Walk
Drive
Ride Sharing
Bike
Bike Sharing
Taxi
Car Sharing
Bike & Ride
P+R
Public Transit

Successfully delivering modal shift as a regional mobility broker

init

The Future of Mobility

Improving the quality of life in our cities is a declared objective of the public transport industry. Smart Mobility Concepts are contributing to this goal significantly by reducing the need for individual traffic. More flexible transport options supplement the fixed-route offer in order to better meet the individual needs of travelers. In particular, they are able to solve the first-mile / last-mile problems. At the same time, new mobility providers are emerging everywhere – that is why Smart Mobility Concepts call for combined mobility solutions. Consequently, the key to success will be regional Open Mobility Platforms created and run by public transport providers. Thus, a comprehensive offer comes to life, which is beneficial for both region and public transport provider.

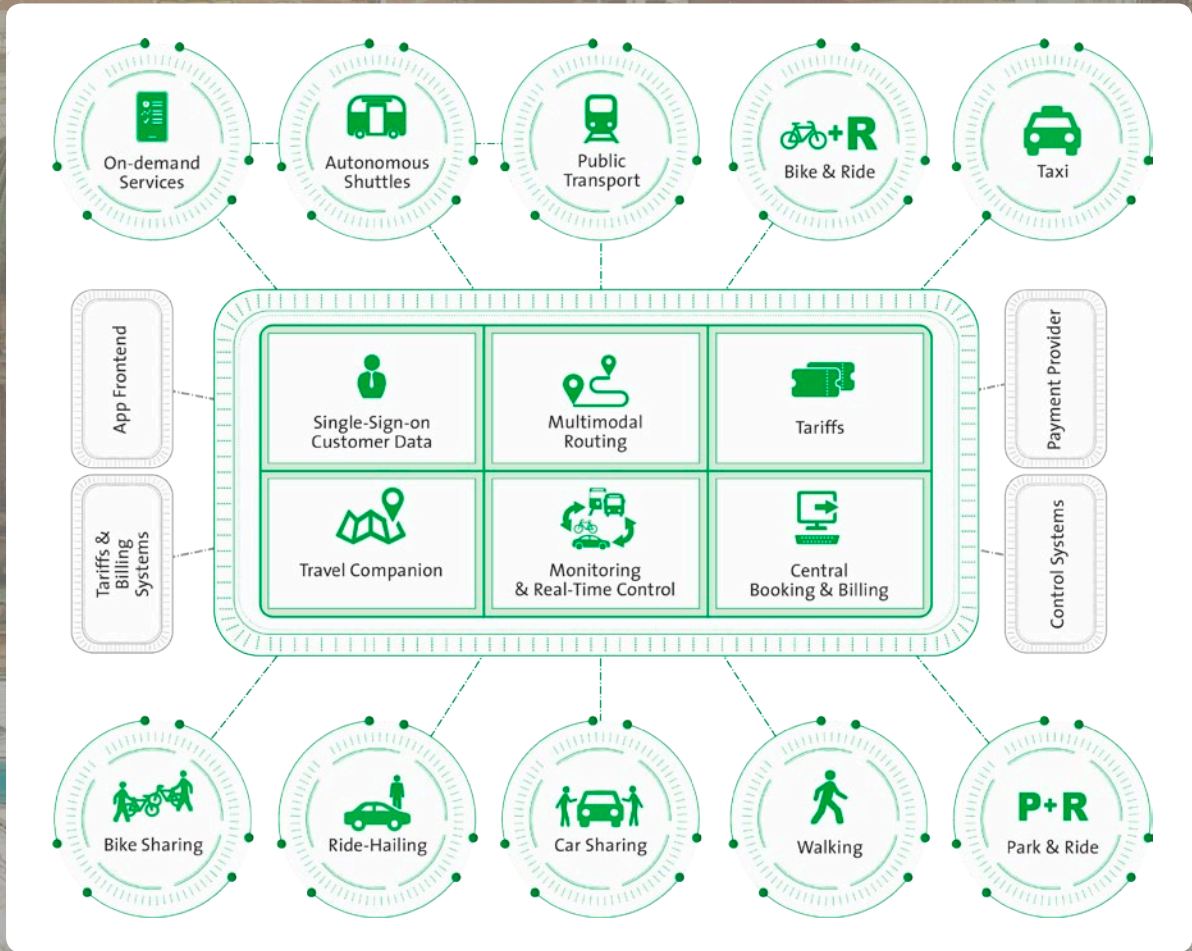# Multiple options instead of one fixed-route offering

