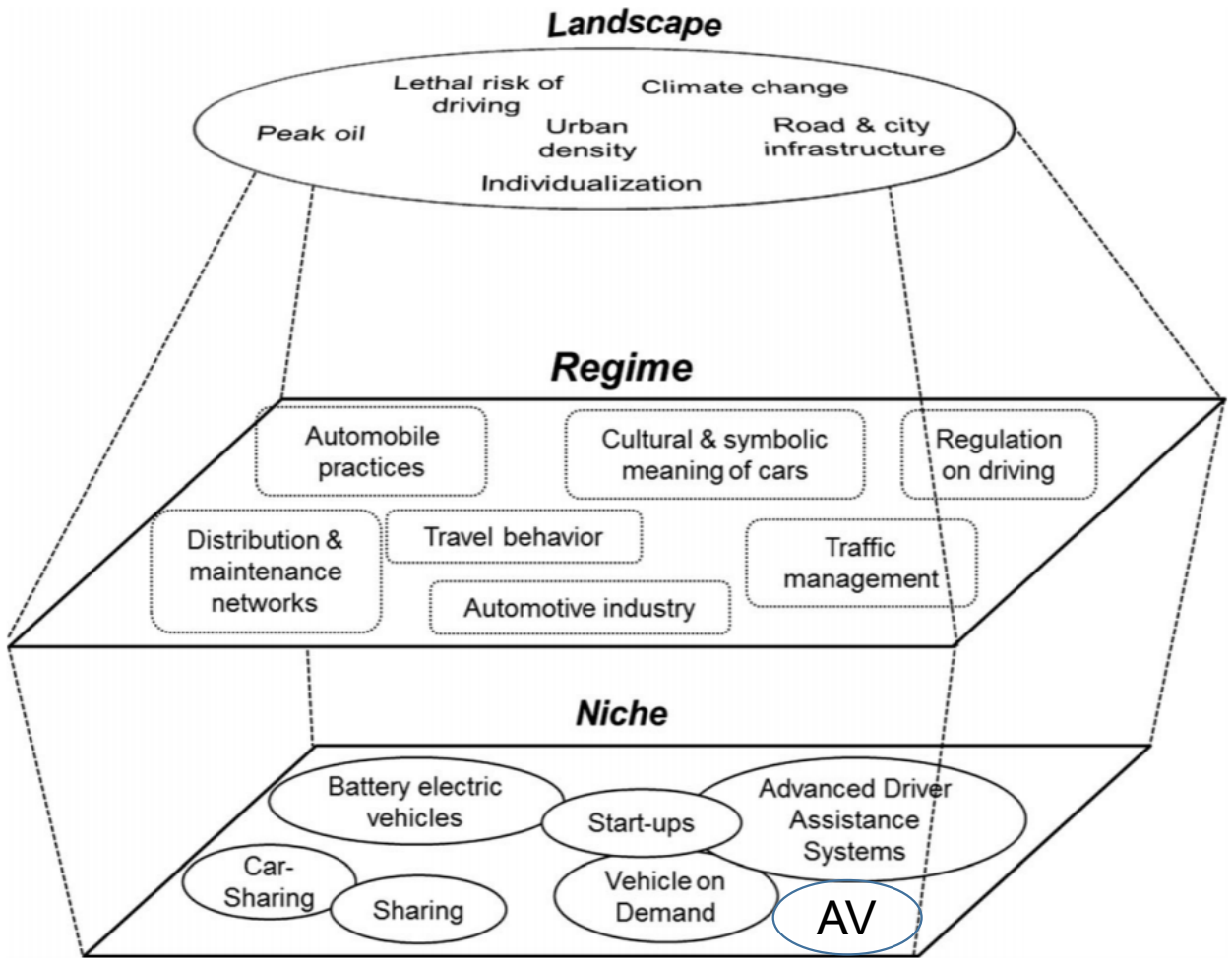
Conceptual Approach – The multilevel perspective model (Geels, 2020)



Key Facts

- Explaining how technological transitions com about
- Understanding the interaction of actors, environment and innovations
- Bridge between evolutionary economics and technical studies
- Three levels putting pressure on each other
  - Landscapes (Makro)
  - Regimes (Meso)
  - Niches (Micro)

MLP on automobility (Fraedrich et al 2015)



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Spatial Areas – Expectations

