

Welcome to the workshop series

DRIVEN by DATA

The mFUND Workshops Series about Mobility in Europe

Workshop No. 15

On the Move:

Trading and Sharing Data for Mobility Transformation

Federal Ministry for Digital and Transport

Division DP 20

29.04.2025



www.linkedin.com/groups/12778505



Federal Ministry
for Economic Affairs
and Climate Action



Horizon Europe and its Support of Innovative Approaches for the Collection, Sharing and Storage of Mobility Data

On the Move - Trading and Sharing Data for Mobility Transformation
A Workshop in the mFUND Series *Driven by DATA*

David Doerr

www.nks-kem.de

www.horizont-europa.de

Horizon Europe in a nutshell



9. EU-Framework Programme
for Research and Innovation



Duration
2021 - 2027



Budget
95,5 Mrd. Euro

Objectives of Horizon Europe

Political support



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Solution of global crises



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Innovation



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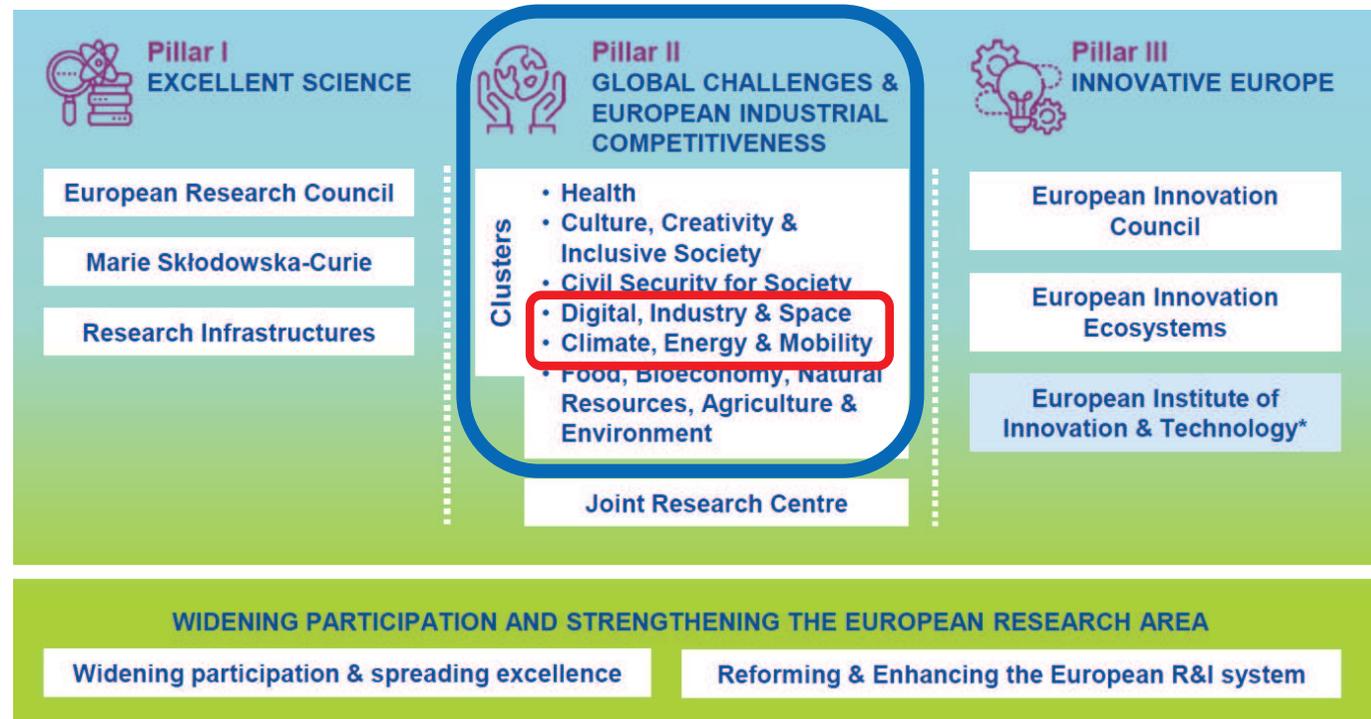
Competitiveness



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Structure of Horizon Europe

- Each cluster has a work program
- In addition, there are separate work programs for:
 - Partnerships
 - Missions
 - New European Bauhaus



Funding Instruments & Mechanisms Relevant to Mobility Data

Research & Innovation Action (RIA)	Innovation Action (IA)	Coordination & Support Actions (CSA)
<ul style="list-style-type: none"> • Collaborative Projects • Research, new knowledge and development of new technologies • From basic to applied research • TRL ≈ 1-5/6 	<ul style="list-style-type: none"> • Collaborative Projects • Demonstration of new technologies and solutions through e.g. prototyping, tests, pilot projects, large-scale product validation, market launch • TRL ≈ 6-9 	<ul style="list-style-type: none"> • Individual or collaborative projects • Activities that contribute to the objectives of HE. (z.B. Standardisation, Dissemination, Networking Studies...) • Normally R&I activities are excluded
<p>Funding rate: 100 % of the eligible direct costs</p>	<p>Funding rate: 70 %* of the eligible direct costs</p> <p>*Exceptions: (1) non-profit legal entities: 100% (2) Selected Partnership-IA (Pilot actions): 60%</p>	<p>Funding rate: 100 % of the eligible direct costs</p>
<p>All: flat rate for indirect costs: 25% of direct costs</p>		

Where Mobility Data Topics Appear in Horizon Europe

- **Cluster 5 (Climate, Energy, Mobility):** Smart, safe, resilient transport
- **Cluster 4 (Digital, Industry, Space):** AI, cloud, big data enabling mobility
- **European Data Strategy / Data Spaces:** Foundation for the Mobility Data Space
- **Missions and Partnerships:** e.g. CCAM, 2Zero and smart cities initiatives

Desired Mobility Data Projects in Horizon Europe

Key Features Sought:

- **Interoperability & Standardization:** Cross-border data formats, APIs, protocols
- **Data Sharing Ecosystems:** Trust-based, secure mobility data spaces
- **AI and Predictive Analytics:** Real-time optimization of traffic and emissions
- **User-Centric Data Governance:** GDPR compliance and ethical data control
- **Integration of Novel Data Sources:** IoT, satellite, and environmental data

Projects should enable scalability, replicability, and build the European Mobility Data Space.

Emerging Strategies and Findings

Highlights:

- **Interoperable, Secure Data Platforms** are urgently needed.
- **Trust and Data Governance** models are critical for user acceptance.
- **Support for the Mobility Data Space** through project blueprints and pilots.
- **AI in Mobility:** Early success in real-world transport optimization.
- **Strategies from Flagship Projects:** Focus on decentralization, citizen participation, hybrid architectures.
- **Urban Digital Twins and Living Labs:** New frontiers for real-time city planning.

Horizon Europe Topics Supporting Smart Mobility

Cluster 5: Climate, Energy and **Mobility**

Focus Areas:

- **Connected and Automated Mobility (CAM):** Autonomous driving, V2X communication.
- **Multimodal and Seamless Mobility:** MaaS platforms, digital ticketing, cross-mode integration.
- **Sustainable Urban Mobility:** Low-emission zones, shared mobility, first/last mile solutions.
- **Mobility System Resilience:** Climate adaptability and disruption response.
- **Zero-Emission and Smart Logistics:** Digital and green freight/logistics.



Data Driven Mobility – Aspects Covered in Previous WPs

Work Programme 2021-2022 (Cluster 5):

- Cybersecurity requirements and data security in connected, cooperative automated mobility (CCAM) – guaranteeing data integrity and authenticity
- Development of methodologies for extracting consistent data on human driving performance from different data sources (e.g. real traffic, simulators)
- Demonstration of advanced cooperative logistics IT solutions for optimising networks and their nodes
- Dynamic routing to optimise urban space, loads and to reduce empty miles
- Improving the capacity of local authorities in the managing and collection of data
- Improvement of network-wide data exchange and new integrated data management for responsive multimodal network and traffic management systems



Data Driven Mobility – Aspects Covered in Previous WPs

Work Programme 2023-2024 (Cluster 5):

- Data management for smart systems and services integrating shared zero-emission vehicles in urban areas
- Development of AI-based tools to transform raw traffic data into high-quality, reliable, plausibility-proofed data – and to enable efficient and seamless use of data from different sources
- Development of advanced decision-making technologies for CCAM solutions based on enhanced collective awareness – incorporating information from multiple sources (sensors, maps, infrastructure, other road users, localisation systems)
- Validated solutions for effective and secure data exchange across all modes of transport – for dynamic and responsive multi-modal network and traffic management
- Advanced capabilities for harnessing data from physical and digital infrastructures – as well as from the mobility of passengers and freight

Data Driven Mobility in Current Work Programme (2025)

- Data science in improving operational efficiency through high-power fuel solutions.
- Demonstrations for zero-emission mobility potentially leveraging data analytics for performance assessment
- Use of data in research for developing new technologies and in understanding and analyzing mitigation options for non-CO2 impacts
- Enforcement of emissions regulation, likely using data reporting and compliance tracking systems
- AI and data modeling to predict ageing and degradation of electric components
- Scenarios for the balance of vehicle performance using data analysis
- Comprehensive large-scale demonstration plans for CCAM vehicles imply collating and analyzing data from various sources and stakeholders



Conclusion

When exploring funding opportunities in Horizon Europe for mobility data projects, researchers should focus on the following:

- **Funding Instruments:** RIAs, IAs, CSAs, and EIC support.
- **Relevant Clusters:** Digital, Industry and Space; Climate, Energy and Mobility; along with thematic calls on Smart Mobility.
- **Strategic Advantages:** Collaborating across borders, harnessing large funding pools, promoting interoperability, and aligning with EU-wide policy agendas all contribute to innovative and impactful projects in the mobility domain.



The screenshot shows the homepage of the EU Funding & Tenders Portal. At the top left is the European Commission logo. The main navigation bar includes: Home, Funding, Procurement, Projects & results, News & events, Work as an expert, and Guidance & documents. A search bar is located on the right. Below the navigation is a large banner image featuring a collage of various scenes related to innovation, research, and industry, with several yellow stars overlaid. Below the banner, the text reads: 'Discover the funding & tenders opportunities' and 'Find out how to participate by following these key steps.' There are four boxes with icons and text: 'Find calls for proposals', 'Find calls for tenders', 'View projects and results', and 'Work as an expert'.

Discover the funding & tenders opportunities

Find out how to participate by following these key steps.

Find calls for proposals

Explore the available EU funding opportunities by searching for calls for proposals within your topics of interest, find partners and submit a proposal.

Find calls for tenders

Find business opportunities in the calls for tenders managed by EU institutions, bodies and agencies.

View projects and results

Browse through EU funded projects and learn about the results. Invest in opportunities and get inspired by the highlights and success stories.

Work as an expert

Proposals and projects need evaluations, monitoring and domain-specific knowledge advice from experts.

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>



Federal Ministry
for Economic Affairs
and Climate Action

National Contact Points

Important link between
stakeholders, the ministries and
the EU Commission

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Federal Ministry
for Economic Affairs
and Climate Action



Questions?