Mobility demands are changing. Environmental consciousness is rising, and many people are choosing to not own a car any more. Digitalization changes the expectations of public transport customers more than anything else. They expect the same service they experience elsewhere – mobility services have to be available all the time, "on-demand", and exactly fitting for their individual requirements.

Mobility 4.0 means that the customers are no longer willing to accept fixed-route offers as they are, but increasingly expect that services will be offered according to their demands.

Mobility as a Service – the paradigm shift

In that case, often the term MaaS (Mobility as a Service) is used – a term that leaves much room for interpretation. In the strict sense, it covers ride-hailing and ride-pooling services being offered by new mobility service providers (Transportation Network Companies). In a broader sense, it implies that personal means of transport are no longer necessary because all modes of transport will be available as an integrated service when needed. If seen this way, MaaS offers completely new possibilities to design the mobility of the future.

As public transport providers, as well as transport associations or authorities know their region best, they could choose to become the mobility broker of their region, combining new and even competing services into one mobility platform that orchestrates all mobility providers.

On-demand Services · Autonomous Shuttles · Public Transport · Bike & Ride · Taxi

App Frontend · Payment Provider

Single-Sign-on Customer Data · Multimodal Routing · Tariffs

Tariffs & Billing Systems · Control Systems

Travel Companion · Monitoring & Real-Time Control · Central Booking & Billing

Bike Sharing · Ride-Hailing · Car Sharing · Walking · Park & Ride

Good for INIT customers

Transport companies which use an operations control & RTPI or an account-based ticketing system from INIT already have a solid basis for upgrading to a mobility platform.

Information & routing

Intermodal travel chains –
as individual as necessary,
as collective as possible

B2 > U8 >
30 min – 10.70 €

> S8 >
45 min – 5.25 €

> Taxi >
25 min – 25.75 €

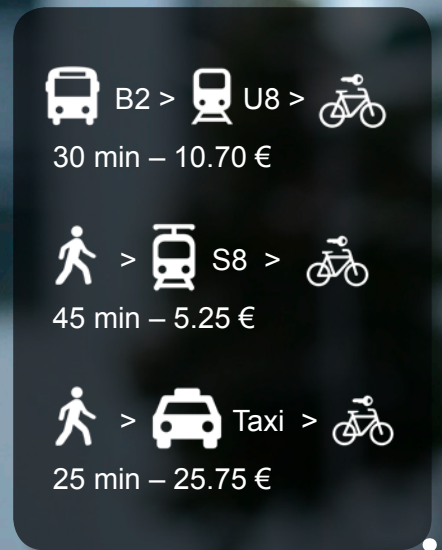**Public transport in mind:**

Intermodal travel information

Regional mobility platforms combine services of local providers. Therefore, the appropriate IT solution has to provide an open system architecture for being able to request the different mobility options from third-party-provider systems. A powerful routing functionality then calculates suitable, and maybe intermodal, traveling possibilities. Even the current traffic situation can be taken into consideration.

Comparison of prices

The user generally makes his decision by weighing up cost and benefit. Thus, he will not be content with asking for only traveling options, but he will also want to learn about the fares and fees, to receive all the information he needs to decide which traveling alternative will be best for him.

Personal preferences

The front-end application of the mobility platform will most likely be an app or a website. It must enable the end user to define on his own which modes of transport he prefers for which weather condition, and to change these preferences any time. Furthermore, the application should be self-learning in order to give more fundamental traveling advice each time it is being used.

Better coverage of areas

Individually used transport modes like rental bikes and taxis, as well as on-demand offers, are primarily supposed to close the gaps in the public transport network and cover areas that cannot be served by regular public transport services in an economical way.