	Urban	Interurban	Rural
5 Years	• automated in some segregated areas for public transport • Pilot applications only, No opportunities to solve transport problems yet • Only on urban railways	• Mainly AV prototypes & pilot programs • Planners & civil engineers can start planning for AV lanes now	• Only pilot projects on separate routes <30km/h • Up to Level 3 max.
20 years	• Automated public transit but no private transit (except in segregated areas) • Still mainly in segregated areas	• AV reliability more stable • V-to-V connectedness • driver optimization, freight & passenger transport • AV transportation hubs • driverless freight & rail operations	• Speeds up to 50 km/h • Special subsidies • Level 4 AV

MLP on automated mobility

landscapes

Digitalisation
pandemic
climate change
politics
Funding policy

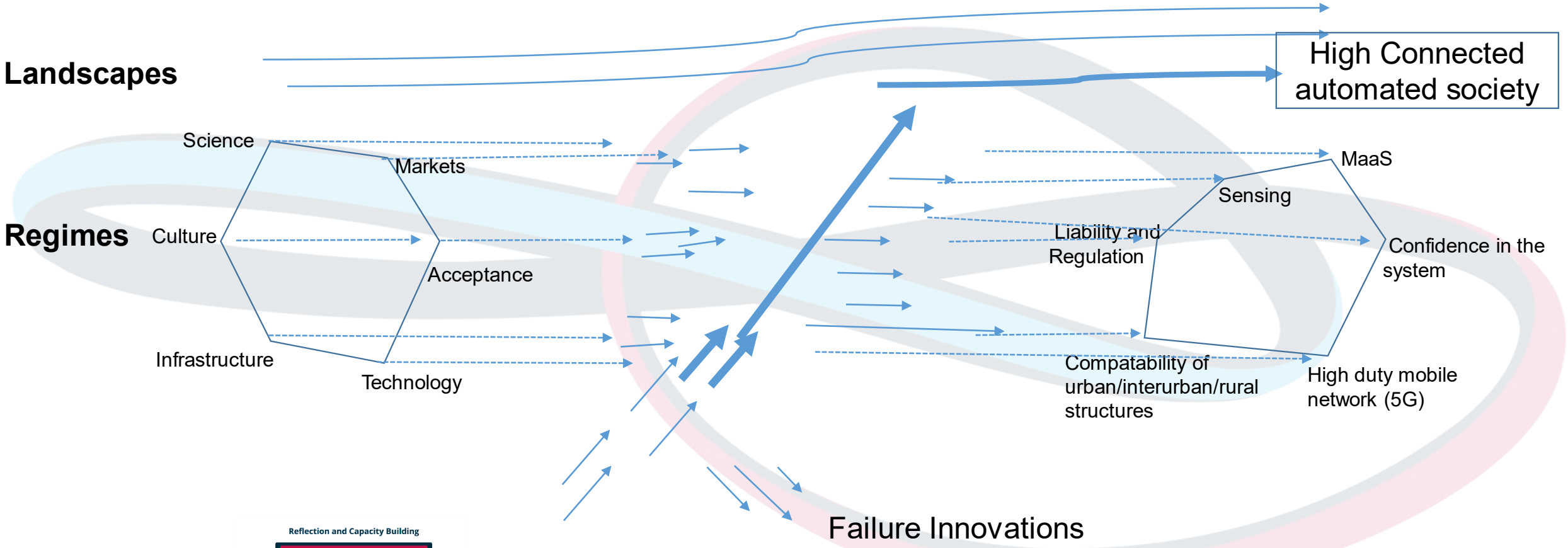
Regimes

Automotive industry
ICT industry
acceptance
ethics
liability
Data managment
Meaning of cars
Traffic management
Innovation system
Regulation process

Niches

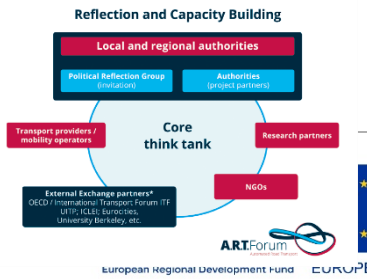
Sharing
5G
Drive technologies
MaaS
SAE-Levels
Infrastructures

MLP on Automated Road Transport



Niches

- Application of ART
- Socio Economic Impacts
- Scenario Building
- Public Space



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Die Senatorin für Klimaschutz, Umwelt, Mobilität, Stadtentwicklung und Wohnungsbau