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**Thanks for
your
attention!**



PISTIS

Promoting and Incentivising Federated, Trusted, and Fair Sharing and Trading of Interoperable Data ASsets

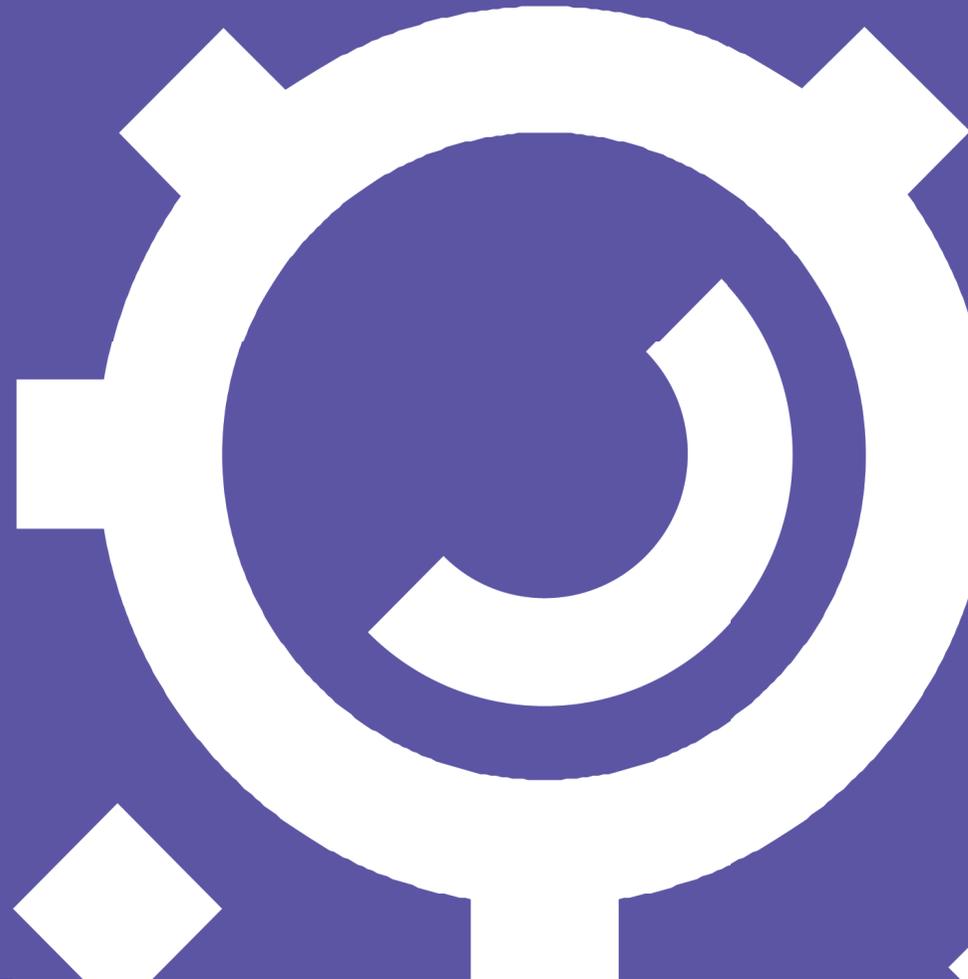
Dr Yury Glikman

PISTIS Project Coordinator (Fraunhofer FOKUS)

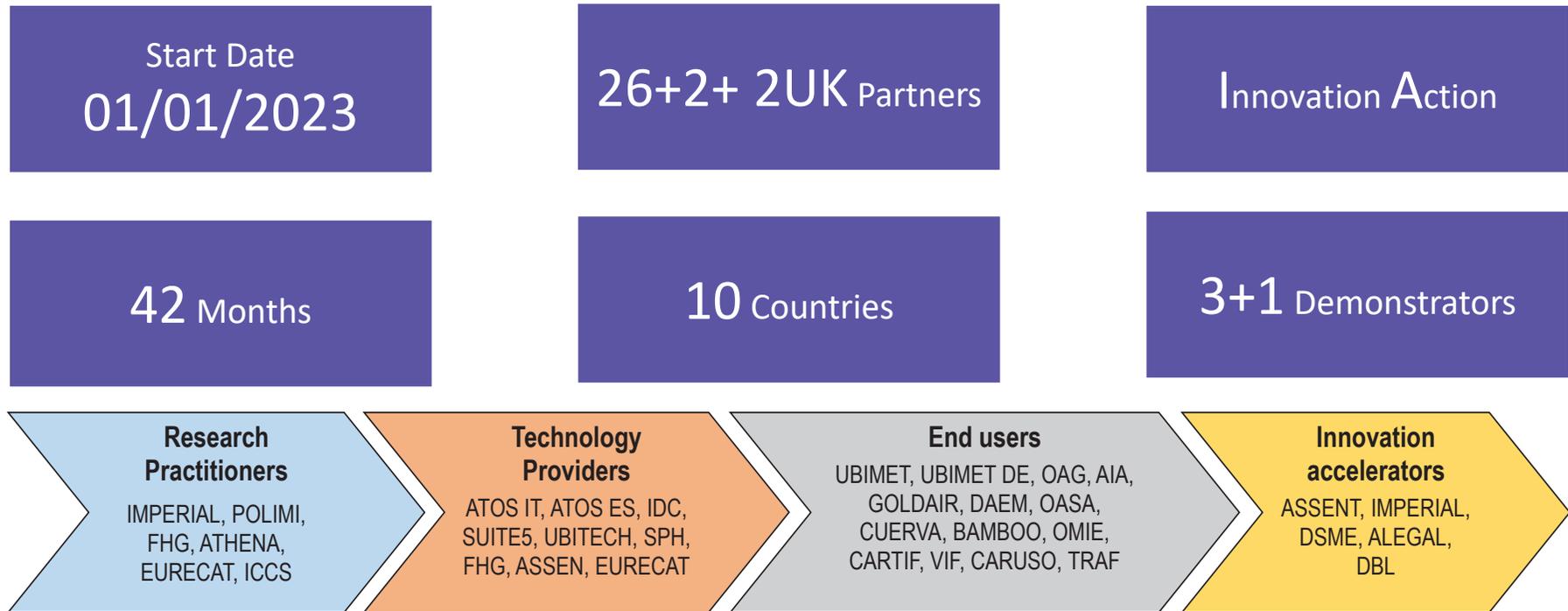
April 2025



Funded by the
European Union



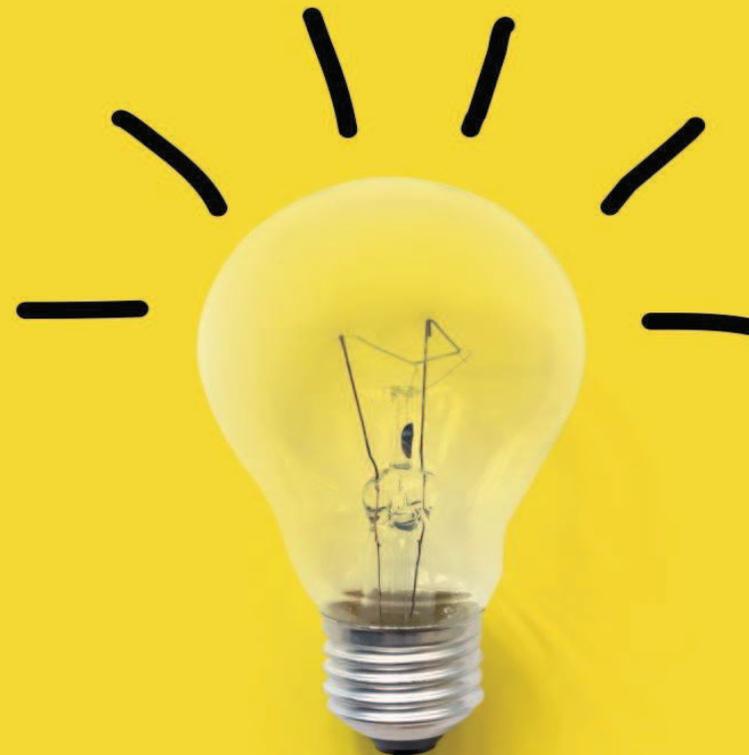
PISTIS Project Basic Facts



Topic: HORIZON-CL4-2022-DATA-01

PISTIS Aims

- Enable Organisations to **generate more value** from the data.
- Provide the **tools to allow organisations break their silos**, in a trusted, mutual benefiting manner, opening up new business opportunities



A federated data trading and monetisation platform for secure, trusted and controlled exchange and usage of data assets and data-driven intelligence (derivative data assets)

PISTIS in a Nutshell – 4 Axes of Innovation



Federated Data Management, Interoperability & Governance

- Data Collection, Curation, Security and Control
- Syntactic, Semantic, Metadata Interoperability
- Data observability
- Data source certification mechanisms



Federated, Secure Data Sharing

- Secure peer-to-peer (encrypted/unencrypted) data transfer
- Data usage monitoring/tracking
- Multi-party contracts
- Contract Compliance/Enforcement



Data Valuation and Monetisation

- Articulate and recommend data value identifying data generation cost, probable income and market dimensions
- PISTIS conceptual StableCoin



Data Sharing Skills Cultivation

- Training material to educate stakeholders around data sharing
- Empower to understand their needs and gaps
- Massive Online Open Courses (MOOC)



What is PISTIS and what it is not

PISTIS is

- ❑ **Dataspace and Data Monetisation Platform for Organisations, Out-of-the-Box**

And offers...

- ❑ Data Value Assessment Methods
- ❑ Transactions based on Blockchain technology
- ❑ Contract Monitoring and Management services
- ❑ Interconnection with in-house Data “lakes”
- ❑ A federated Catalogue of Data
- ❑ A Data Treatment and Transformation facility

PISTIS is NOT

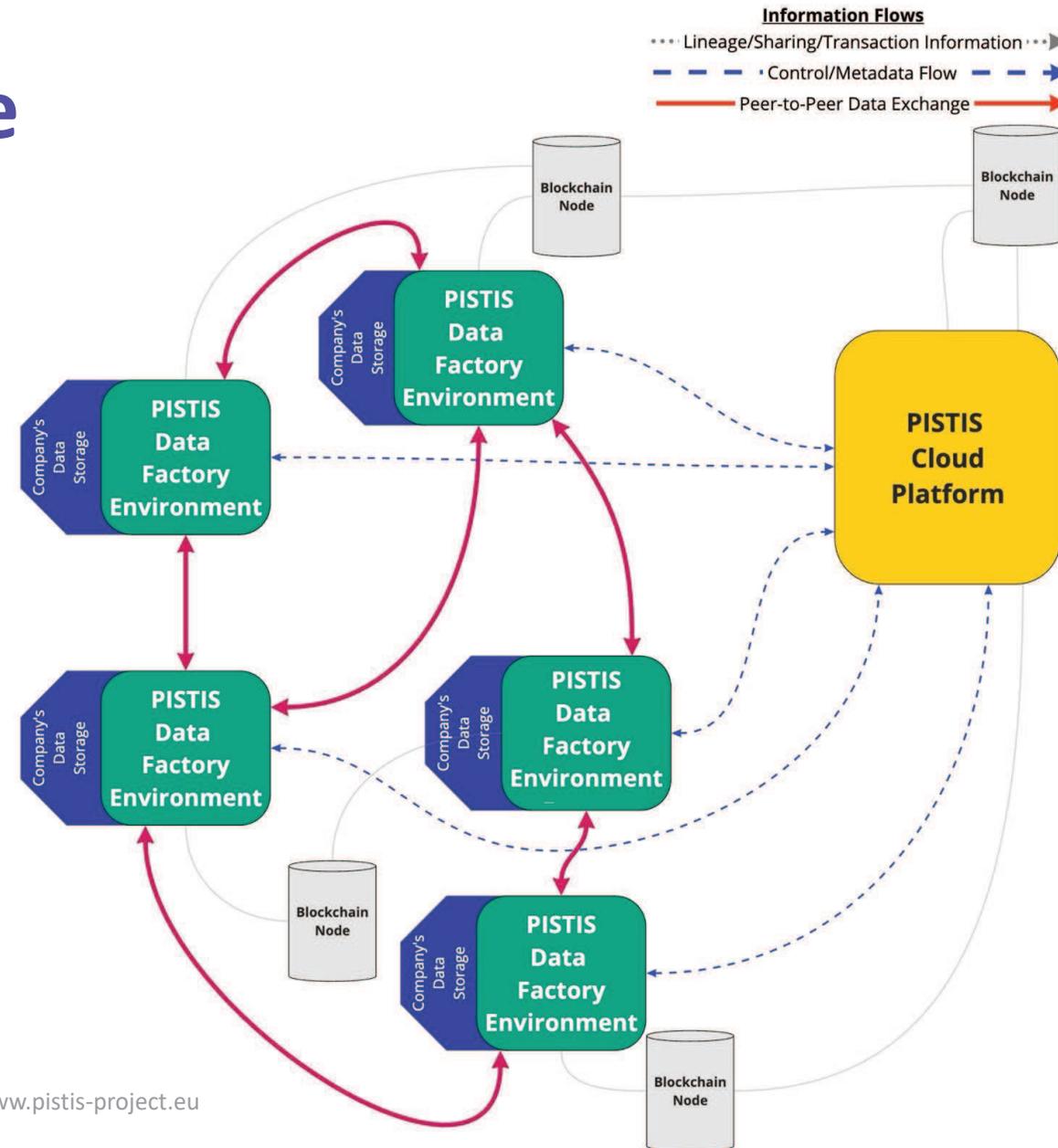
- ❑ A centralised Data Storage
- ❑ A Big Data Platform
- ❑ An Analytics Platform
- ❑ A real crypto market/NFT exchange desk
- ❑ A platform to “host” other applications (e.g. no deep integration with third party apps)

