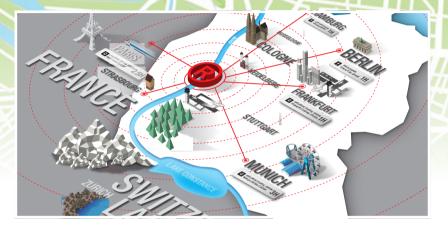




# TechnologieRegion Karlsruhe GmbH



Public authorities have joined forces with businesses, chambers of commerce and scientific institutions to form the TechnologieRegion Karlsruhe GmbH.

Together we are shaping the development of the region with the aim of strengthening and promoting it as a hub for business, science and innovation. Our focus is very much on the themes of mobility, energy, bioeconomy and IT. Projects are initiated on a real-lab scale through the strategic networking of partners from business, science and the public sector. The TechnologieRegion Karlsruhe GmbH acts as an innovation platform, coordinates the efforts of the different actors and contributes to co-financing.

### www.trk.de/en

#### **Facts and figures**

- Around 1.7-million people living within an area of 6,000 km<sup>2</sup>
- Working population of 675,000
- Around one-third of the labour force work in technology-intensive industries
- Economic output regularly above the national average<sup>1)</sup>
- Regional GDP risen to more than € 60 billion in recent years





Jochen Ehlgötz Managing Director TechnologieRegion Karlsruhe GmbH

Through its partners, the Karlsruhe Mobility Lab powered by TechnologieRegion Karlsruhe GmbH (TRK) has developed into a globally recognised centre of intelligent concepts in urban and regional mobility. In a unique ecosystem, science, industry, the public sector and innovative transport companies work together on interdisciplinary approaches for sustainable and user-friendly mobility. In this unique climate of innovation, ideas for tomorrow's mobility are being created, put into practice, analysed and tested. The TRK paves the way for lighthouse projects and assists in the search for co-funding.

A major focus of the Karlsruhe Mobility Lab is on continuously developing local public transport and new mobility concepts. As a hub of research, the Karlsruhe region offers a unique density of mobility-related institutions. Together, all actors contribute to the mobility revolution worldwide.

On the following pages, we will show you solutions made in Karlsruhe contribute to the future of mobility and new concepts of urban living.

Yours sincerely Jochen Ehlgötz

# **Karlsruhe Mobility Lab**

powered by Karlsruhe TechnologyRegion

### Hub for intelligent urban and regional mobility concepts

The Karlsruhe Mobility Lab powered by Karlsruhe TechnologyRegion is a globally recognized Centre for the development of intelligent concepts for the urban and regional mobility of the future. A major focus of its innovation efforts is on the further development of local public transport and the development of new mobility concepts - both essential for the mobility transition. The Karlsruhe Mobility Lab is a pioneer in sustainable mobility development.

In the unique ecosystem of the Karlsruhe TechnologyRegion, science, business, the public sector and innovative transport companies work together on interdisciplinary approaches. In the region, public transport and new mobility concepts are developed, put into practice, analyzed and tested with the public. This sense of community is a driver of the region's strong innovative power.

Politics and science are also focusing on this unique climate of innovation: the region is home to state institutions such as the Baden-Württemberg Institute for Sustainable Mobility and a branch of the German Center for Future Mobility (DZM).

on-demand mobility

data & artificial intelligence





last mile

multimodal transport planning

automated mobility systems

multimodal logistic solutions

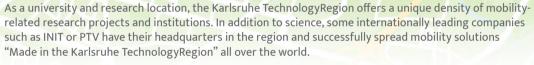














Much has already been achieved in the Karlsruhe Mobility Lab, e.g. a convenient mobility platform that integrates individually usable means of transport such as car and bike sharing as well as intermodal traffic control, via autonomous first/last mile services in on-demand traffic, cross-border mobility solutions, a large-scale network of cycle paths and innovative high-speed cycle routes, and last but not least the Karlsruhe Tram Train Model, which has attracted worldwide attention.



modelling & simulation & gamification e-mobility

PT networks optimization & operation







## **KIT Mobility Systems Center**

**Seamless Mobility for Future Public Transport** 





The KIT Mobility Systems Center pools the vast competencies and resources in the field of ground-based traffic to develop trans- and multi-disciplinary solutions for tomorrow's mobility. With our activities, we aim at the best possible integration and coordination of different means of transport for passenger and goods and the dissolution of border between them in a concept of Seamless Mobility. Further development of key technologies, such as alternative drive systems, lightweight construction, and energy efficiency, are on the scientific agenda of the KIT Mobility Systems Center. About 800 KIT employees at more than 35 institutes focus on mobility research at KIT.

