



# Project introduction NeMo.bil

Mobility system for sustainable individual public transport in rural areas

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**Finanziert von der  
Europäischen Union**  
NextGenerationEU

Gefördert durch:



Bundesministerium  
für Wirtschaft  
und Klimaschutz

aufgrund eines Beschlusses  
des Deutschen Bundestages



# Public transport does not fulfill social demands.



**Flexibility**



**Efficiency**



**Integration**



**Sustainability**



# Has public transport evolved over the years?



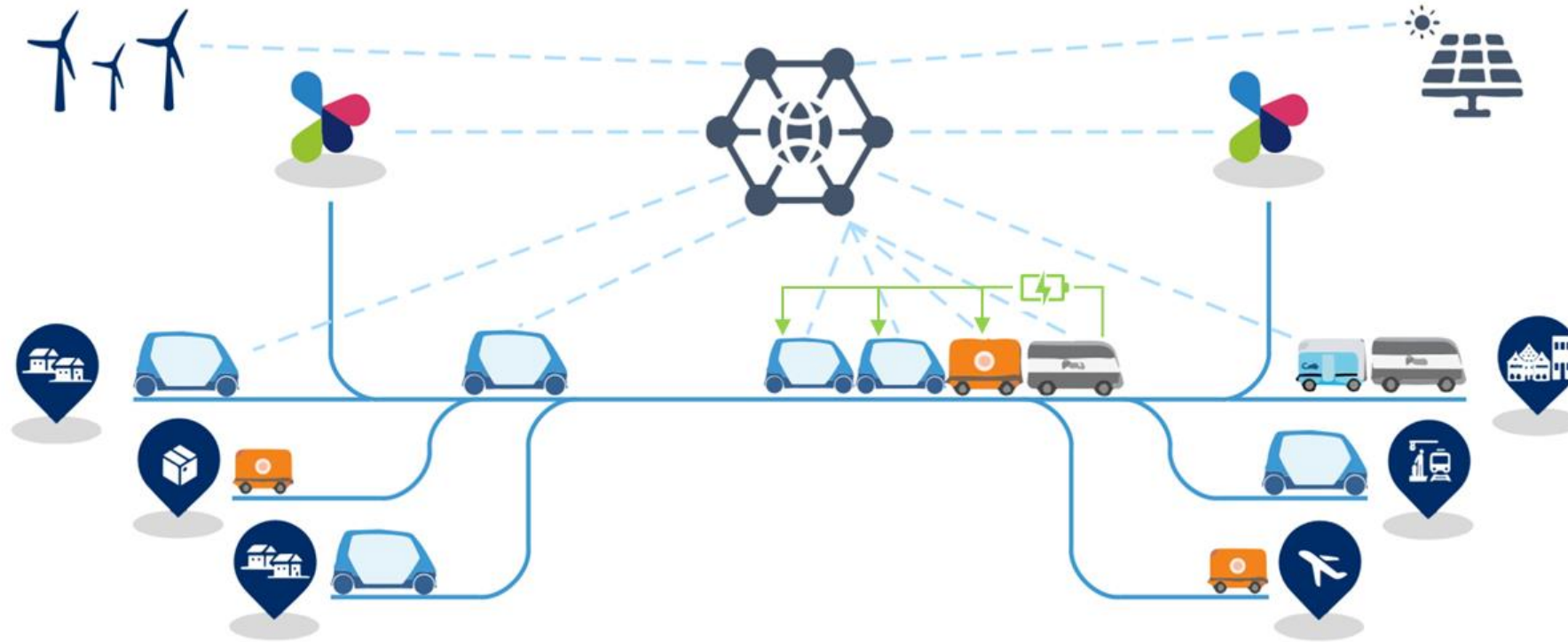


# Public transport is advanced to individual public transport





# NeMo.bil – System approach for mobility for everyone



**Needs-oriented On-Demand Mobility**

**Socially equitable and made for everyone**

**Improved economic viability**

# General framework



New vehicle- and system technologies  
Project participants: 20 founded Partners  
Project volume: ~ 30 million €  
Funding volume: ~ 17 million €  
Project timeframe: 01.07.2023 – 30.06.2026  
Lead Partner: INYO Mobility GmbH