Reference Architecture

Macroscopic View

2 Core Parts

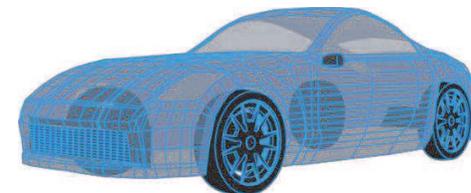
- PISTIS Data Factory
 - Deployed “locally” over each organisation
 - Holds all the Data of an organisation
- PISTIS Cloud Platform
 - Coordinates the Interaction between the PISTIS Data Factories
 - Holds the central “marketplace” catalogue
 - Oversees all data trading transactions and contracts



PISTIS Demonstrators

Building Data Economy Hubs

- **Demonstrator Hub #1: Mobility and Urban Planning Demonstrator Hub** (AIA, OAG, GOLDAIR, DAEM, OASA, UBIMET) - Greece
- **Demonstrator Hub #2: Energy Sector Demonstrator Hub** (CUERVA, BAMBOO, OMIE, CARTIF, UBIMET) - Spain
- **Demonstrator Hub #3: Automotive Sector Demonstrator Hub** (VIF, CARUSO, TRAF, UBIMET) – Austria & Germany



Automotive Demonstrator Hub

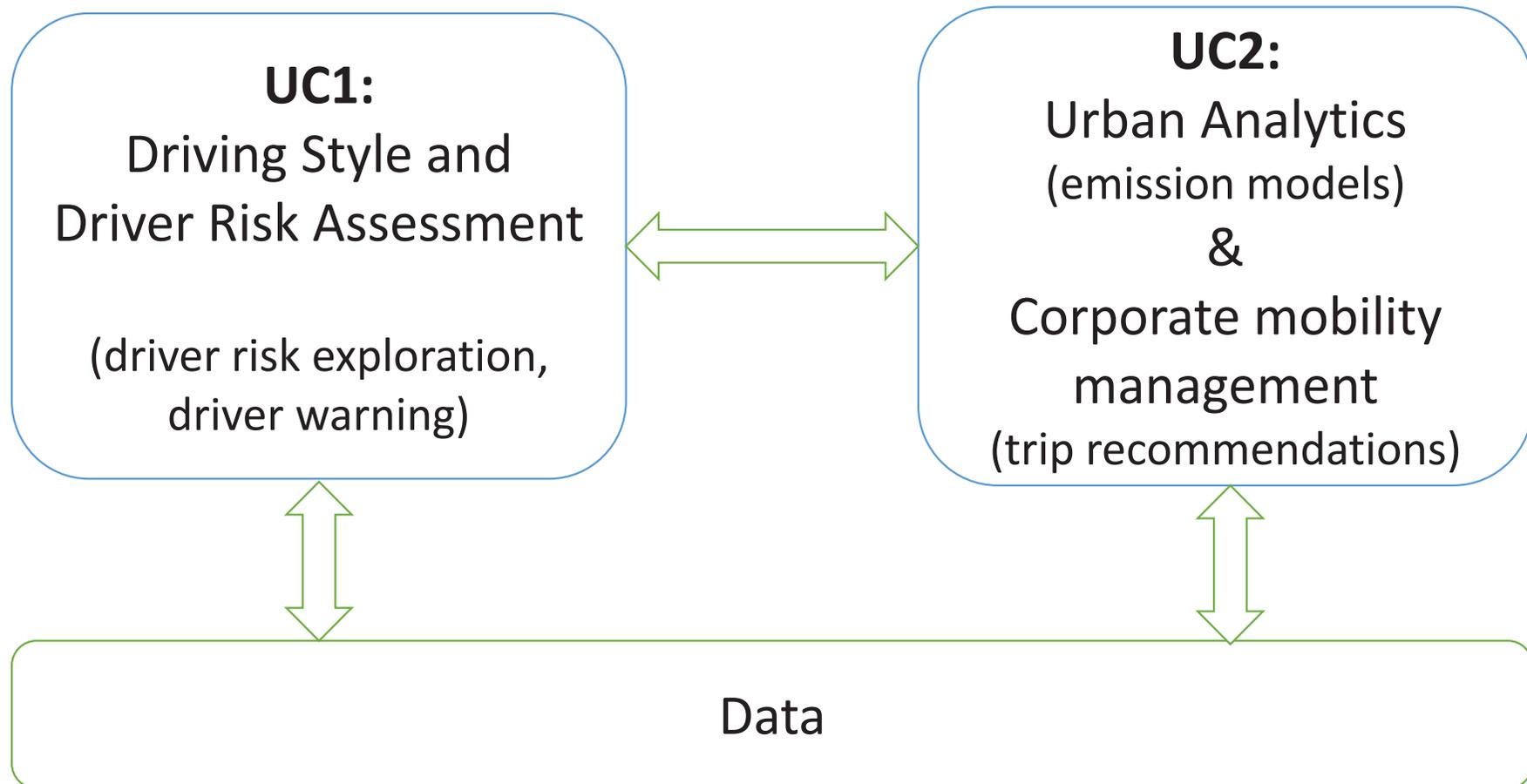
□ Lead:



□ Partners:



Automotive Demonstrator Hub



UC - Driving Style & Risk Assessment

Data sources



- Live Weather Data*
- (Historical Weather Data*)



- Anonymized Connected Car Data (hazards)*
- Personalized Connected Car Data (we will use synthetic data)*



- Historic Anonymised Driving Style Data*



OSM (to show events)

PISTIS components

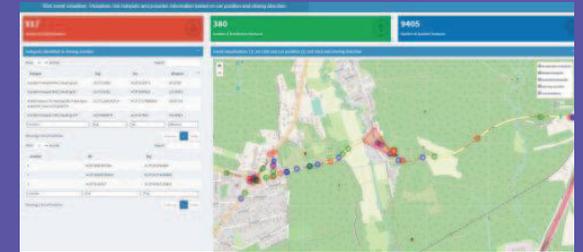
Processing

- Data pre-processing (cluster events from vehicle trajectories and other data sources)
- Visual analytics of data
- Show risks and driver warnings on a map
- Explore different risk models for warnings

- Events from different data sources are provided by services (e.g. weather, hazards)
- Mobile driver app queries the services with a geo-spatial key
- Computes a cone for risk calculation
- Integrates individual driving style
- Filters events (in the cone) and compute driver warnings

Service

A. Risk Manager Dashboard



Interactive dashboard (GUI)

