DAKIMO

Integration with the data of public transport operators

On the one hand, in this work package we aim to provide and consolidate public transport data via the fusion server in such a way that it can be used by third parties. On the other hand, we will build prototypical applications that use the intermodal data space created in the project and that enable public transport operators to optimize their services and seamlessly embed them in an intermodal mobility environment.

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Travel demand models and municipal data

In this work package, we investigate the interaction of travel behavior with environmental factors such as weather, or special events. For this purpose, existing travel demand models for research and practice are extended and adapted in such a way that this type of data can be integrated and used for planning decisions.

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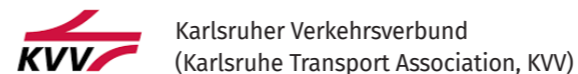PD Dr.-Ing. Martin Kagerbauer
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Associated partner

KVV — Karlsruher Verkehrsverbund (Karlsruhe Transport Association, KVV)

Project manager
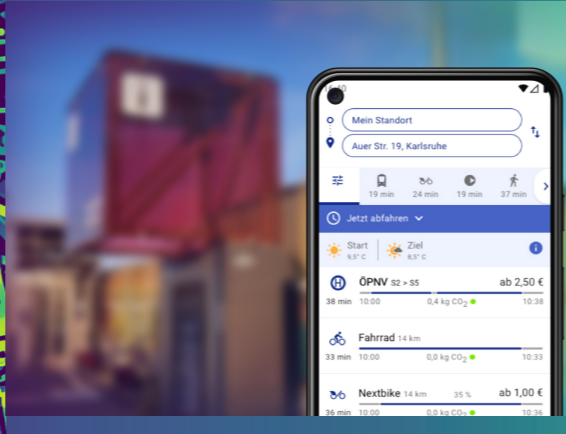
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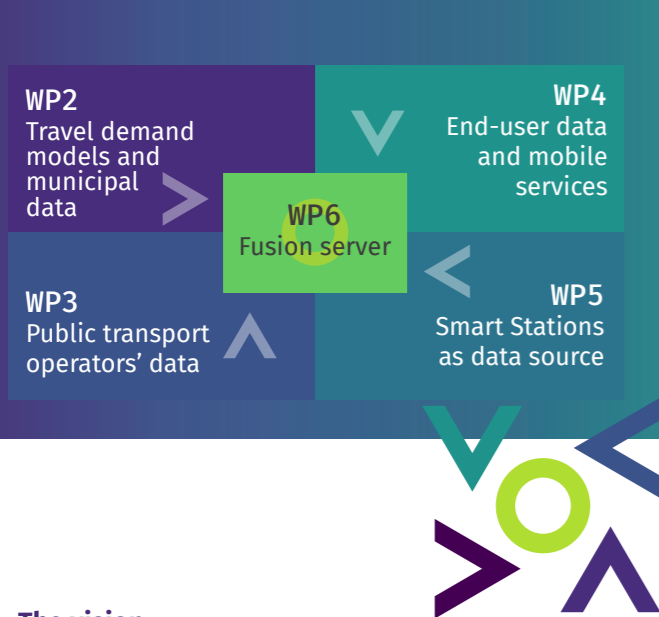jens.ziehn@iosb.fraunhofer.de

Fraunhofer IOSB

> DAKIMO research project

Strengthening intermodal mobility

– by means of intelligent planning

tools that take external data such

as weather, events, and AI-powered

load forecasts into account

https://dakimo.server.de

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WP2 Travel demand models and municipal data	WP4 End-user data and mobile services
WP6 Fusion server	
WP3 Public transport operators' data	WP5 Smart Stations as data source

The vision

More economic efficiency, sustainability, ecology and individuality: Intermodal mobility - i. e., the use of different modes of transport within a single route - has great potential. Complexity, however, must be manageable. In other words, getting to your destination intermodally, for example with a combination of (rental) bike, public transport and e-scooter, must be just as easy and pleasant as reaching for your own car keys.

The project

Since October 2021, the partners in the DAKIMO project (German-language acronym for "data and AI as enablers for sustainable, intermodal mobility") have been working on leveraging the wealth of available data, for example from mobile apps, public transport operations, and traffic and weather forecasts, to expand the already existing "regiomove" app of the Karlsruhe Transport Association (KVV). Modern AI methods are used to process the data and analyze it in such a way that it leads to individually appropriate routing and travel recommendations. In addition to the technical implementation, the focus is on sustainability, user-friendliness and privacy. The German Federal Ministry of Education and Research is funding DAKIMO with approximately 3.5 million euros.

Mobile services and integration of end-user data

Regiomove is an app developed by raumobil which bundles the offers of various mobility service providers in the Karlsruhe area, so that users can plan, book and pay for intermodal trips in a single app. In this work package we focus on the expansion of the existing app. Our goal is to integrate the new features developed in DAKIMO, such as the consideration of weather data and demand forecasts, and, conversely, to incorporate user data into the underlying traffic models.

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Smart stations as a living lab and data source

Here we are working on upgrading intermodal transport hubs ("regiomove ports") in the Karlsruhe area to smart stations as living labs. These ports combine connections to public transport lines with a variety of service offerings (regiomove terminals, bike tools and lockers, rental bike and car sharing stations). Our aim is to develop a data protection-compliant, automated sensor perception of the traffic volume in order to provide helpful real-time data.

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Fusion server

In this work package, we are creating the centerpiece of DAKIMO: an integrated infrastructure that makes it possible to merge all the data considered in the project, store it uniformly and keep it available - historical as well as real-time data, from established as well as from newly developed sources. In this way, a holistic evaluation is enabled, correlations become recognizable and machine learning algorithms can be connected. The fusion server is based on the SensorThings API standard of the Open Geospatial Consortium.

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