Executing agency: TÜV Rheinland  
Consulting



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# Implementation-oriented consortium

## Großunternehmen



## KMU



## Hochschulen und Institutionen



# Core innovations from NeMo.bil

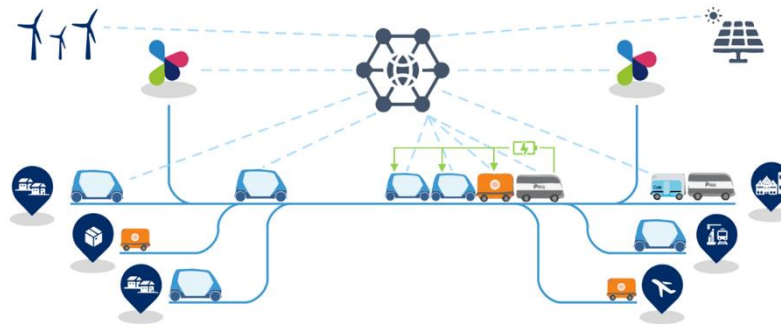
## Development of individual public transport solution for rural areas

## Energy- and resource efficient mobility

Digital reproduction of the overall system and development of a user-centered **control and operating platform**

### CAB Shuttle:

- Scalable lightweight structure
- Coupling interface
- Electric charging system



### Pro Vehicles:

- Coupling interface
- H<sub>2</sub>-Energy storage system
- Electric charging system

Adaptation of existing **system for autonomous driving** to realize swarm driving functionality throughout the system



# Proof of development goals

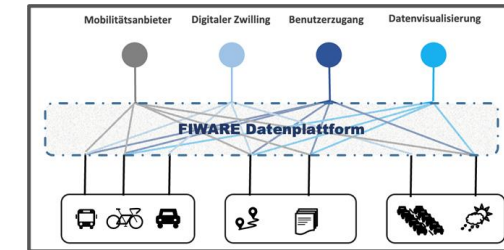
## Testszenarien für die Systementwicklung in sicherer Umgebung



