

gaia-x 4 future mobility & base-x

Q1/2024

Prof. Dr. Frank Köster & Maximilian Stäbler

DLR Institute for AI Safety & Security



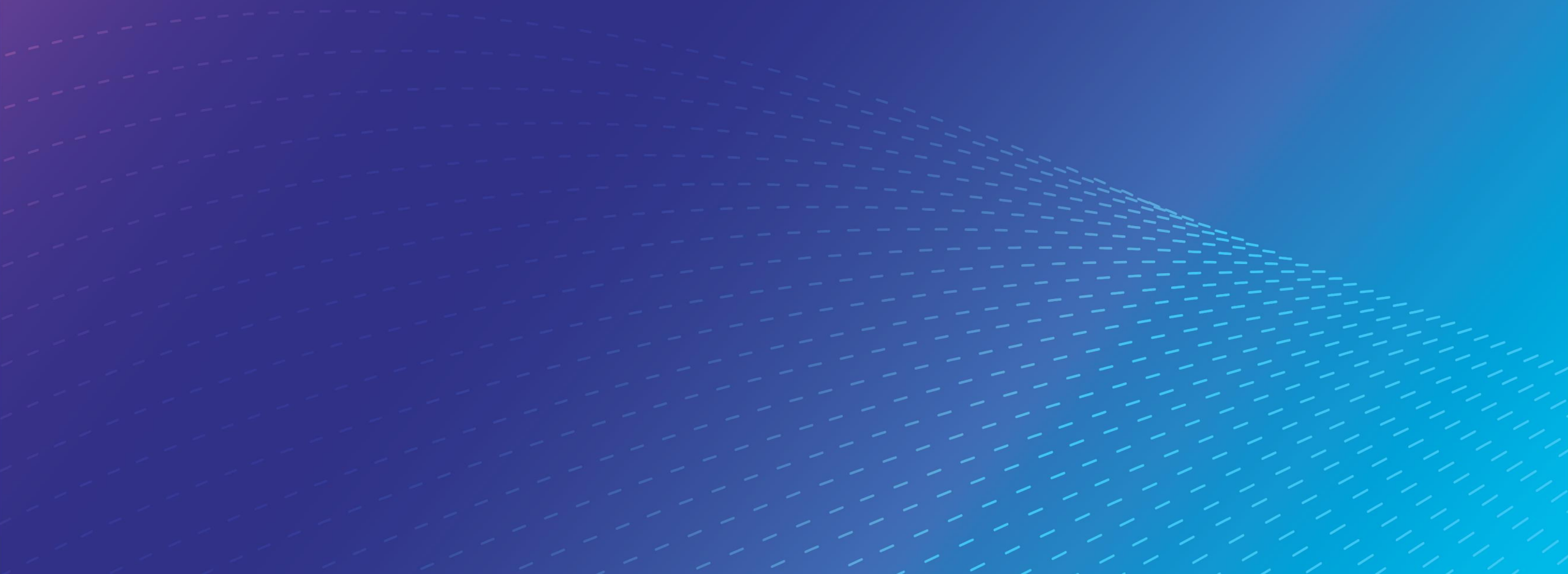
Funded by
the European Union
NextGenerationEU

Supported by:

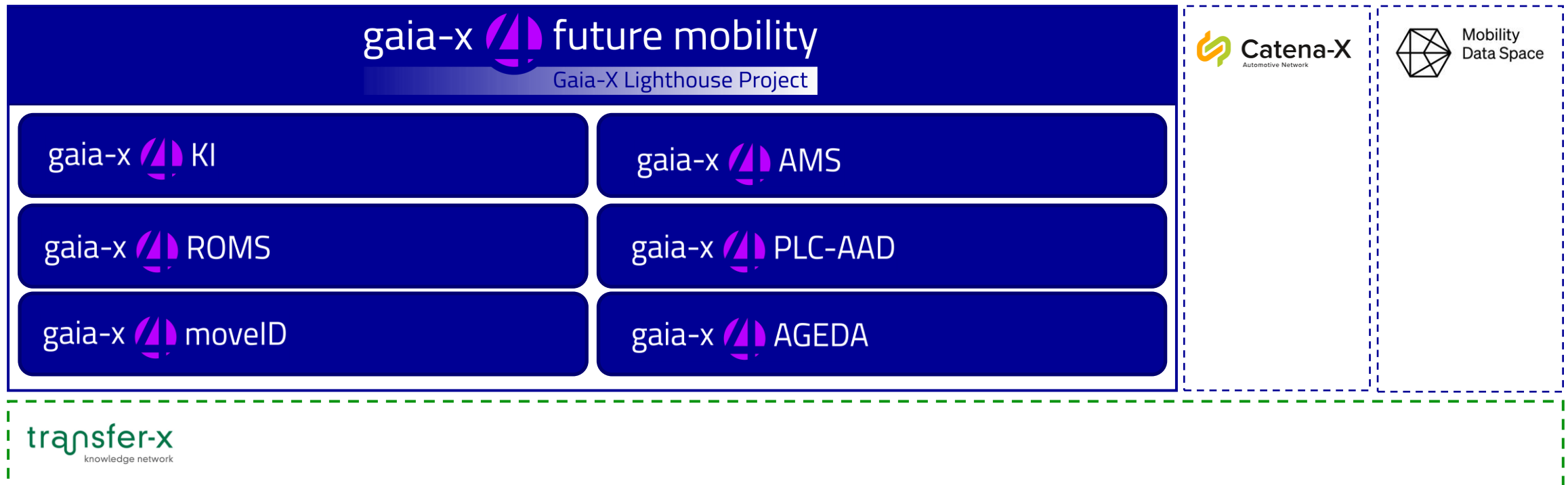


on the basis of a decision
by the German Bundestag







01 | Family of Projects



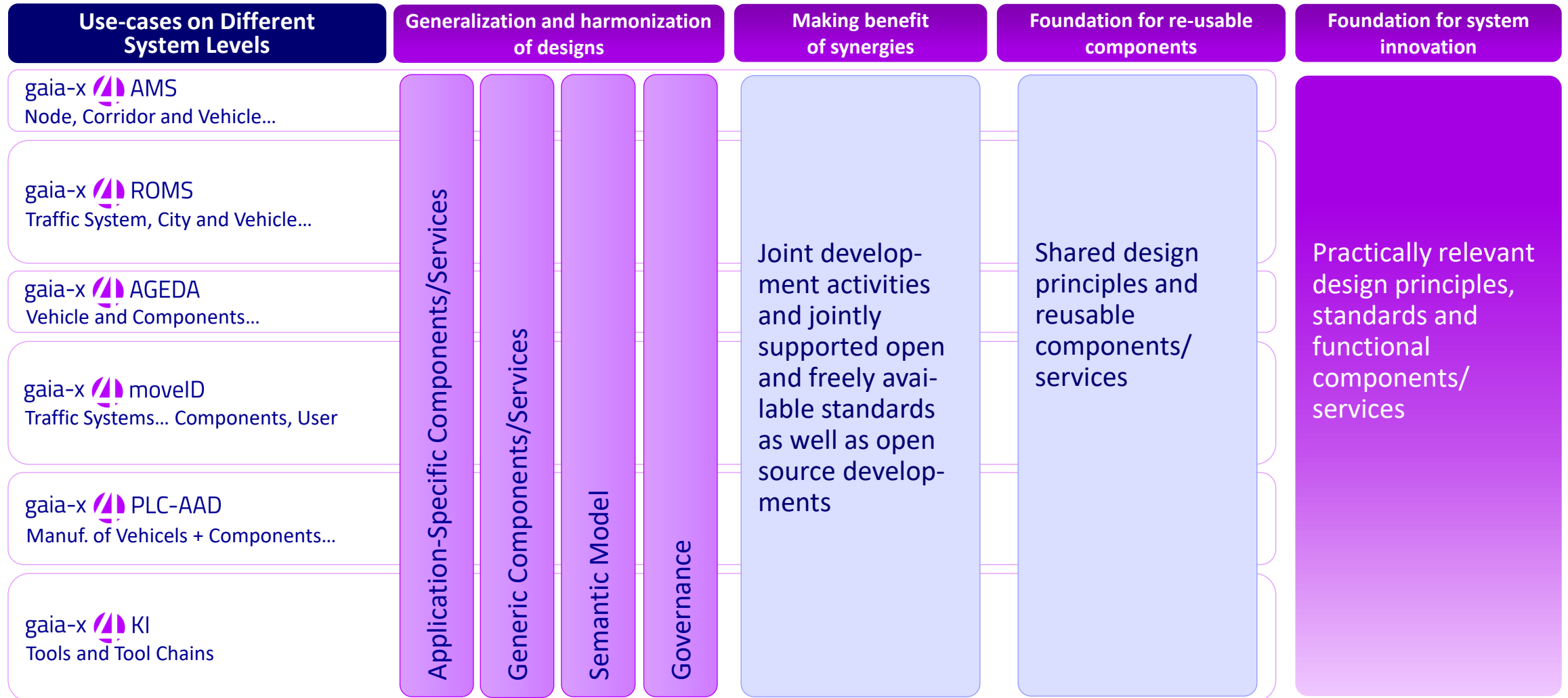
Family of Projects – Relation to other Domains and Initiatives