Mobility hubs

The front-end app is the part of an intermodal mobility platform that end users generally see. In addition, apart from an efficient back-end system and business contracts, a concept needs to be established that allows users to transfer between transport modes most comfortably. Thus, mobility hubs are a core element of a comprehensive concept.

Find a proper travel option which involves public transport in a reasonable manner.

Public transport as the backbone of intermodal chains

The infrastructure of our cities does not allow for the increase of individual transport, yet the commuter flow continues to grow. Ecologically, it is only wise to collectively bundle the travels of people who want to go in the same direction. Therefore, it must be the overall objective of a regional mobility platform to channel as many trips as possible into the highly efficient means of mass transportation – in all cases that are justified by a cost-benefit ratio. Thus, a powerful regional mobility offer comes to life that wisely combines strong fixed-route public transport services with on-demand services or shared mobility offers.

Public transport providers as the operating company

In order to make sure that public transport remains the strong backbone of urban mobility, it is mandatory that the mobility platform and therefore the journey planner is operated by the public transport provider, association or authority. This is the only way it can be guaranteed that the travel chains which involve public transport will be recommended – whenever it makes sense. Nevertheless, it is important and appropriate to recommend private ride-hailing or rental cars as well when they offer better alternatives. This may especially be the case when there are mobility requests outside the city center or at off-peak hours.

Booking & payment

Single-sign-on

To enable intermodal travel chains, an integrated information, booking and payment platform needs to be set up. Only then is it possible for users to register only once and use all affiliated regional mobility services whenever they want to. Registering again with the miscellaneous service providers is no longer necessary. Rather the customer's data are stored centrally in the booking platform – which has to include further information like the customer's preferences or a valid driver's license. An open system architecture is a prerequisite for this intermodal approach. The interaction with the third-party systems should be carried out via open and at best standardized programming interfaces (API).

Intermodal booking

The requirement: All mobility services can simply be booked with a single click on the front-end app based on the route suggestions. When the user has made his decision, the booking will be forwarded to all service providers and the customer will receive a "ticket" from the mobility platform, e.g. via PIN or barcode. An ID-based solution would be beneficial as issuing a ticket is no longer necessary because the authorization is stored in the back-end system and the customer only has to identify himself with the help of a token. This could be a virtual smartcard stored in the smartphone wallet. The booking of subscriptions eases the life of commuters. If they want to commute at roughly the same time each morning with an on-demand mode of transport in order to get to the metro system they can pre-book it.

Central invoicing

Central invoicing of all services used is processed via a single invoice created by the central back-end system, maybe at the end of each month. The detailed itineraries can be accessible online to the end user at all times. Payments are made by the customer's preferred method. The mobility broker can decide which forms of payment he wants to offer. Apart from direct debiting, it is possible to include a Payment Service Provider and consequently accept debit and credit card payments, PayPal or similar forms of payment. Monthly tickets from the public transport provider or running subscriptions from shared-mobility providers must of course be taken into consideration when the invoice is being issued.

Registering once – using

all service providers – paying at once

A good solution in every way

Pricing

The first step will most likely involve simply an adding of all fares and user fees for the services used in the intermodal travel chain. This alone provides an advantageous simplification for the user of different mobility offerings. Yet, anything goes. Discounted prices for booking via the mobility platform may be applicable as well as combined prices in the sense of intermodal tariffs. Even fare capping is possible, e.g. using daily or monthly best prices in the public transport part of the offering. This means that the user wouldn't have to purchase a monthly ticket in advance, but could benefit from the favorable price. Similar models are envisaged for other mobility services. The result? A pricing model that rewards frequent use and ecologically friendly behavior.

Coordination & operation

Travel assistance

Information about the intermodal travel chain must be available all the time. For this reason, the mobility platform app must be a digital traveling companion to the end users – a companion that informs them in real-time about malfunctions or delays and, if necessary, suggests proper alternatives.