## Systemvalidierung der Prototypen in realer & digitaler Umgebung



## Starting point for development

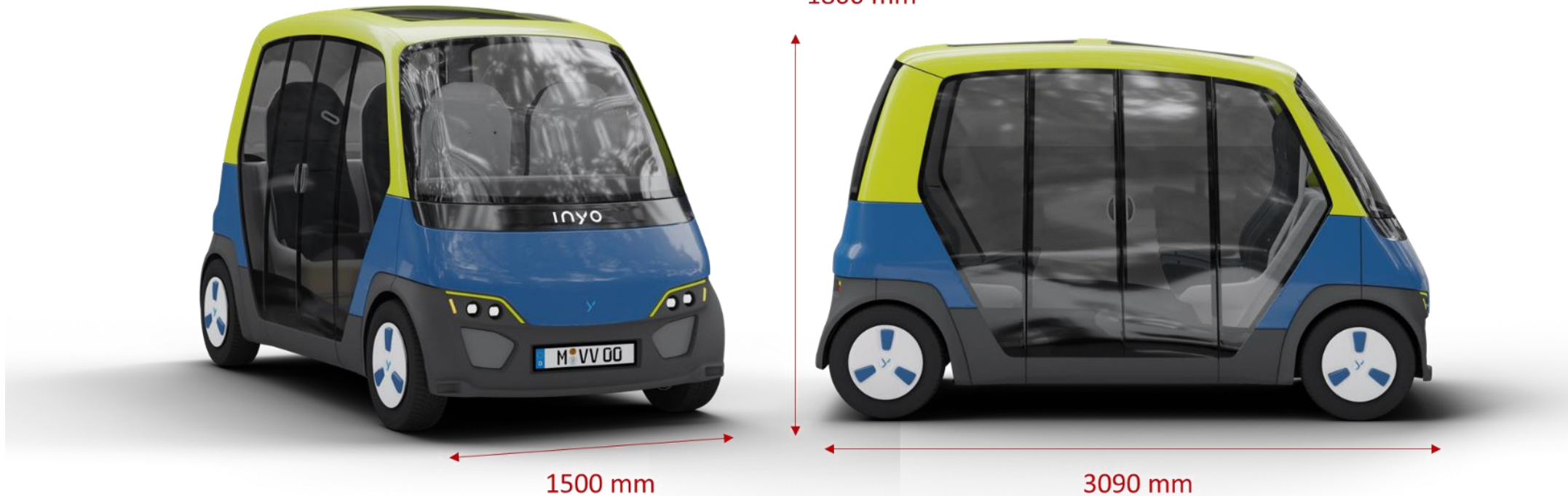


gaia-x  future mobility  
Gaia-X Lighthouse Project



# INYO light weight CAB starting point

Sustainable by Design



- Space saving
- Lightweight
- Vehicle class: L7e (max. 450kg)

- Flexible & task oriented
- Prepared for autonomous driving
- max. 4 passengers or 1 driver & 3 passengers



# Towing vehicle: Vehicle Structure, E-Axle, Exterior Skin

## Vehicle Structure:

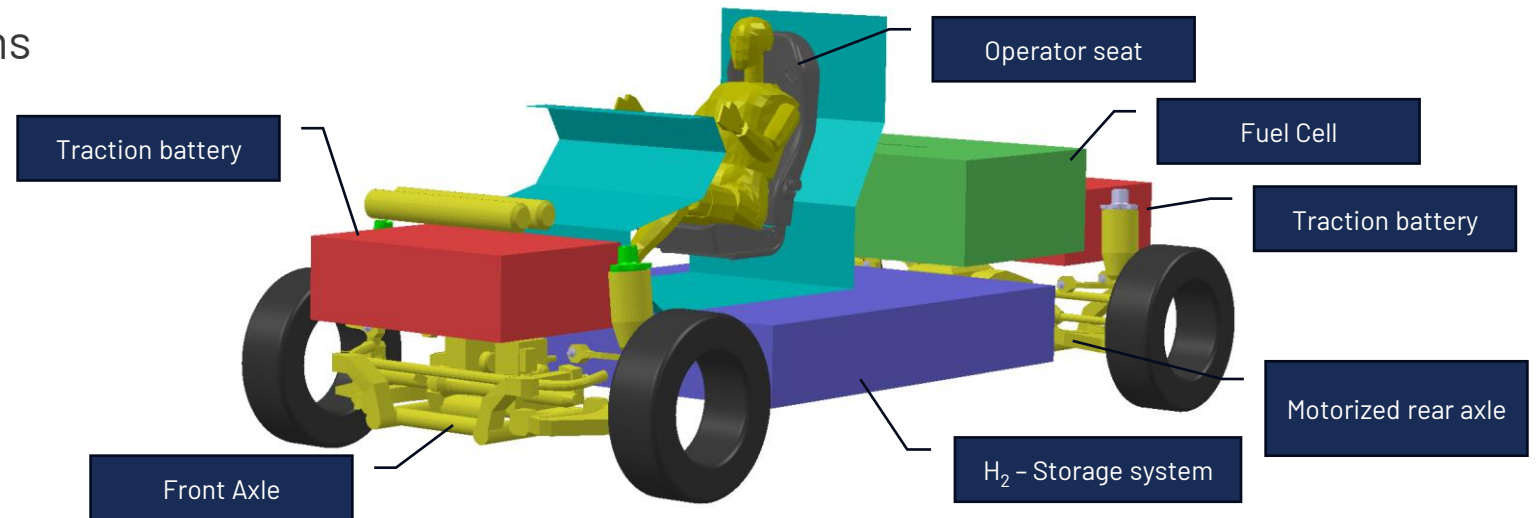
- Optimized lightweight profile frame for convoy operation
- Mechanical integration of the subsystems
- Safe operator station