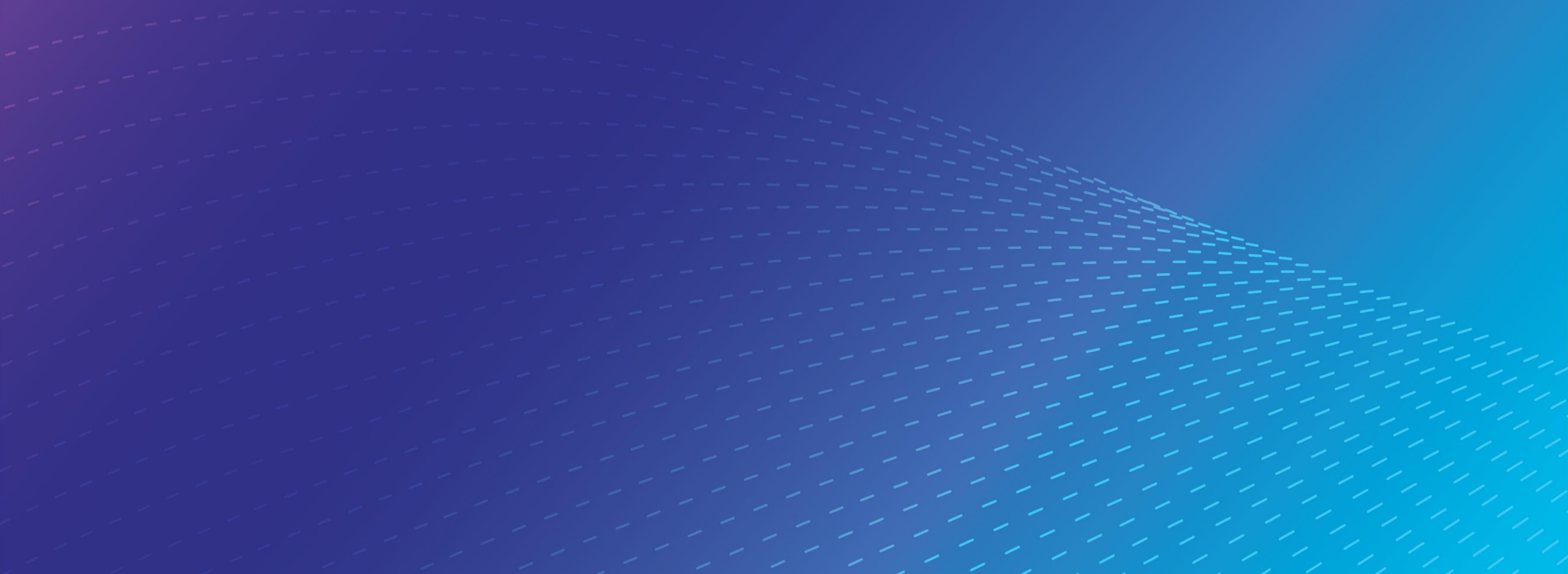
Family of Projects – Synergies by Design