B. Driver App (shows warnings and provides coaching)

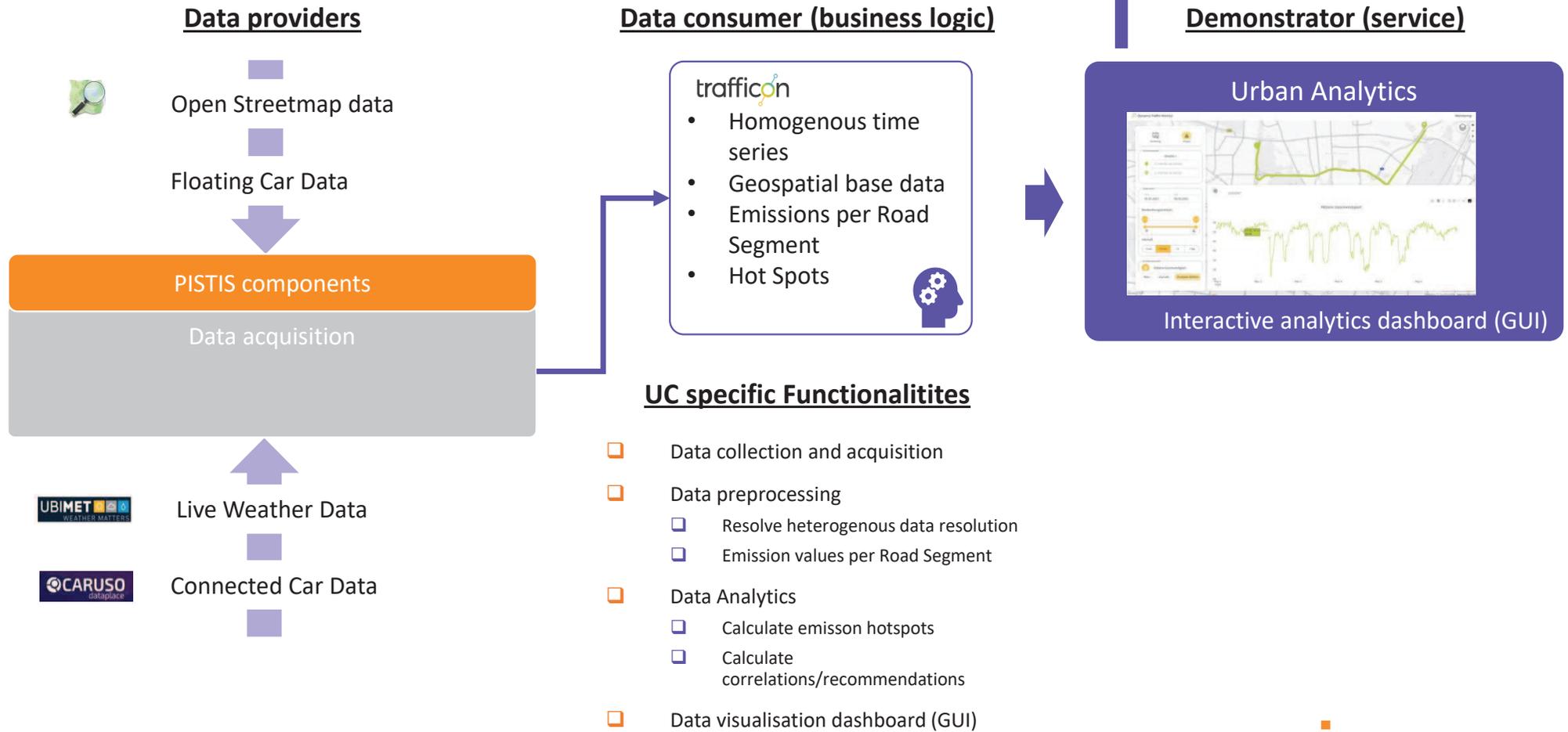


Flutter App

*data available via PISTIS project partners

<https://www.pistis-project.eu>

Urban Analytics

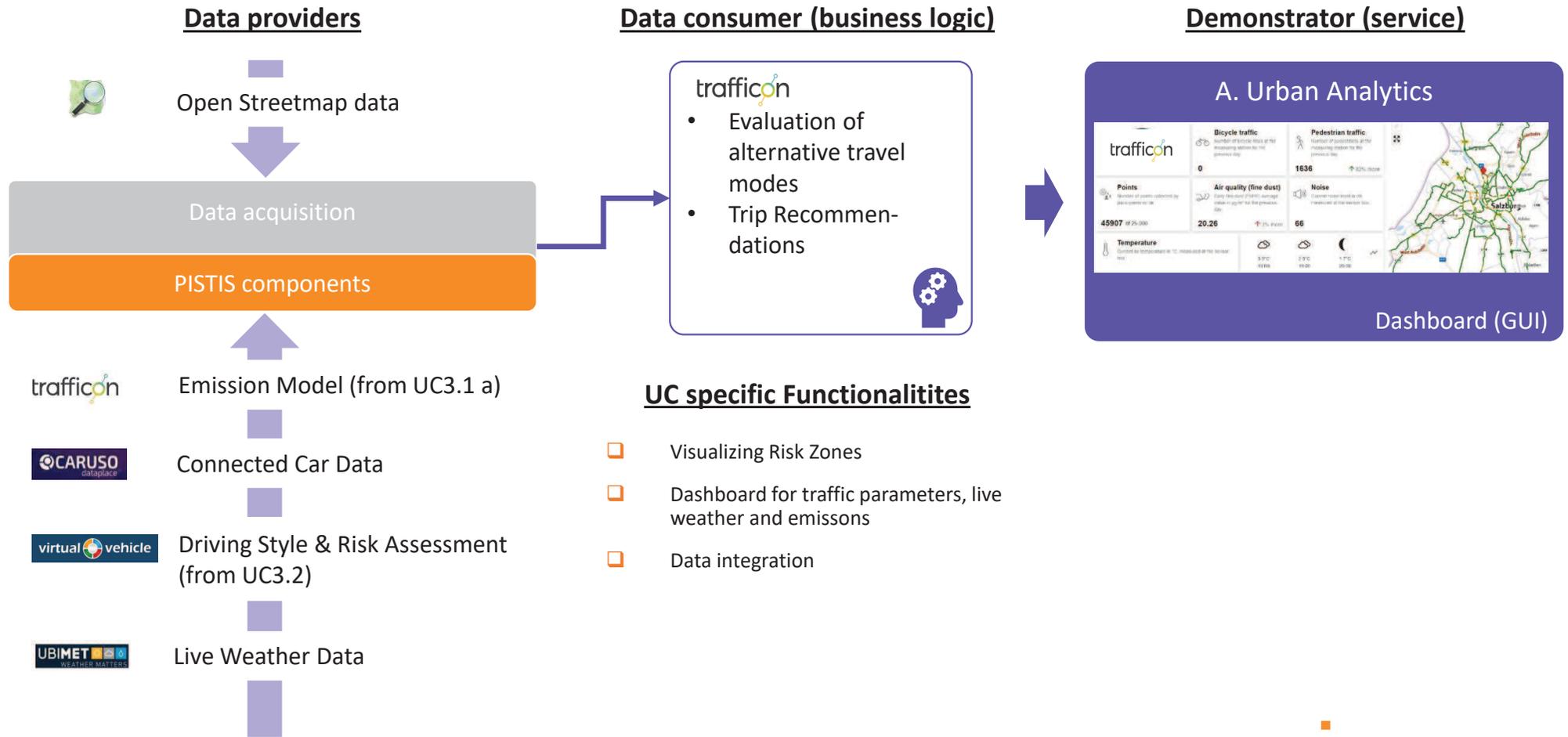


Live Weather Data

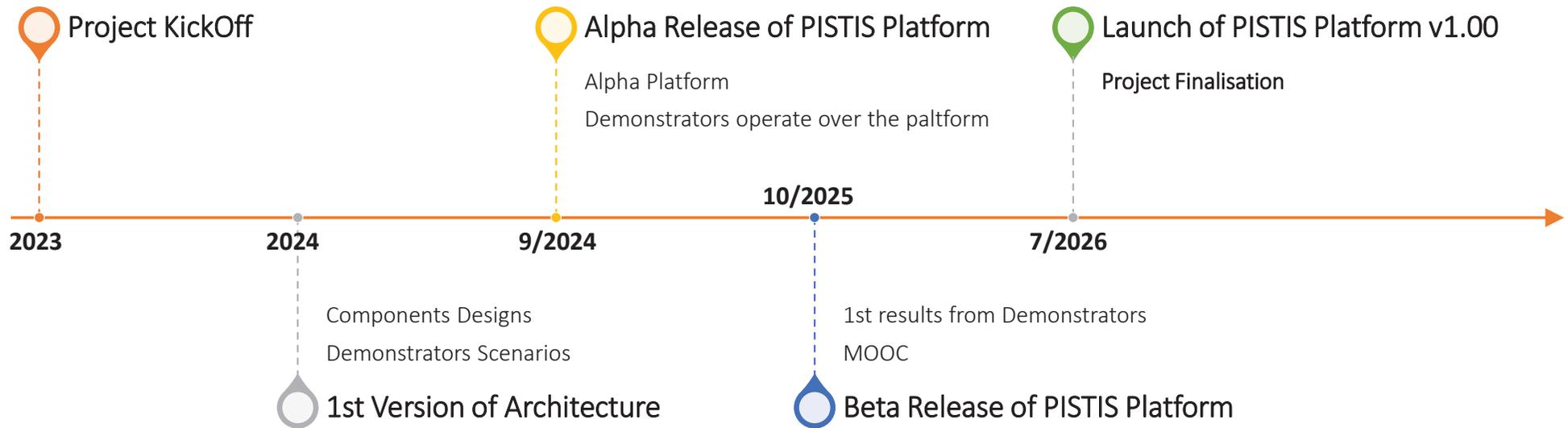


Connected Car Data

Corporate Mobility Management



PISTIS Timeline



THANKS FOR
YOUR
ATTENTION. ■

Yury Glikman

Yury.Glikman@fokus.fraunhofer.de
<https://www.pistis-project.eu>



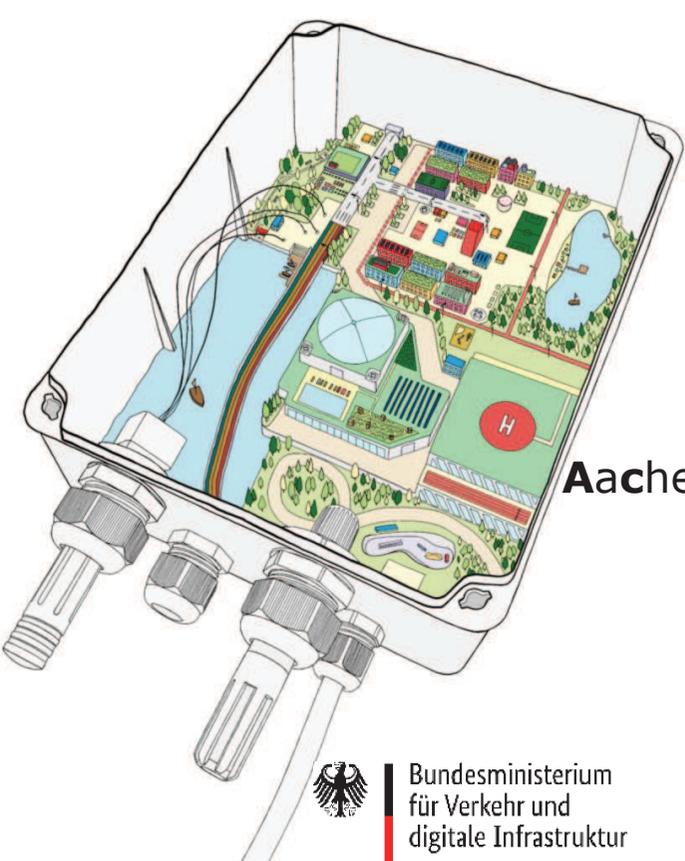
Funded by the
European Union



Ac-DatEP

Aachener **D**atenpool für technische **E**ntwicklung und **P**lanung auf Basis von zeitlich und örtlich hochaufgelösten Messdaten

29.04.2025



Bundesministerium
für Verkehr und
digitale Infrastruktur



FH AACHEN
UNIVERSITY OF APPLIED SCIENCES



General project information



- **Titel:** Aachener **D**atenpool für technische **E**ntwicklung und **P**lanung auf Basis von zeitlich und örtlich hochaufgelösten Messdaten
- **Time frame:** 01/22 – 03/25
- **Volume:** 1.204.000 €
- **Partners:** 1 city, 3 industry partners and 2 institutes
- **Grant:** mFUND (Modernitätsfond) by BMVD



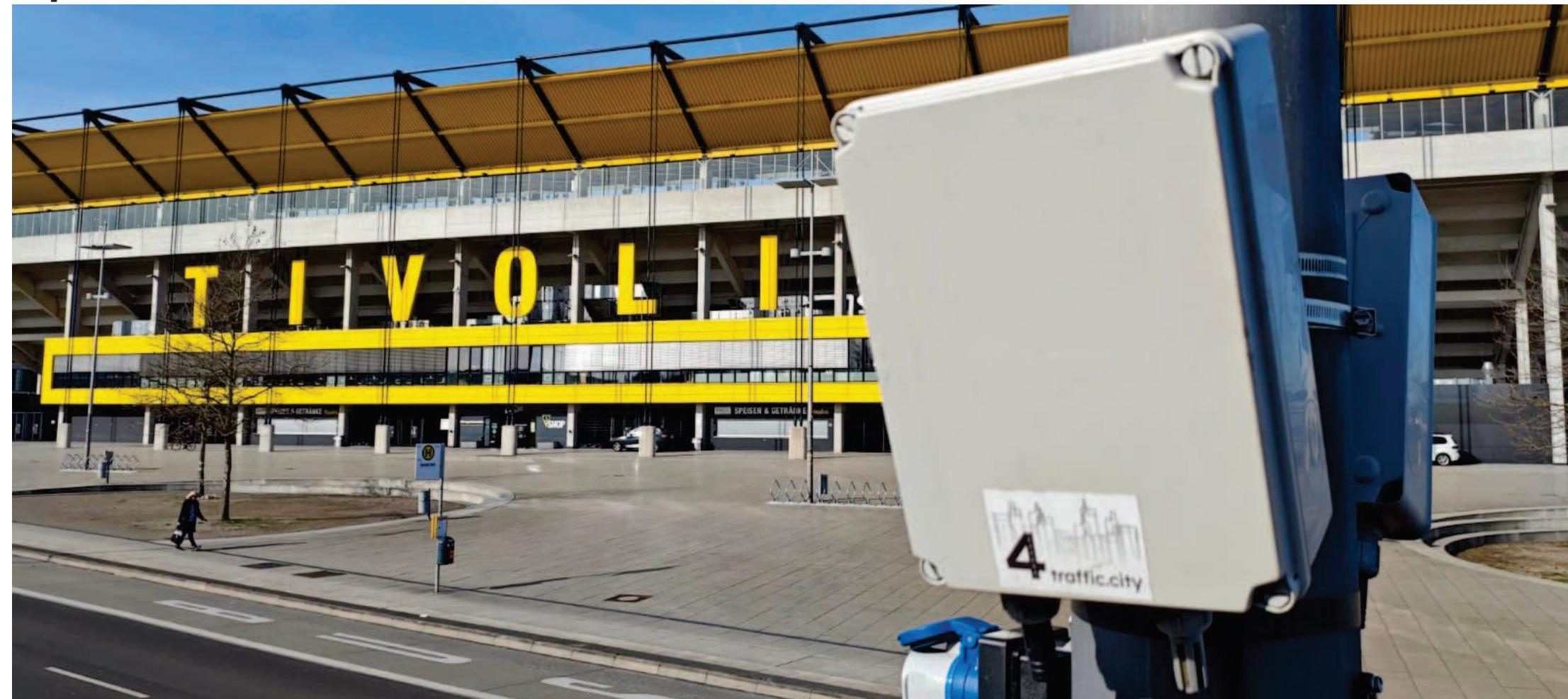


- **How can we implement a data collection strategy efficiently?**
- **Which innovative usage concepts and applications can be identified on the basis of the data obtained?**
- **How can the knowledge and methods gained be disseminated regionally?**