## E-Axle:

- 180 kW peak / 115 kW continuous
- Double trailing arm chassis
- Rear axle drive with central motor

## Exterior skin:

- Result of aerodynamic convoy optimization
- GMT extruded components



# E-E-System, HV-Battery, Drive train and charging strand

## H<sub>2</sub>- storage system:

- 700 bar storage level
- 5 tanks à 47 Liter (1,9 kg H<sub>2</sub>/Tank)
- Saved energy: 313,5 kWh
- Usable energy for charging of batteries: ~170 kWh

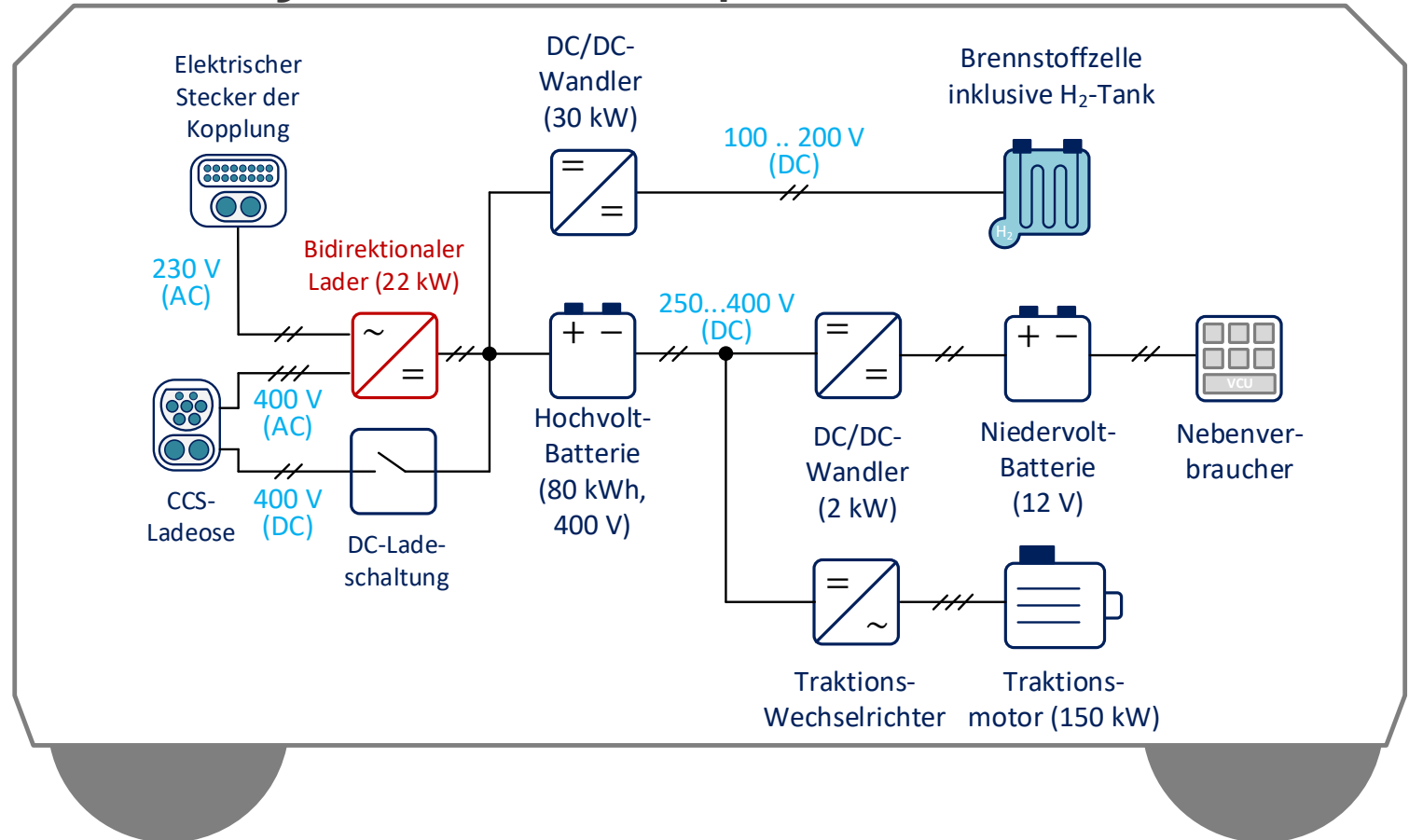
## Fuel Cell:

- Operation as Range Extender
- 30 kW nominal power
- Regulated voltage output

## Valve & pipework system:

- Integrated monitoring system to optimise safety and operation

## Structured diagram of electrical components





## Coupling interface



- Distance between convoy vehicles: ~ 40 cm
- Optimization of aerodynamic effects





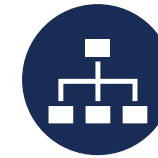
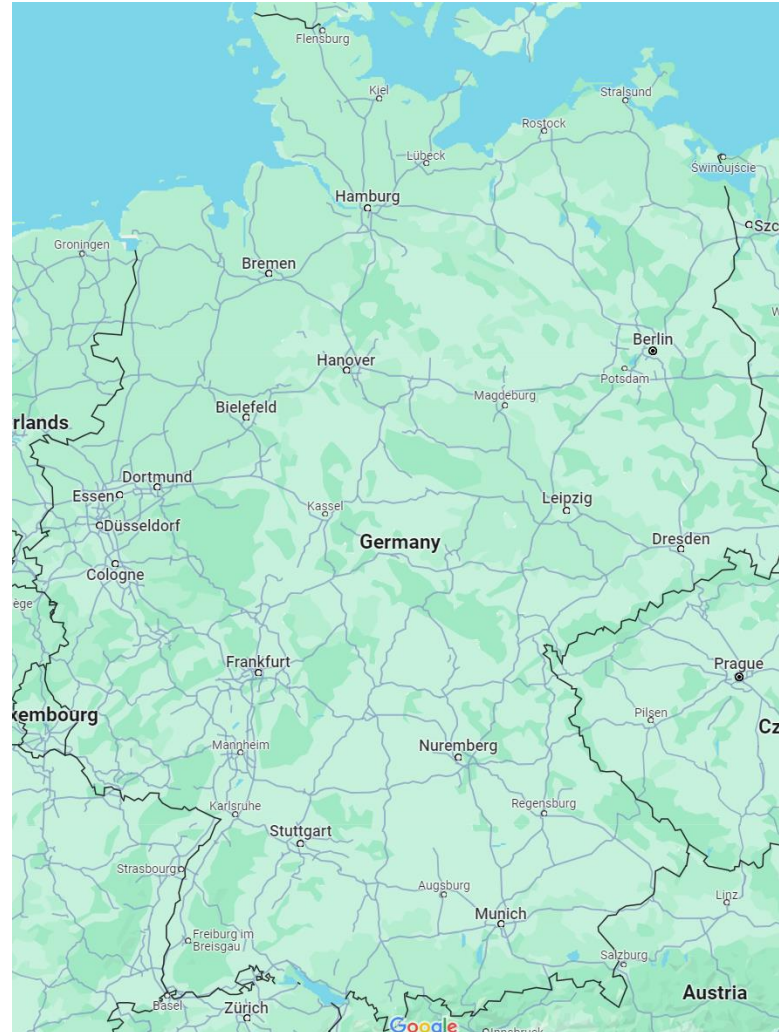
# Autonomous Driving Demonstration

*Campus Hochschule Augsburg*



# Connectivity and scaling

Around 60 % of the mobility regions in the Federal Republic of Germany correspond to the NeMo.bil scenario



System sales market approach



Integration into existing public transport services



Rapid launch in partner municipalities



Integration into Gaia-X & EU Mobility Data Space



# Thank you for your attention!

NeMo.bil - Mobilitätssystem für einen nachhaltigen iÖV in ländlichen Regionen

Joost Helfers | EHRIN-Meeting Hannover | 29. February 2024

For further information visit us at: <https://nemo-bil.de/>

<https://www.inyo-mobility.com/>



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