Use-cases on Different System Levels	Backend System	Traffic Network	Traffic Nodes / Edges	Vehicle System	Subsystem	Component
gaia-x  AMS Node, Corridor and Vehicle...	Safe/Secure Cooperation of Automated Vehicles					
	Connected and Safe/Secure – Rescue Corridor					
gaia-x  ROMS Traffic System, City and Vehicle...				RO of Vehicles		
				RO of Fleets		
				Smart Managed Public Transport Fleet		
				Smart Managed Freight Fleet		
gaia-x  AGEDA Vehicle and Components...				Vehicle as Edge Device		
				Embedded Gaia-X		
gaia-x  moveID Traffic Systems... Components, User	DLT-Network		Vehicle Data Collection			
	Traffic Infrastructure Mgmt.					
	Smart Parking					
	Zoning					
gaia-x  PLC-AAD Manuf. of Vehicels + Components...				Sensor Validation		
				Bullwhip Mitigation		
				Digital Twin based Predictive Maintenance		
gaia-x  KI Tools and Tool Chains				Automated Optical		
				Digital Twin – Camera		
				SIEM		
				Scenario Identification		

Family of Projects – Synergies by Design and Joint Development Activities



02 | base-x



base-x Architecture

Scalable Mobility Solutions & Foundation for System Innovation

Data Space for a City

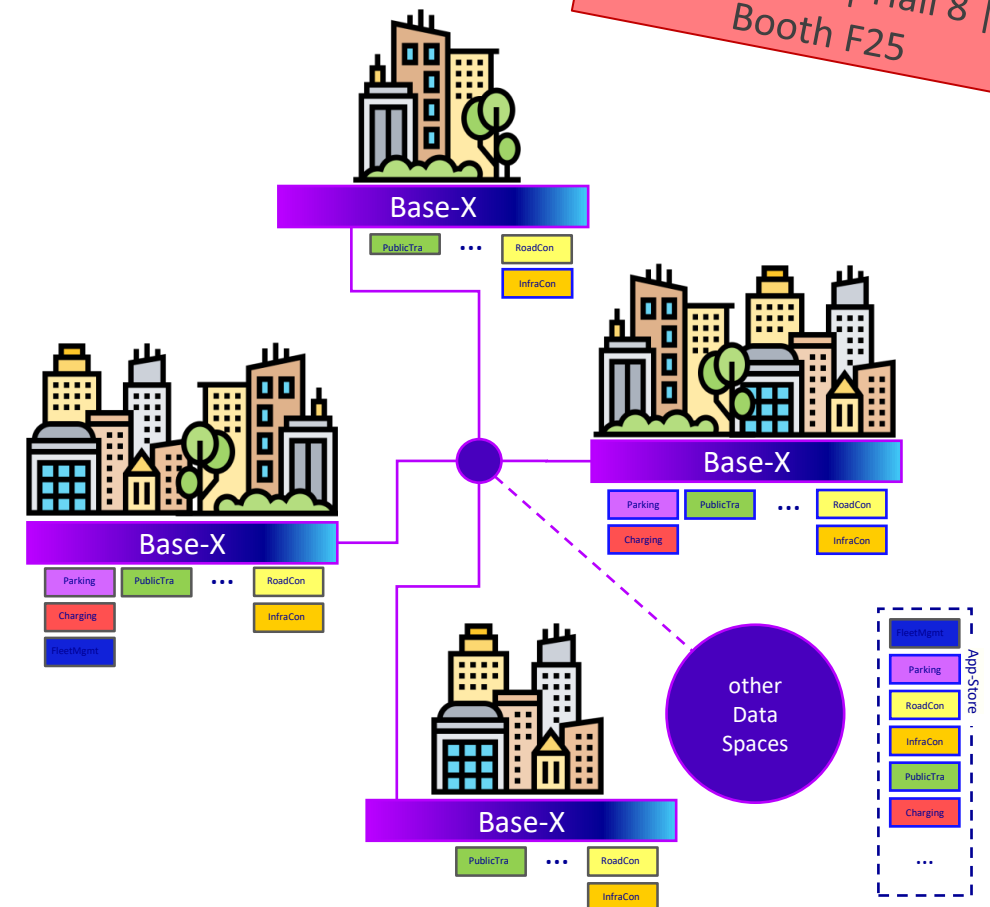
- city deploys Base-X-layer + domain-specific semantic model
- city selects applications from GX4FM + external sources