4

Innovation

Large-scale real-time measurement of mobility data and environmental parameters

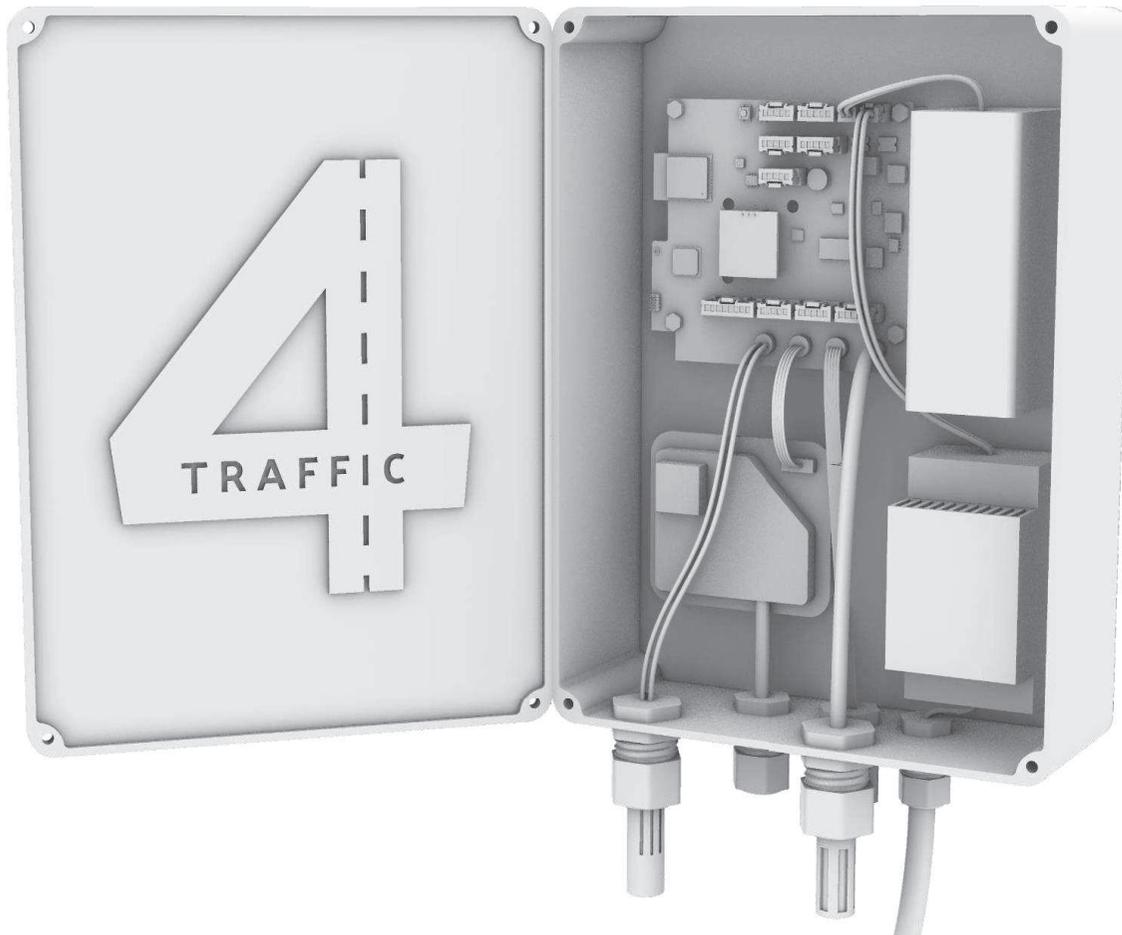


11. März 2022



- **Data linking, publication in OpenData Pool and visualization**
- **Identification of innovative applications**
- **Implementation of exemplary applications (use cases)**
- **Drafting a guideline for a municipality and a roadmap**

Technical Solution Challenges

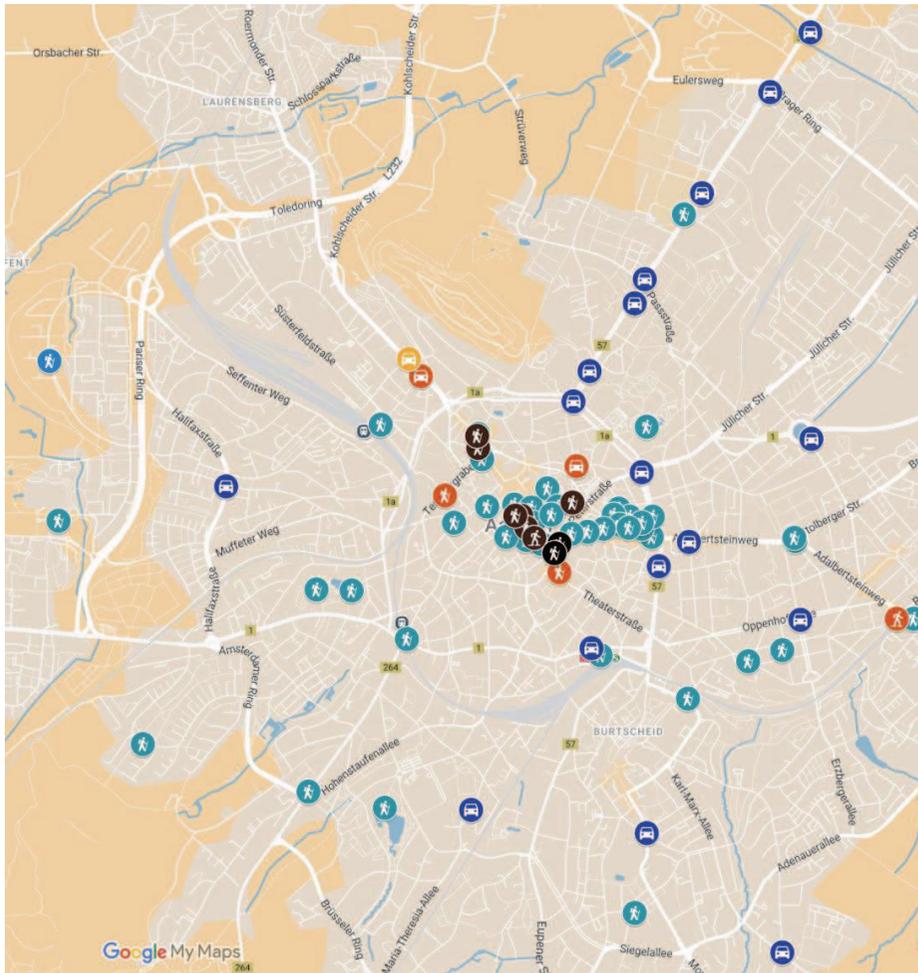


During Project:

- Keep it state of the art
- Development of three different kind of Smart City Sensors (use case driven)
- Development of three revisions of our main Dectorbox with all Sensors included
- Maintain Hard- and Software

Technical Solution

Overview of locations and key figures



Detectorboxes: 120
Sensors: 546

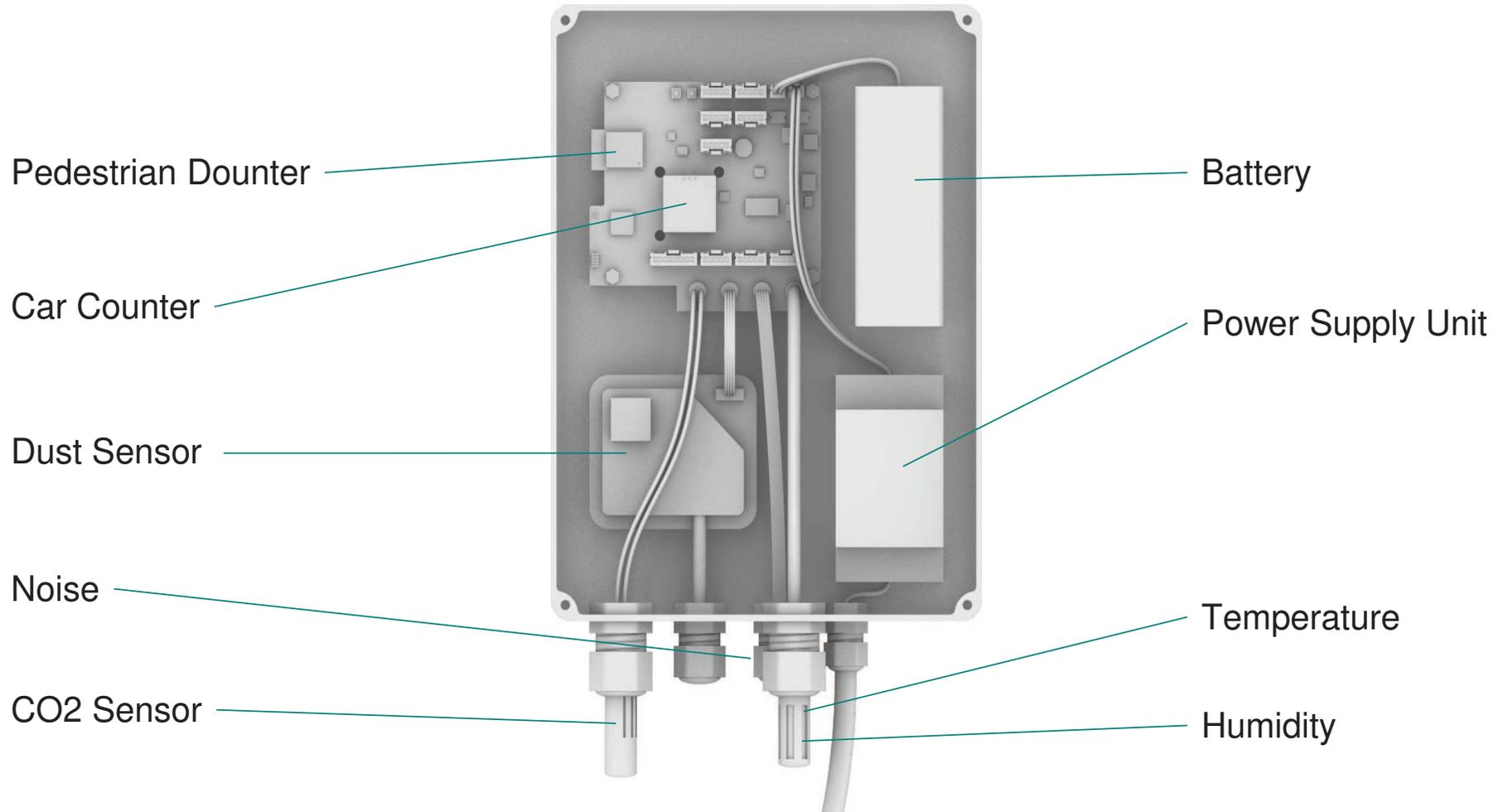
Places
Shops: 40
Roadside: 20
Inner city: 60