www.mobilitaetssysteme.kit.edu



1

Region Karlsruhe

**KIT Mobility Systems Center** 

Future Mobility Solutions and Accelerator Technologies are main topics for the System of System-oriented research at the KIT Mobility Systems Center. Projects like auto-TRAM, LogIKTram or TEMPUS, to name just a few, are worked on in interdisciplinary teams and developed further in an transdisciplinary dialogue with stakeholders and society. Automated operational functions, usage scenarios, innovative vehicle concepts and logistics applications in and for road-bound and rail-bound Public Transport are our main research area.



## **Evaluation of Mobility Solutions**

Karlsruhe Institute of Technology (KIT) - Institute for Transport Studies





With an interdisciplinary concept, the research of the KIT Institute for Transport Studies consists in making transport efficient and sustainable. We analyze and forecast the impact of new mobility solutions on the travel behavior with a holistic view of the transport sector.

The effects of, for example, the regiomove Ports or of the MOIA ridepooling service are simulated with our agent-based travel demand model mobiTopp. Furthermore, we are working on evaluation of automated public transit systems, such as shown in the KIRA project.

www.ifv.kit.edu www.mobitopp.net

# **KAMO: Karlsruhe Mobility High Performance Center**

A collaboration between the institutions for research, development and education.

The transition in mobility has many facets. Sustainability, individuality and independent travel must be harmonized and implemented with the technical possibilities of mechanical engineering, computer science and electrical engineering. Interdisciplinary solutions are required in order to develop demand-oriented mobility offers.

Since 2016, the institutions for research, education and transfer in Karlsruhe, Germany have been working together on innovative mobility solutions:

- Karlsruhe's four Fraunhofer-Instituts ICT, IOSB, ISI, IWM
- Karlsruhe Institute of Technology (KIT) with its KIT Mobility Systems Center,
- FZI Research Center for Information Technology and
- Karlsruhe University of Applied Sciences (HKA).

Along with our international clients and partners from industry, research and civil society, innovations are brought into application quickly and reliably.















## **H2Rhine-Neckar**

Showcase for fuel cell mobility

The state-run project H2Rhine-Neckar, which is funded with €16.55 million from the Strategic Dialogue for the Automotive Sector in Baden-Württemberg, focuses on emission-free local public transport in Mannheim and Heidelberg. Here, the entire fleet of 40 articulated buses is being replaced by fuel cell range extender buses. To supply the buses with the necessary hydrogen and electricity, the corresponding infrastructure is being built at the depots. Besides the investments, the technical and economic challenges of a fleet conversion are researched as well. The findings from the accompanying research will contribute to the transformation towards emission-free mobility.



© e-mobil BW/KD Busch

www.mobilitaetssysteme.kit.edu/PTRH.php www.h2rivers.de

## **DAKIMO Project**

Region Karlsruhe

Data and AI as Enablers for Sustainable, Intermodal Mobility



KW.nextbike availabilities
2022-08-18, from 20:00

KAMO

KARLSRUHE MOBILITY
HIGH PERFORMANCE CENTER / PROFILERGION

KARLSRUHE Palace

The DAKIMO project aims at supporting seamless intermodal, sustainable mobility using AI. The project is funded by the German Federal Ministry of Education and Research (BMBF). It joins Fraunhofer IOSB, raumobil GmbH, INIT GmbH, INOVAPLAN GmbH, the Karlsruhe Institute of Technology (KIT), and the Karlsruhe public transport provider KVV, and is part of the KAMO Karlsruhe Mobility High Performance Center.

Al methods fuse data from users, municipalities, public transport, weather, etc., such that various services can improve intermodal traffic options in real time – e.g. by providing more versatile and reliable routing recommendations on the "KVV.regiomove" public transport app.

www.kamo.one/dakimo

## Deutsches Zentrum Mobilität der Zukunft (DZM)

The German Center for Future Mobility (DZM) is an initiative to connect the mobility research locations in Hamburg, Annaberg-Buchholz, Minden and Karlsruhe. The center is funded by the German Federal Ministry for Digital and Transportation. Research is being conducted at the facilities in the areas of autonomous public transport (rail and road), digitalization and connectivity. By networking the scientists, synergies are leveraged and ideas are jointly developed.