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On-demand services

Different forms of on-demand services can be used to make the service offerings more flexible and to live up to the users' mobility demands. All variants that only serve public transport stops, those that spontaneously define pooling points in close proximity, as well as door-to-door journeys. In any case, the back-end system will determine an efficient pooling of the trips with the help of intelligent algorithms. This also represents a paradigm shift: The passenger is no longer supposed to come to public transport, but public transport will come to the passenger.

Central Station		18 March 2018 11:27
Connection to:		
Bus/Tram	Destination	Departure
S 314	Exhibition Center	2 min.
S 21	O'Hare International Airport	
	On-Demand Shuttle waiting	
T 14	Palos Park	11:42
T 28	Naperville	11:55

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Feeder services

On-demand services used as feeders or takers to central mobility hubs will become essential in regional mobility platforms. They will enable public transport providers to connect areas that couldn't be served economically with typical fixed-route services.
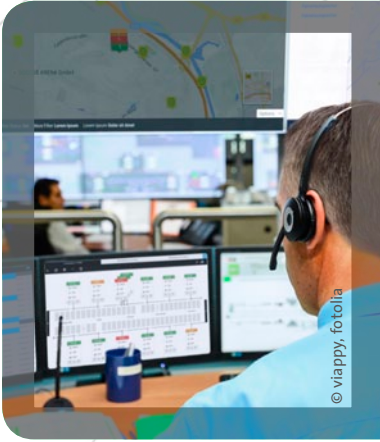
Coordinated in the operations control & RTPI system

The central operational management tool of the public transport provider is the Intermodal Transport Control System. In order to manage all services efficiently in one system, it has to be able to efficiently monitor all mobility offers and, if necessary, to coordinate them. It also has to inform users comprehensively and – in order to maintain the best-possible service quality – to make sure that connections will be reached. This goes for autonomous driving services as well.

© viappy, fotolia

Networked

For all mobility offers that complement fixed-route services, the public transport provider should act as coordinator in order to connect them best possible to public transport. This of course also applies to services provided by third-party providers.

Autonomous driving

The first routes driven by autonomous vehicles will probably be the shorter feeders and takers to mobility hubs. This is largely due to the fact that it is getting more and more difficult for mobility providers to employ driving personnel. Autonomous driving is only one technology that will enhance our mobility options in the future and that may have to be operated in a coordinated manner.

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Connection protection

To make public transport the strong backbone of urban mobility, all other modes have to be aligned to it. Hence, it is essential to define transfers and manage them in real-time. For example, by defining an on-demand service as taker for a tram. The integration into the ITCS will allow guaranteeing this transfer automatically. Even transferring delay information to private Transportation Network Companies will be possible.

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Lighthouse project in the TechnologyRegion Karlsruhe

A model mobility platform that is meant to propel mobility in the whole region Mittlerer Oberrhein (Middle Upper Rhine Valley in Germany) is currently formed in the lighthouse project, regiomove. It will combine mobility offerings of several providers, from bike rentals to bus and train, in one common platform. Thus, the planning of intermodal travel chains will be possible, and end users can book with a single click and later have to pay just one invoice – regardless of which providers or transport modes they used. The corresponding booking and payment platform is being developed by INIT.

Another essential element of the regiomove project is the creation of mobility hubs in the region, so-called "ports". This is where passengers will be able to change from one transport mode to another comfortably. In order to achieve this, an extensive analysis of locations and demands is being done. A modular construction will make it possible to adapt the ports to the specific demands and requirements of the different locations, yet give them an unmistakable look.

PORT

MEXICANO !!!