Challenges

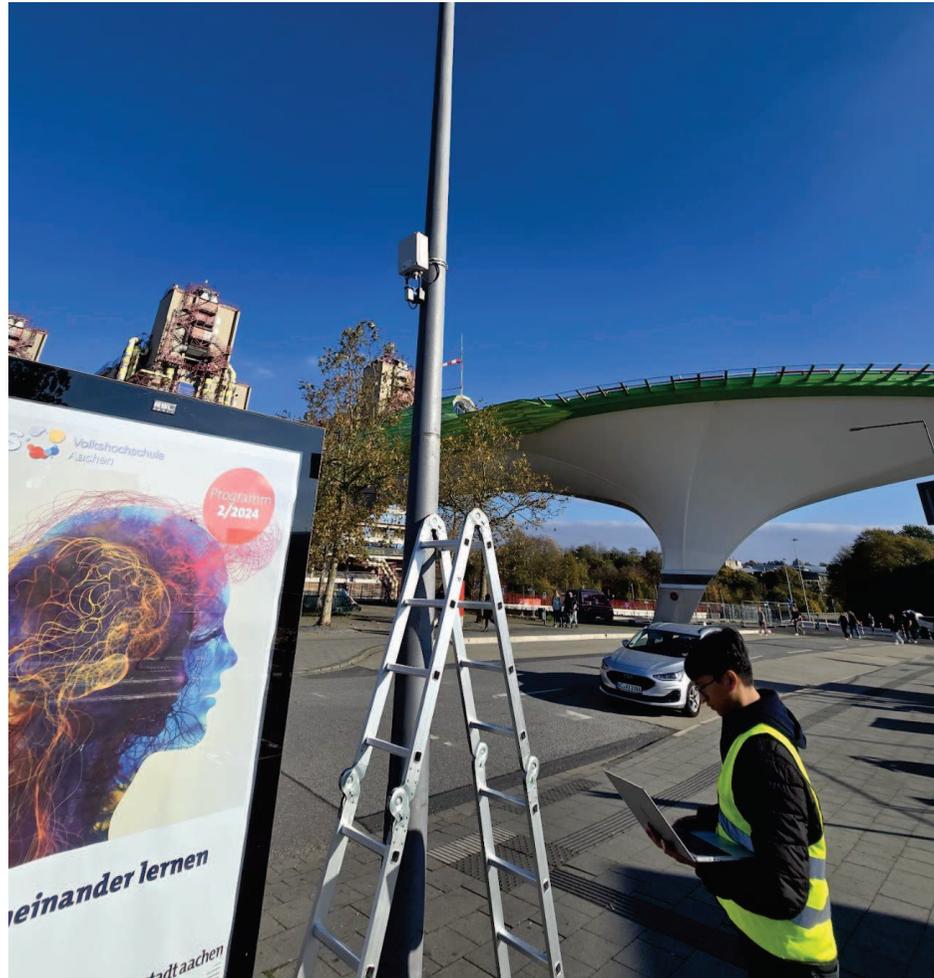
- Find right places and possible spots for deployment
- Find the right people of interest for permitting, installation and infrastructure operators
- Mounting, commissioning and maintenance
- Software development and updating for all detectorboxes

Technical Solution

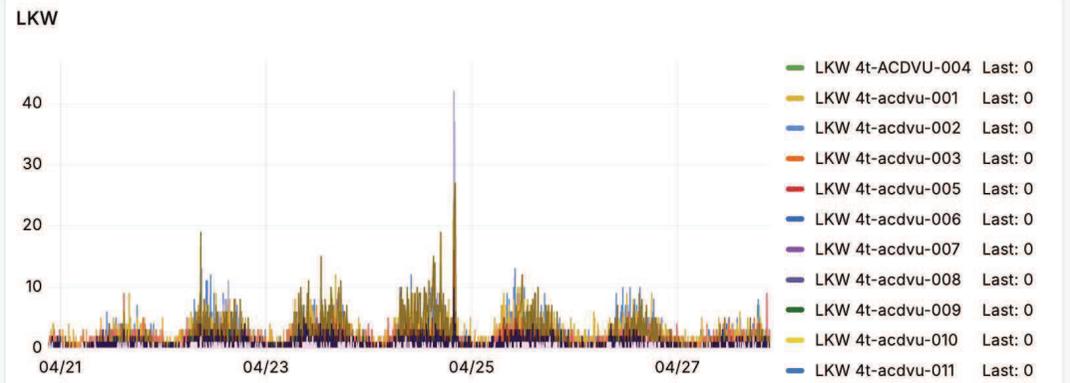
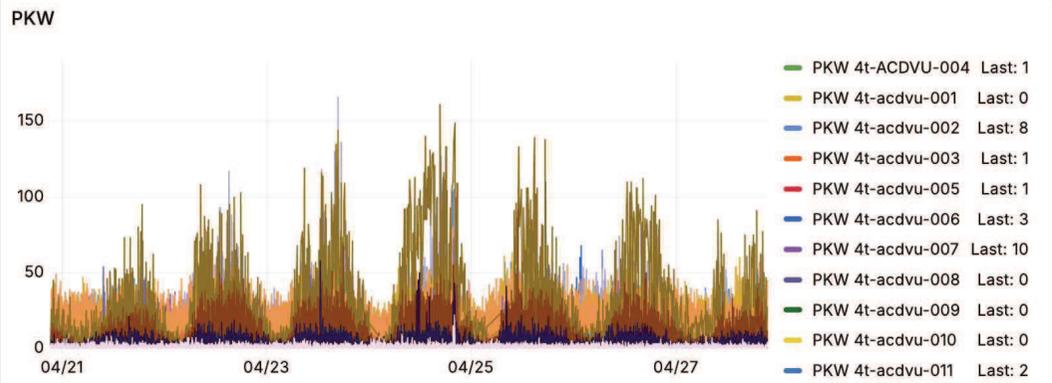
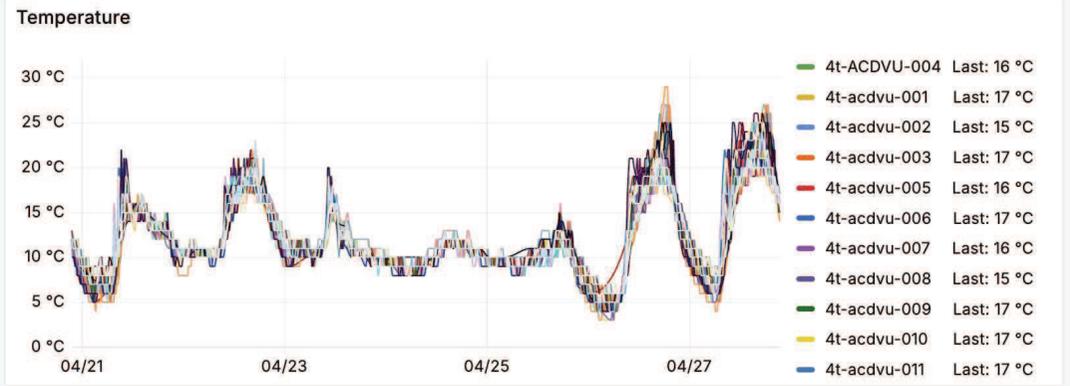
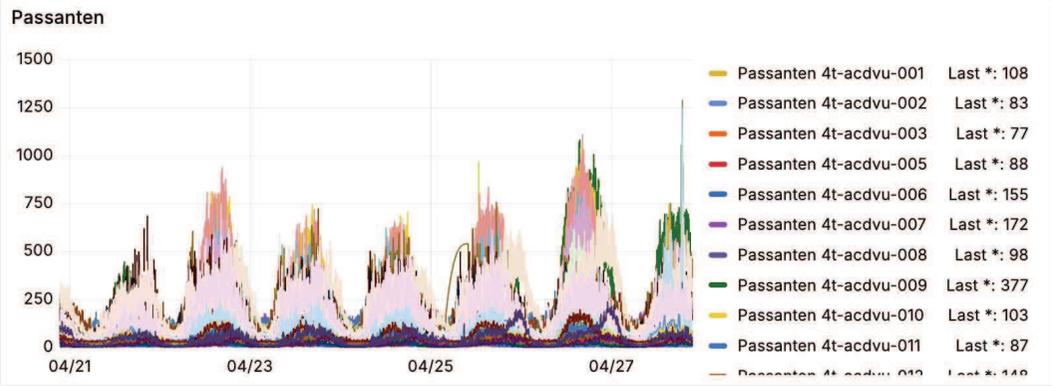
Overview of full equipped Detectorbox



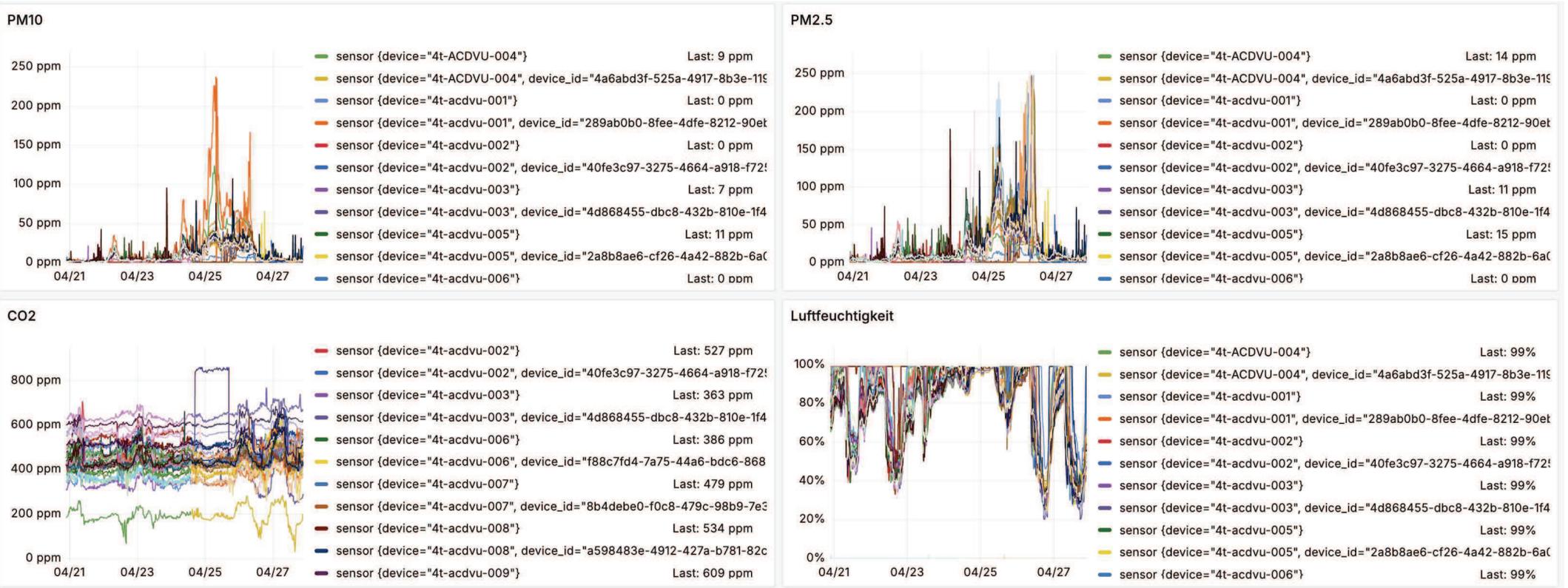
Technical Solution Installations in urban environment