Data Spaces for many Cities

- further cities deploy Base-X-layer + domain-specific semantic model
- cities are in one federated/meshed data space
- city selects applications from GX4FM + external sources

Federated/Meshed Data Space of Cities + other Data Spaces

- (cross-sectoral) federated/meshed data space



Hannover Messe | 22.-26.
April 2024 | Hall 8 |
Booth F25

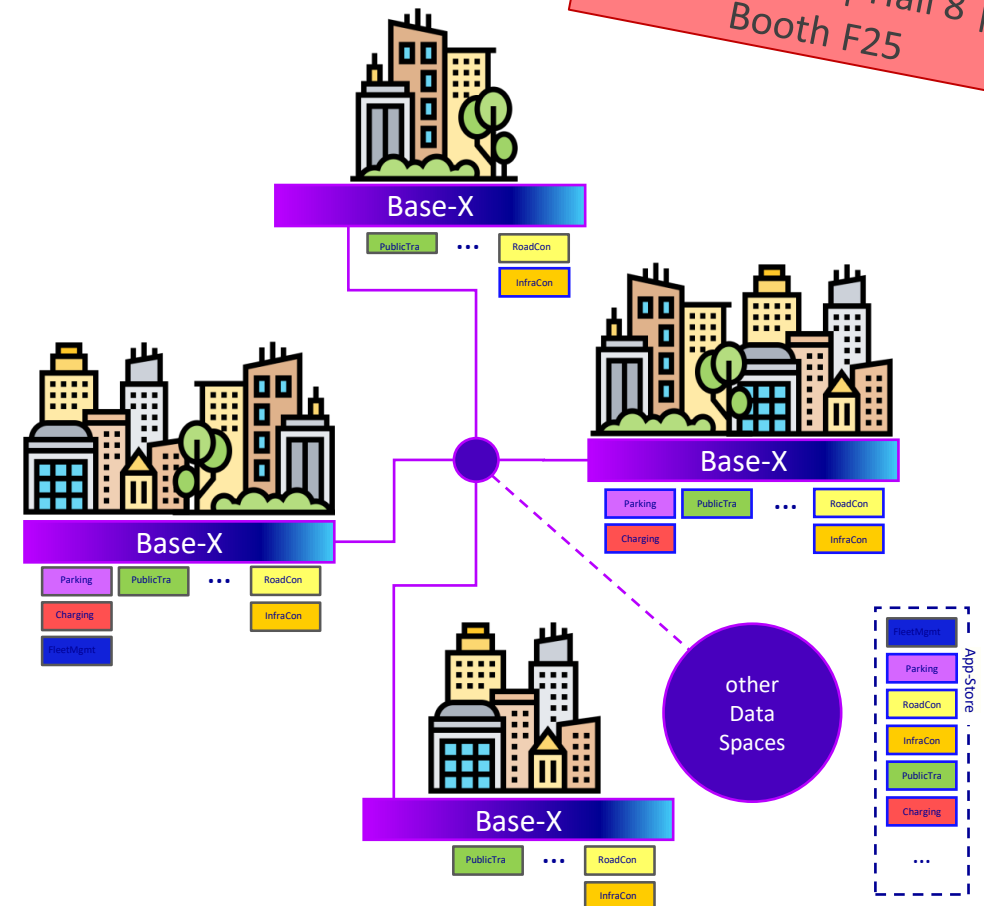
base-x Architecture

Scalable Mobility Solutions & Foundation for System Innovation

First Use-Cases

- **Road Damage Detection:** Utilizing vehicle data (e.g. service vehicles in cities but also privately owned cars) to automatically detect and document road infrastructure status as well as potholes and make the data available for (predictive) maintenance.
- **Flexible Bus Stop Usage:** Involving selection and release of stops in a web application, a dashboard for visualizing stop attractiveness, and the creation of booking offers, available for third-party users.
- **OD Mapper:** This aims to automatically determine areas and streets where automated vehicles can drive based on various map data sources and considering vehicle characteristics described by standards derived from the field of verification and validation of automated vehicles.
- **Intermodal Traveling:** Demonstrating the combination of various mobility modes in Hamburg, highlighting the synergies between local public transport, German rail, e-scooters, and car-sharing services.