© KAMO

## **InnovationCampus Future Mobility (ICM)**



# Cutting-edge research into sustainable mobility and production of tomorrow

The transport systems and production techniques of the future need to be sustainable and efficient. This will require breakthrough technologies – from innovative vehicle drives to versatile production processes. The goal of the InnovationCampus Future Mobility (ICM) is to shape this change. In the ICM, the Karlsruhe Institute of Technology (KIT) is combining its world class research and innovation teams with those of University of Stuttgart to develop new technologies quickly and flexibly, testing new approaches, and creating the basis for a wide range of innovations.

#### **Facts and figures**

- More than 300 researchers
- More than 60 research institutes
- Involved in over 150 research projects
- Funded by the Baden-Württemberg Ministry of Science, Research and Arts since July 1, 2019.



www.icm-bw.de/en

## **Our Research Fields**

The ICM focuses on cross-disciplinary application-oriented basic research in three research fields:

- Manufacturing Systems
- Mobility Technologies
- Software-System-Architectures

#### www.icm-bw.de/en/research/research-fields

#### Project OTrace: Over the Air Communication for sustainable Energy Management of Fleets

OTrace aims to enhance the range of electric vehicles, exemplified by city buses, by leveraging cloud-based data analysis. By pooling vehicle data and external sources, energy-saving potentials are identified, reducing consumption and increasing vehicle range. This approach also enables outsourcing of learning processes to the cloud, reducing vehicle costs through minimized onboard computing.



#### Project FC-Bat-Truck-Lab: Fuel cell-battery hybrid truck

In the project, a fuel cell-battery hybrid truck is being developed and constructed to serve as a mobile laboratory for studying fuel cell and battery systems under real-world driving conditions. The modular design allows for individual exchange of the fuel cell, hydrogen storage, and battery systems, facilitating testing of various hybridization configurations in different infrastructure contexts.

www.icm-bw.de/en/projects/project-overview

# FZI Research Center for Information Technology



As an independent and non-profit research foundation, the FZI Research Center for Information Technology delivers the latest scientific findings in information technology to companies and public institutions. One of the central research fields is mobility research: together with partners from industry and science, software and hardware solutions for mobility and transportation concepts for vehicles and autonomous mobile systems of future generations are developed, researched and evaluated.

#### **Facts and figures**

- Legal form: non-profit foundation under civil law
- Foundation: 1985
- 255 employees
- 152 research assistants
- •Overall budget in 2022: €26.5 million
- 219 projects in 2022: 92 industrial projects, 127 public projects
- Duration of projects: 0.5 to 63 months (as of 2022)



## **FZI Shuttle**

# Stepping ahead on the last mile with connected and automated minibuses

The FZI Research Center for Information Technology is stepping ahead on the last mile. With connected and automated minibuses, the FZI is breaking free from the virtual rail constraints. The FZI-Shuttles are able to autonomously navigate obstacles without the need for safety operator intervention. Thanks to the smart infrastructure of the Test Area Autonomous Driving Baden Württemberg (TAF BW), the communication to the control center facilitates the V2X standard for position and diagnostics data.

This concept has already been successfully tested and implemented in a peri-urban area of Karlsruhe. During the SHOW project, a nine-month public on-demand trial period show-cased this concept.



## **V&V** of Autonomous Shuttles



Easing V&V through guided explorative simulations and anonymized sensor data





At the FZI Research Center for Information Technology, we automate the creation of 3D scenes for urban traffic simulation, e.g. for testing autonomous vehicles. At the stand, we will demonstrate the seamless transition between real-world and virtual testing to validate the cooperation of automated shuttles with the intelligent infrastructure of the Test Area Autonomous Driving Baden-Württemberg. Our focus is on camera-based environmental perception validated with both real-world and virtual camera data. For the real-world camera data, we present a tool for automated anonymization. This involves the substitution of personalized features to preserve privacy but also to preserve image quality.

www.anymos.de www.vvm-projekt.de

# Test Area Autonomous Driving Baden-Württemberg

Digital traffic infrastructure or CCAM operations

The Test Area Autonomous Driving Baden-Württemberg (TAF BW) enables the research of a digital traffic infrastructure, especially to support cooperative, connected and automated mobility solutions (CCAM). It offers a realistic environment to test and evaluate innovative technologies under real traffic conditions. TAF BW enables the testing and further development of autonomous vehicles and systems to make future mobility safe, efficient and sustainable. Playing a central role, a control desk enables the efficient assistance of autonomous vehicle fleets through the intelligent visualization of infrastructure data. It also coordinates the various technological components and participants in the test area.