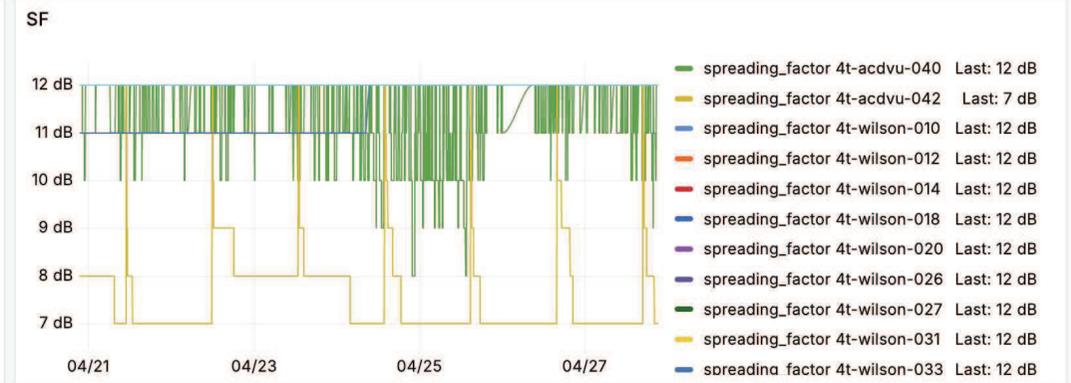
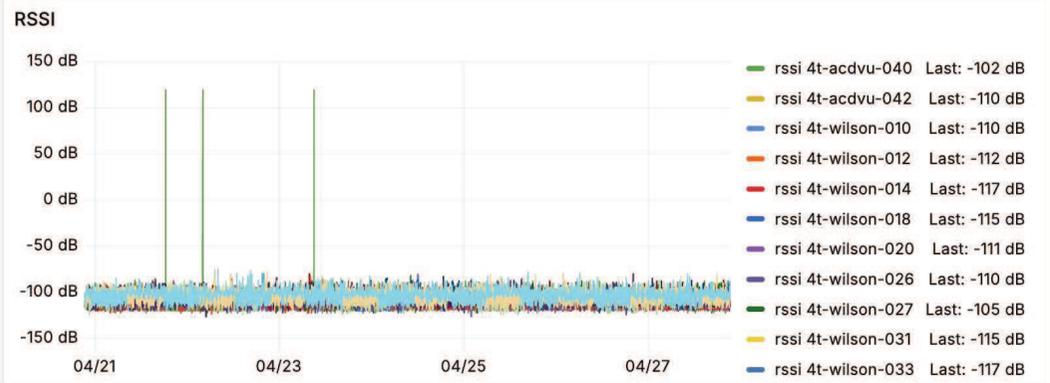
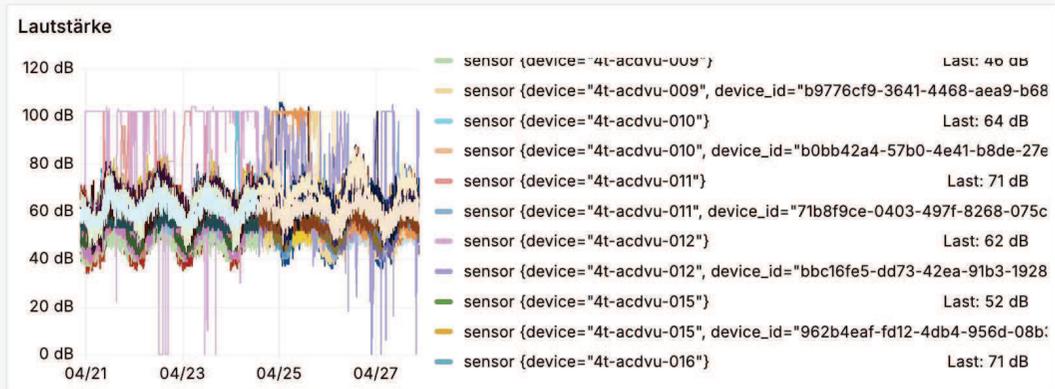
Technical Solution Maintenance Dashboard



Technical Solution Maintenance Dashboard



Technical Solution Maintenance Dashboard



Workshops

- Fußgängerverkehrsdaten (Mai 2022)
- Umweltdaten (November 2022)
- Radverkehrsdaten (Mai 2023)
- Gewerbetreibende und Stadtplanung (Mai 2023)
- Kraftfahrzeugverkehr (November 2023)
- Shared Mobility (Mai 2024)

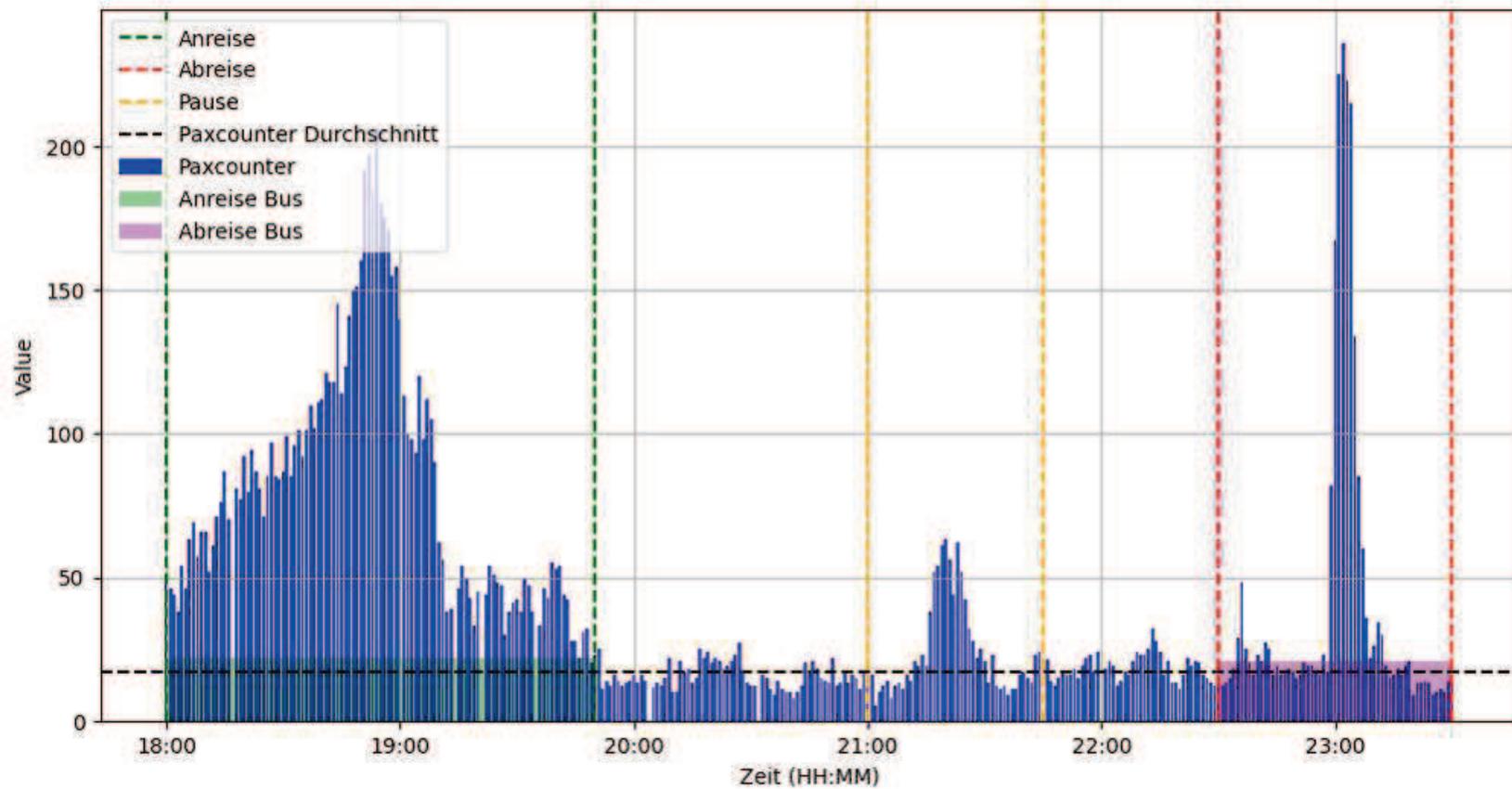
Datenquelle	Anwendungsfall												
	AW1	AW2	AW3	AW4	AW5	AW6	AW7	AW8	AW9	AW10	AW11	AW12	AW13
Wetterdaten	x		x	x	x	x	x	x	x	x	x	x	x
Temperatur	x												
Niederschlag			x	x	x	x	x	x				x	x
Nebel				x	x	x							x
Luftfeuchtigkeit	x												
Luftdruck	x												
UV-Strahlung	x												
Sonnenstunden							x			x	x		
Glare													
Windrichtung				x	x	x					x		
Windstärke							x	x			x		
Umweltdaten	x		x						x		x	x	x
CO2			x			x			x		x	x	x
Feinstaub			x			x			x		x	x	x
Pollenbelastung	x												
Lärmpegel	x		x								x		
Bodenfeuchte									x				
Nährstoffgehalt									x				
Laub													x
Verkehrsdaten		x	x	x	x	x		x			x	x	x
Kraftfahrzeugverkehrsströme		x	x	x	x	x		x			x	x	x
Radfahrerverkehrsströme		x		x	x	x					x	x	x
Fußgängerverkehrsströme		x	x	x	x	x		x			x	x	x
Baustellen		x									x		
Umleitungen		x									x		
Spernungen		x									x		
Staus		x									x		
Verweildauer			x								x		
Frequenz													x
Liefer-, Lade- und Haltezonen			x										
Unfallstatistiken						x							
Fußlänerzonen													x
Parkmischzonen													x
Geschwindigkeiten							x						
Raumzeitpunkte													x
Geografische Daten	x	x	x		x		x	x	x		x	x	x



Use-Cases: Event Monitoring



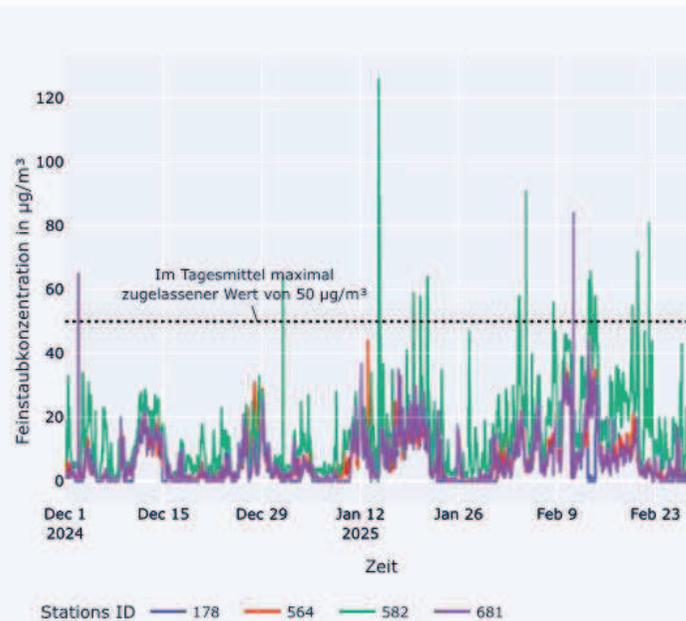
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LUFTQUALITÄTSBERICHT - Aachen