Hannover Messe | 22.-26.
April 2024 | Hall 8 |
Booth F25



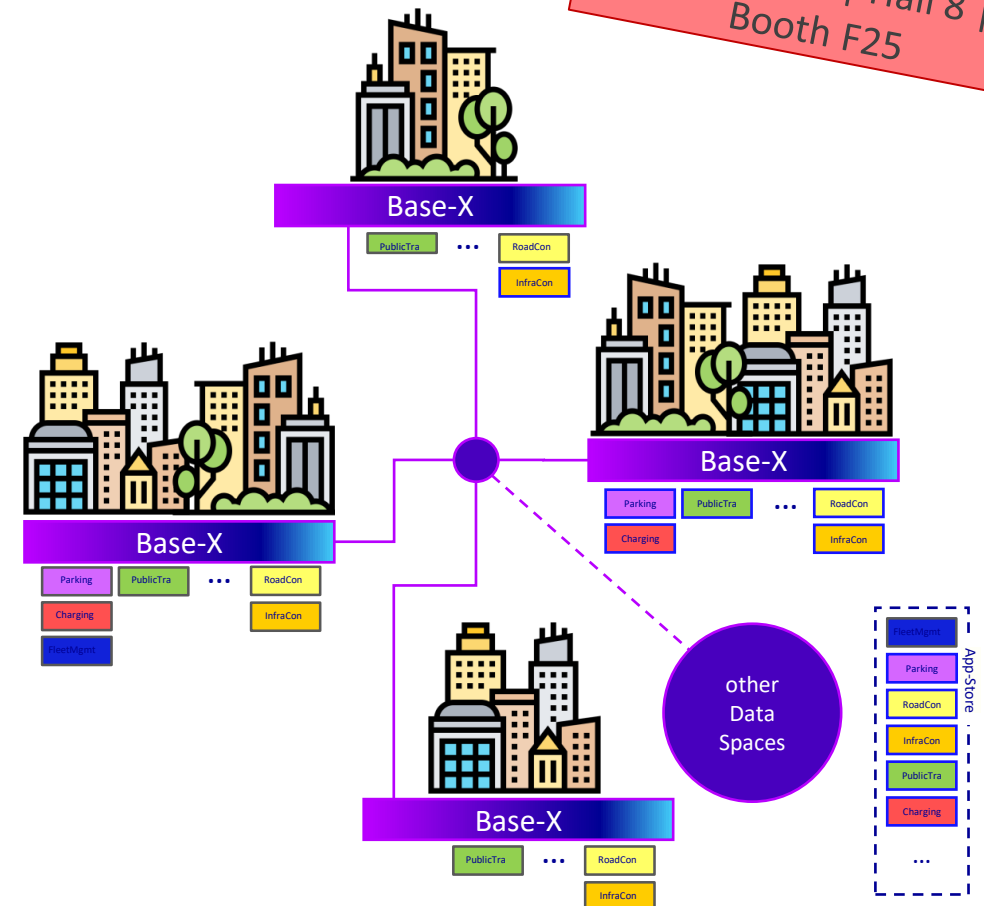
base-x Architecture

Scalable Mobility Solutions & Foundation for System Innovation

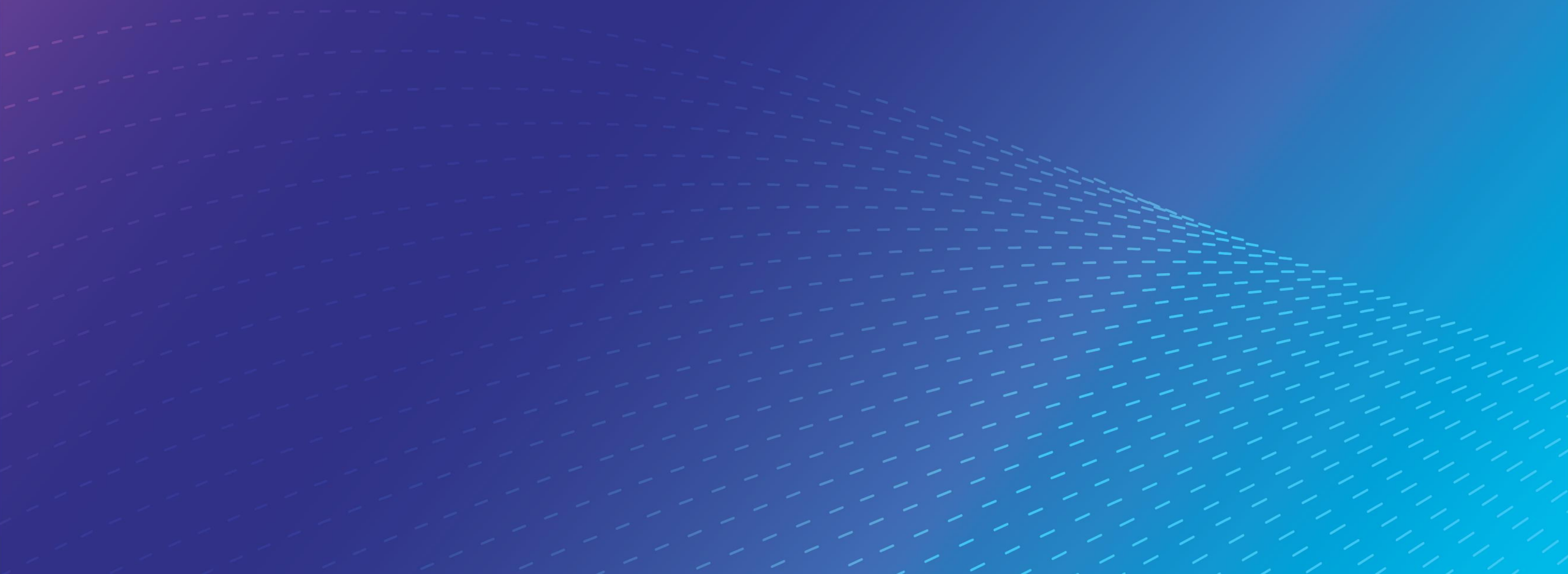
First Use-Cases

- **Road Damage Detection:** Utilizing vehicle data (e.g. service vehicles) Provide higher quality of the road infrastructure while lowering the costs and reducing negative effects of road construction works regarding e.g. congestions and traffic safety.
- **Flexible Bus Stop Usage:** Involving selection and release of stops in a On-street stops can be reduced, like e.g. for delivery vehicles and ride sharing offerings, which has a impact on traffic efficiency and safety.
- **OD Mapper:** This aims to automatically determine areas and streets Support e.g. the quick roll-out of automated vehicles and their integration in an holistic traffic/mobility planning approach.
- **Intermodal Traveling:** Demonstrating the combination of various The comfort of passengers can be raised and new (active) mobility modes can be offered in relation with the traveler needs.












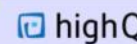


























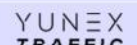
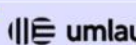

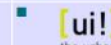












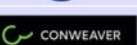
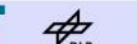



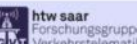

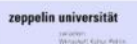










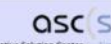



Hannover Messe | 22.-26.
April 2024 | Hall 8 |
Booth F25



03 | Current Participants



Current Participants – Network

Industry & SMEs											Gaia-X 4 KI 	
												
											Gaia-X 4 AMS 	
												
												Gaia-X 4 ROMS 
												
Research & Universities											Gaia-X 4 PLC-AAD 	
												
Public Sector & Others											Gaia-X 4 AGEDA 	

gaia-x future mobility

Gaia-X Lighthouse Project

The family of projects consists of

gaia-x  KI

gaia-x  AMS

gaia-x  ROMS

gaia-x  moveID

gaia-x  PLC-AAD

gaia-x  AGEDA

Contact for Gaia-X 4 Future Mobility

Prof. Dr. Frank Köster
DLR Institute for AI Safety and Security
Frank.Koester@dlr.de

Gaia-X 4 Future Mobility
Coordinated by the DLR Institute
for AI Safety and Security