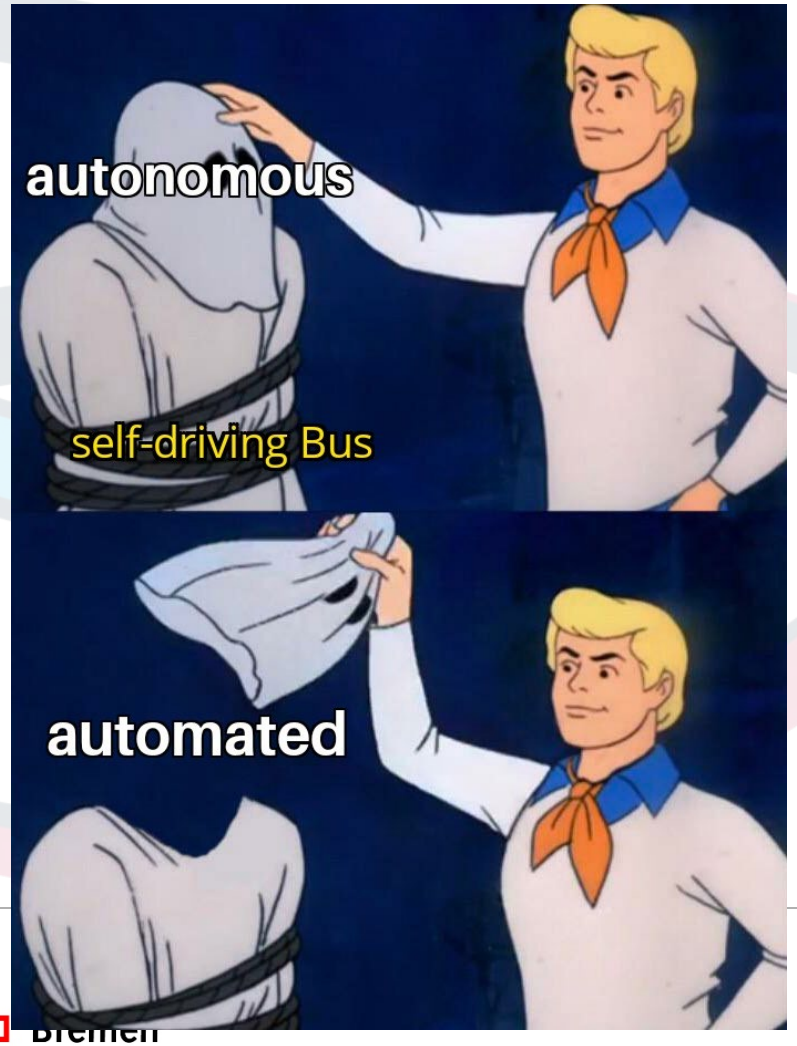
Freie Hansestadt Bremen

Regulation

Regulation process
Running a self-driving bus

implementation of autnonomous vehicle
mixed traffic

Being realistic in implementation



Engagement

Industry develops automated driving alone

Involving planners and society

Implementation of Smart Mobility in the Heinsberg Region

(Gross-Fengels/Fromhold-Eisebith, 2018)

	Impeding factors	Promoting factors
MACRO Environment, society	• Legislation • Infrastructure • Disperse settlement structures	• Physical, topographical qualities • Digitization
MESO Regional institutions, policies	• Institutional barriers • Regional funding • Cannibalization effects • Lack of pressure to action	• Policy measures • Local cooperation and partnerships • System integration
MICRO Actor, product	• Car dependency • Usability barriers/comfort • Limited openness for innovations • Last mile coverage	• Communication, marketing • Testing opportunities • Local services • Local key actors • Civil participation

Implementing of Automated Road Transport into the region

	Impeding Factors	Promoting factors
MACRO Environment, society	• Legislation • Infrastructure • Regulation	• Digitization • *Pandemic* • Funding (EU, Nation)
MESO Regional institutions, policies	• Institutional barriers • Missing Funding • Other modes of transport	• Policy measures • Partnerships and cooperation • Sustainable Mobility Plans • Recommendations
MICRO Actor, product	• Limited openess for innovations • Human Behaviour • Acceptance • Car Lovers	• Communication and dissemination • Co-Creation and civil participation • Applications and pilots (testing)

(Gross-Fengels/Fromhold-Eisebith , 2018)

Why?

If Autonomous Vehicles are the solution, what is the problem?

How?

Mobilizing is more than running a pilot…and ART should always be a solution to a problem!

While we wait for driverless cars, we should learn how to share them!

Who?

The best way to predict the future is to create it!

Desired and expected regulatory measures to create sustainable autonomous mobility scenarios of the future differ!