## regioKArgoTramTrain



Sustainable freight and passenger transport using KArgoTramTrains







© Bildquelle: AVG/Paul Gärtner

regioKArgoTramTrain addresses the increasing demand for logistics services and mobility services as well as transportation infrastructure while living spaces are becoming more limited as a result of urbanization and a rise in e-commerce sales.

A concept for dual use of rail infrastructure and vehicles for both, passenger and cargo transport, will be developed. New technological opportunities of automation and digitalization are addressed by automated stopping and starting at platforms with the help of Artificial Intelligence. A living lab to demonstrate the developed system will be carried out in 2027.

The Karlsruhe Model (TramTrain Model) can therefore be used to implement cross-district cargo flows and thus also generate mobility-improving impulses for sustainable, ecological and economical regional development.







## LogIKTram

An innovative and environmentally friendly transport system to relieve road traffic





Increased retail and household deliveries strain road infrastructure and residents. A radical shift in freight logistics is vital for eco-friendly and efficient transportation.

The LogIKTram project develops a logistics concept and information and communication technology (ICT) platform for future freight transport via streetcars and light rail. This aims to shift haulage from road to rail, creating an innovative, eco-friendly urban and regional supply system.

LogIKTram collaborates closely with the regioKArgo community for long-term implementation.

### logiktram.de





Upscaling Innovative Green Urban Logistics Solutions
Through Multi-Actor Collaboration and Physical Internet (PI) –
Inspired Last Mile Deliveries

到RBANE

URBANE's goals are part of the wider European Commission's goals towards achieving "zero emission last-mile deliveries", as components of the European Green Digital Coalition and the European Climate Pact goals.

The project will support the transition path towards effective, resilient, safe, and sustainable last-mile transport, through four Lighthouse Living Labs (LLs): Helsinki (FI), Bologna (IT), Valladolid (ES), and Thessaloniki (GR), that will demonstrate efficient, replicable, and socially acceptable innovative last-mile delivery solutions (Wave 1 solutions), building on existing assets.

Hands-on lesson learning at the European level will be primarily facilitated by an Innovation Transferability Platform comprising Digital Twinning Tools, open models, smart contracts governed by blockchain technology, and a data-driven Impact Assessment Radar that will

enable the adaptation and replication of Wave 1 solutions in two Twinning LLs in Barcelona and Karlsruhe (Wave 2 LLs), demonstrating their solutions within the course of the project.

URBANE's commitment to upscaling is further strengthened by the engagement of six early adopters (Follower Cities – Aarhus (DK), Antwerp (NL), La Rochelle (FR), Mechelen (BE), Prague (CZ), and Ravenna (IT)) in innovations' adoption feasibility studies, thus stimulating the formulation of new Living Lab communities across Europe.



With the LastMileCityLab (LMCL) – experience space for urban logistics – as the RegioWIN 2030 lighthouse project of Karlsruhe TechnologyRegion, a unique real laboratory was created as an experience space for logistics and transport in urban areas. The "Last Mile City Reallabor" area is being created on the topic of logistics and transport on the "last" and "penultimate" mile with the "Mobile Postoffice", the further development of the efeu robot vehicles and the use of heavy load drones. "World innovations made in Baden Württemberg" are being shown in the city of Bruchsal as solutions for municipalities. The "LMCL Akademie", a part of the "LMCL Bruchsal" activities, offers learning and experience spaces in which municipalities, companies and the interested publics can gain deep insights into innovations and into the practice of urban freight logistics.



















regi**o** 

regiomove is a pioneer project. Its goal: Connecting the existing public transportation network with new mobility services and the communities in the area. No matter if tram, train, bus, bike, e-scooter, on-demand-shuttle or car sharing. No matter if rural or urban.