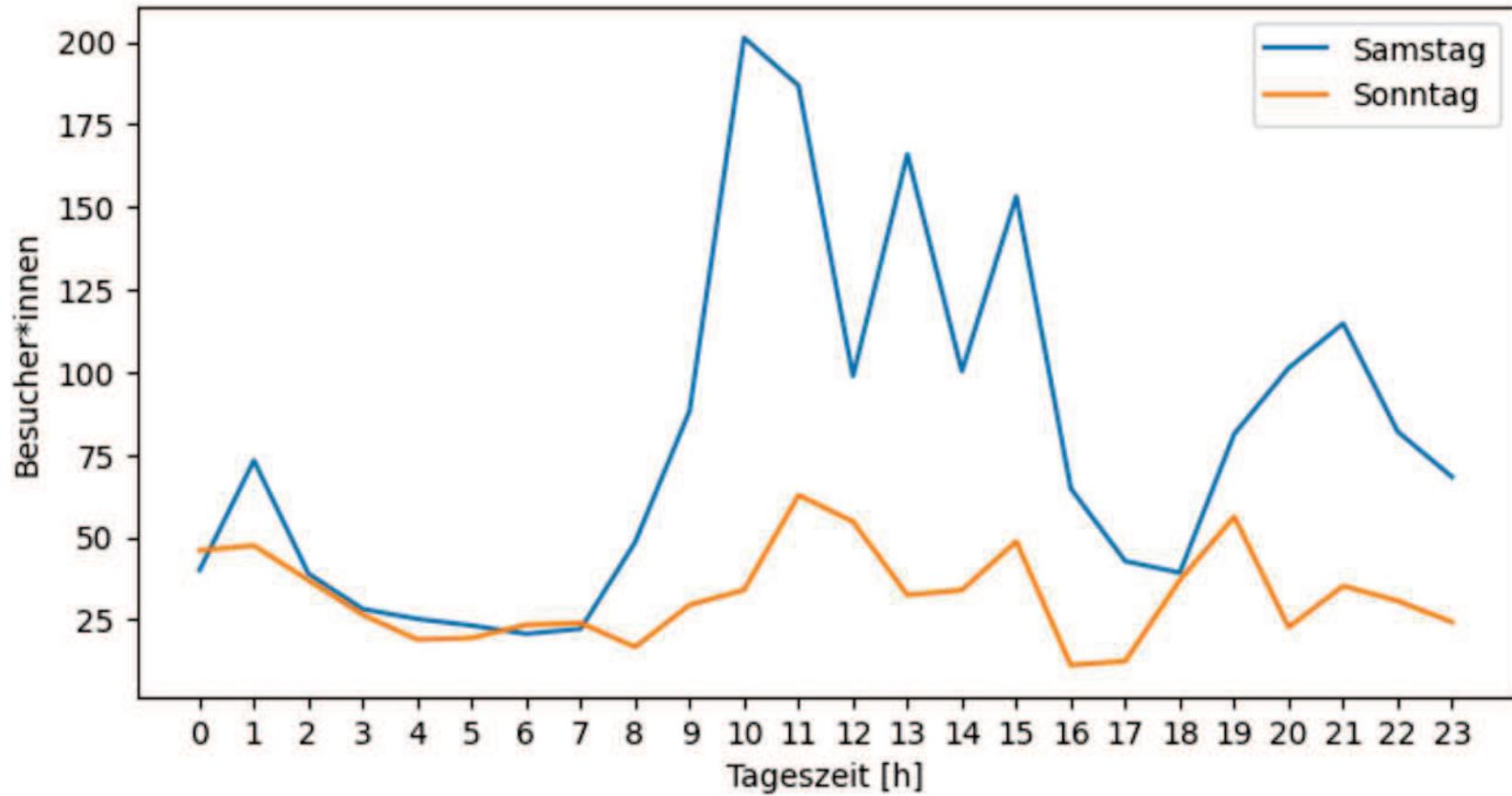


Feinstaubbelastung (PM10) im Zeitverlauf

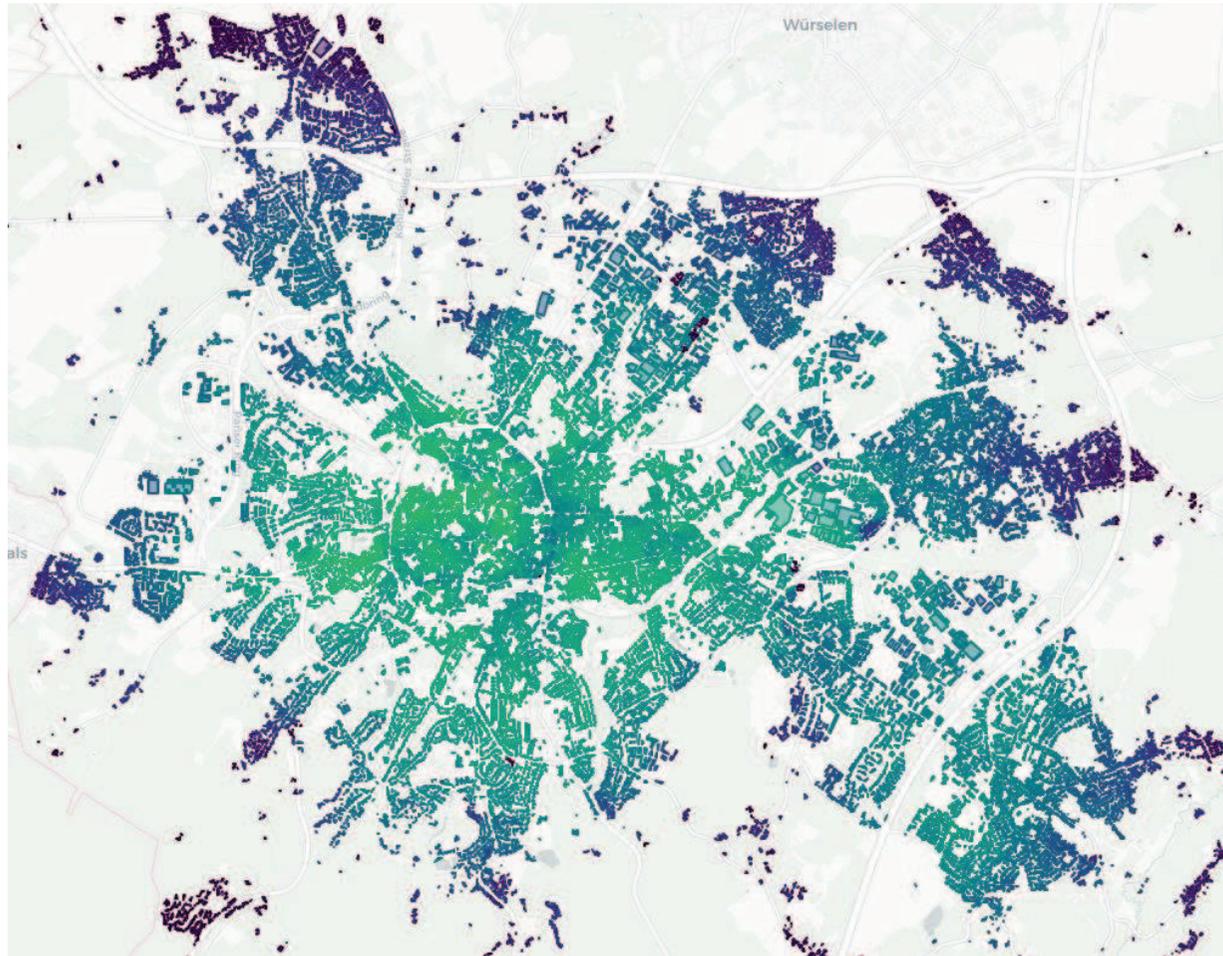


Die Grafik zeigt den zeitlichen Verlauf der Feinstaubbelastung (PM10) an allen Stationen im Berichtszeitraum. Der Grenzwert von $50 \mu\text{g}/\text{m}^3$ wird insgesamt 37 Mal überschritten, jedoch liegt der Tagesmittelwert stets unter $50 \mu\text{g}/\text{m}^3$. Somit wird die "TA-Luft" (Technische Anleitung zur Reinhaltung der Luft) während des Berichtszeitraums eingehalten.

Use-Cases: Retailer Information



Use-Cases: Bikeability



Use-Cases: Retailer Information



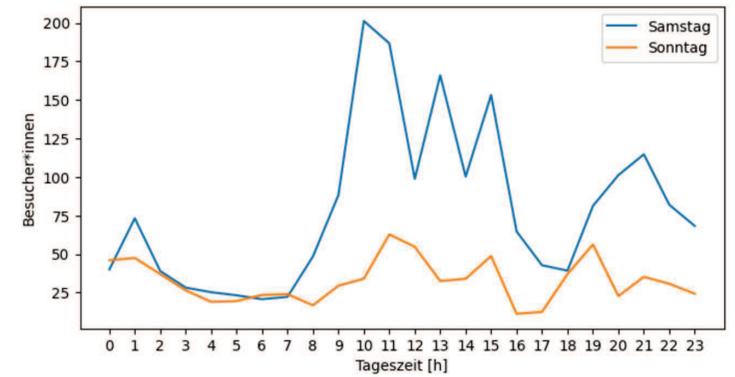
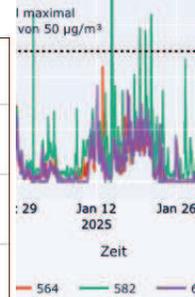
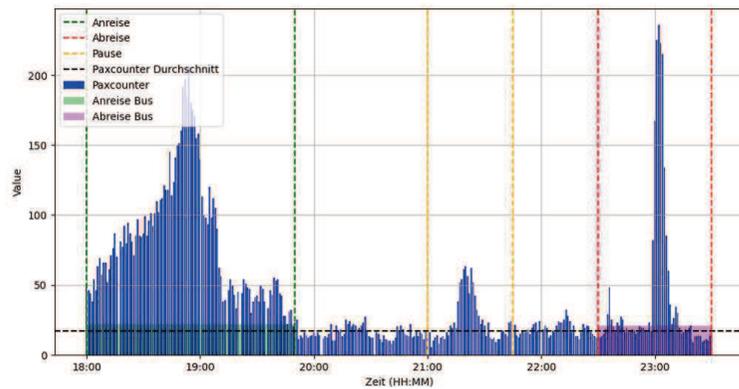
LUFTQUALITÄTSBERICHT - Aachen



Feinstaubbelastung (PM10) im Zeitverlauf



Paxcounter 2, name: 4t-wilson-073, info: Jaques-Königstein-Promenade





LEITFADEN FÜR DATENGESTÜTZTE INTEGRIERTE MOBILITÄTSPLANUNG: NUTZUNG KONTINUIERLICHER DATEN

Aachener Datenpool für technische Entwicklung und Planung auf Basis von zeitlich und örtlich hochaufgelösten Messdaten (Ac-DatEP)

Learnings



- Start with a problem
- Discuss maintenance cost upfront
- Pivot if you fail



Federal Ministry
for Digital
and Transport



Workshop series

DRIVEN by DATA

The mFUND Workshops Series about Mobility in Europe

24.06.2025

**12:30 – 14 h
(CET)**

Workshop No. 17

Two Wheels Ahead: The Future of Cycling Infrastructure in Europe

Registration: <https://tuvrheinland.webex.com/weblink/register/r8d2437463f0056712e5872a12fef5546>

Federal Ministry for Digital and Transport

Division DP 20



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