Car Pool + Taxi

ATM
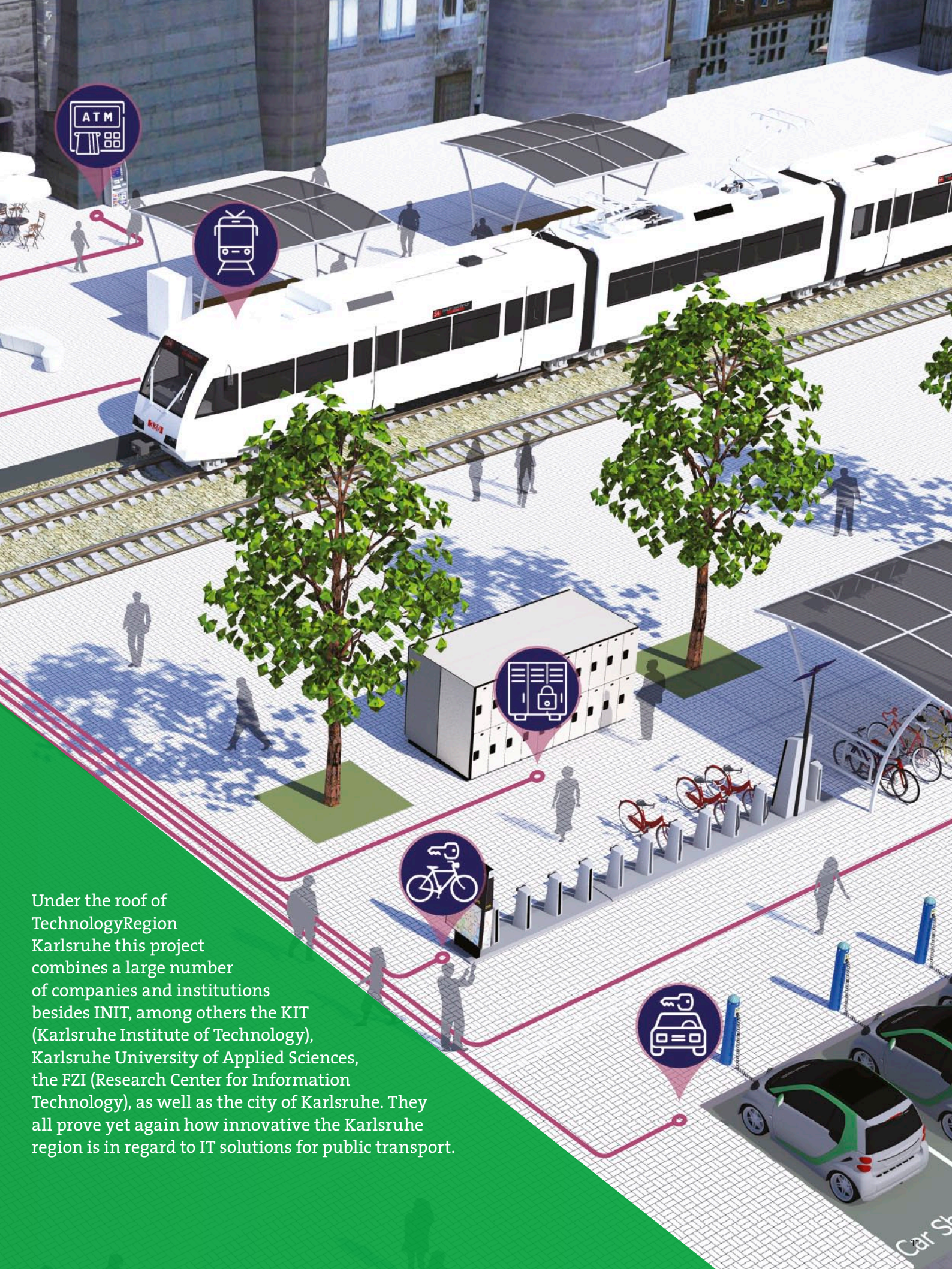
Under the roof of TechnologyRegion Karlsruhe this project combines a large number of companies and institutions besides INIT, among others the KIT (Karlsruhe Institute of Technology), Karlsruhe University of Applied Sciences, the FZI (Research Center for Information Technology), as well as the city of Karlsruhe. They all prove yet again how innovative the Karlsruhe region is in regard to IT solutions for public transport.

If you would like to know more about integrated mobility solutions, please contact us at sales@initse.com. We look forward to hearing from you.

More than 700 customers worldwide rely on our integrated solutions to support them with their daily tasks

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- *Ticketing & Fare Management*
- *Operations Control & Real-Time Passenger Information*
- *Analyzing & Optimizing*

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