The regional cross-linking is carried out using two fundamental components: The ports and the app. At regiomove ports people can easily connect their journey with tram, bus, on-demand-shuttles, shared bikes, e-scooters or cars. Such combined journeys are digitally connected via the regiomove App. With only one single account you can route, book and pay intermodal journeys. Furthermore, the ports may offer new service components, like digital information terminals, charging stations, locker boxes or bicycle service stations.

www.kvv.de/regiomove

# Karlsruher Verkehrsverbund GmbH (KVV)









The KVV is one of the largest public transport networks in southern Germany and the most important mobility provider within the Upper Rhine Valley, consisting of more than 20 transport companies. Albtal-Verkehrs-Gesellschaft (AVG) and Verkehrsbetriebe Karlsruhe (VBK) operate the tram and light rail within the KVV area. AVG is an elementary pillar of the "Karlsruhe Model" which is a tram-train system linking the inner-city tram network of the fan-shaped city with the rail lines in the region.

126 million passengers use this attractive public transport offers of the municipal association yearly, which was founded in 1994. The association partners are the cities and counties of the Karlsruhe region. The association includes the counties Germersheim, Karlsruhe, Rastatt, Südliche Weinstraße and the cities of Baden-Baden, Karlsruhe and Landau. KVV plans, coordinates and sells public transport services on behalf of its shareholders and the transport companies involved.

#### **Facts and figures**

- 125.8 mio. passengers in 2022
- 30 associated companies
- 15 regional S-Bahn
- 6 city and tram lines
- 225 bus lines
- 13 on-demand-shuttles
- 976.4 km route length

### www.kvv.de

## **Boost efficiency. Ensure success.**

How AI can help relieve the strain on dispatchers.







www.initse.com/KARL

Data forms the basis for AI. Whether historical or real-time traffic data, data from ticketing, timetable information or fleet management: this data is now available in great detail and has been used in INIT software solutions for several years to train algorithms during operation.

As part of the "KARL – AI for Work and Learning in the Karlsruhe Region" research project, INIT is developing an assistance system providing specific recommendations for dispatching measures and thus to ensure there are fewer traffic disruptions. The recommended dispatching measure, such as implementing a suitable diversion, can be determined using AI.

This research project is part of INITs innovation campaign "nextGen". The nextGen solutions will enable transport providers to take public transport to the next level using technologies like AI, automation, assistance systems, optimization tools and interoperability.

## **Mobility Portal**

Free information services on multimodal mobility







mobil.trk.de

The Mobility Portal run by the Karlsruhe TechnologyRegion and the City of Karlsruhe offers current information on mobility in the regions of Baden, Southern Palatinate and Northern Alsace. It serves as an essential component in the city's and the region's traffic information service and provides guidance on various questions regarding multimodal mobility, from car and cycle traffic to public transport.

The interested public can obtain information on the current traffic situation, on existing and scheduled construction sites, train and bus timetables and available parking spaces. Users benefit from free and mainly real time information services.

#### **Facts and figures**

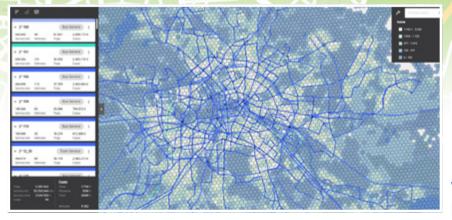
- 17 German cities, 3 French cities,
- 4 German administrative districts and the French Collectivité européenne d'Alsace
- Bus and tram stops with timetables: 25,000
- Realtime traffic situation: 4,500 kilometres
- Cycle path network: 18,330 kilometres
- Rental bike stations: 500
- Car sharing stations: 450
- Charging stations for electric vehicles: 2,600

# Digitizing public transport service planning

Smart public transport network design and timetable planning







### www.ptvgroup.com/en/ products/ptv-lines

As a service planner, you receive inquiries from different sources such as operations, marketing, or citizens regarding issues with the current public transport supply. These may include overcrowding, unstable transfer connections, or construction sites that need to be addressed in a timely manner.

PTV Lines provides a fully digitalized workflow for network design and timetable planning. With PTV Lines, you can create, duplicate,

and compare different scenarios. You can import the current supply via standard interfaces and sketch your ideas on a routable map.

GIS data can be easily incorporated to support detours or extensions of line routes. The stop sequence is updated instantly to reflect changes in run time and distance.

## **TTK - Your Mobility Expert**

Challenging and sustainable transport solutions to connect people in your territory.

TTK was founded in 1996 by the Karlsruhe TramTrain system operator, AVG (Albtal-Verkehrs-Gesellschaft mbH) and PTV Transport Consult (member of the PTV Group), a provider of demand and traffic modelling software solutions. The company was originally founded to meet the demands of local authorities for the tram-train concept and has since expanded its range of activities. Today, TTK is an expertise provider for multimodal studies and public transport planning.

Our «human scale» team of around fifty French and German employees works throughout the European continent and sometimes beyond. With offices in Karlsruhe (Germany), Paris, Lyon and Strasbourg (France), our international character allows us to offer a vision of transport and mobility enriched by multiple, and often complementary, experiences and cultures. The daily practice of knowledge transfer between France, Germany and other countries, as well as access to the feedback experience of the local operator AVG, give TTK a unique identity.



#### www.ttk.de

### **EDIH-AICS**



### **European Digital Innovation Hub applied Artificial Intelligence and Cybersecurity**

EDIH-AICS aims at advancing the vision of a secure and sustainable European artificial intelligence technology in the fields of production, mobility, energy, commerce & services as well as public administration to strengthen their competitiveness and to bring benefits to society.

The EDIH-AICS project operates as a one-stop shop and as a coordinated group of organisations with complementary expertise

in AI and CS, to meet the digital transformation needs of SMEs and PSOs (public sector organisations) in Baden-Wuerttemberg.

In EDIH-AICS the partners sustain an accelerated shift to sustainable and smart mobility. More than 500 SMEs will be informed about future potentials, collaboration with relevant actors and acting in line with the BW automotive and mobility strategy. EDIH-AICS will implement secure AI in future mobility solutions laying the grounds for 'smart mobility', supporting sustainable aspects like energy consumption / waste reduction and is closely working together with the Cluster Electric Mobility South-West.



#### **Studies and Consulting**

- •Consultancy on new concepts and technology exploration
- Concept design and assessment of alternative courses of action
- Virtual commissioning and second opinion



#### Development

- Joint development of new technologies
- •Development of dedicated solutions for special requirements



EDIH AICS.

**EUROPEAN DIGITAL INNOVATION HUB** 

**Artificial Intelligence & CyberSecurity** 

#### **Joint Research**

- Testing new technologies with IT, research and application partners
- Projects on use cases from your company

Future Mobility
Al-based technologies

edih-aics.eu

# UITP Regional Training Centre Karlsruhe







The UITP-Karlsruhe Mobility Innovation Partnership between UITP and Karlsruhe TechnologyRegion, first of its kind, exists since 2019. The partnership is supported by the TRK-UITP Liaison Office in Karlsruhe and the associated UITP Regional Training Centre Karlsruhe. Three times a year, the UITP Regional Training Centre Karlsruhe offers training programmes for public transport employees. Those programmes are: Ticketing, Bus planning and Scheduling, Cybersecurity, Autonomous Driving and Mobility as a Service.

www.uitp.org/trainings

#### **Facts and figures**

- Founded in 2019
- Hosts three trainings a year virtually or on site in Karlsruhe
- Internationally recognized trainings
- Certified UITP Trainings
- Trainings delivered by public transport experts, for public transport experts
- Interactive session
- Best practice showcases and site visits



## Messe Karlsruhe IT-TRANS | 3 – 5 March 2026

We network people, interlink knowledge and provide a stage for emotions!

As organiser of IT-TRANS, the leading international conference and exhibition for intelligent solutions in passenger transport, Messe Karlsruhe offers a platform for exchange to actively shape the future of passenger transport.

Therefore, Messe Karlsruhe is happy to announce the follow-up event in 2026, which will offer a dedicated stage to showcase future-oriented innovation and digital solutions.

With a new formed Steering, Market and Programme Committee made up of experts from industry, science and transport companies, Messe Karlsruhe identifies the latest trends and topics of the sector and takes IT-TRANS to the next level!

Join us: 3 - 5 March 2026, Karlsruhe Trade Fair Centre



Intelligent Urban Transport Systems



www.messe-karlsruhe.de/en www.it-trans.org/en



### The partners of the Karlsruhe Mobility Lab















































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