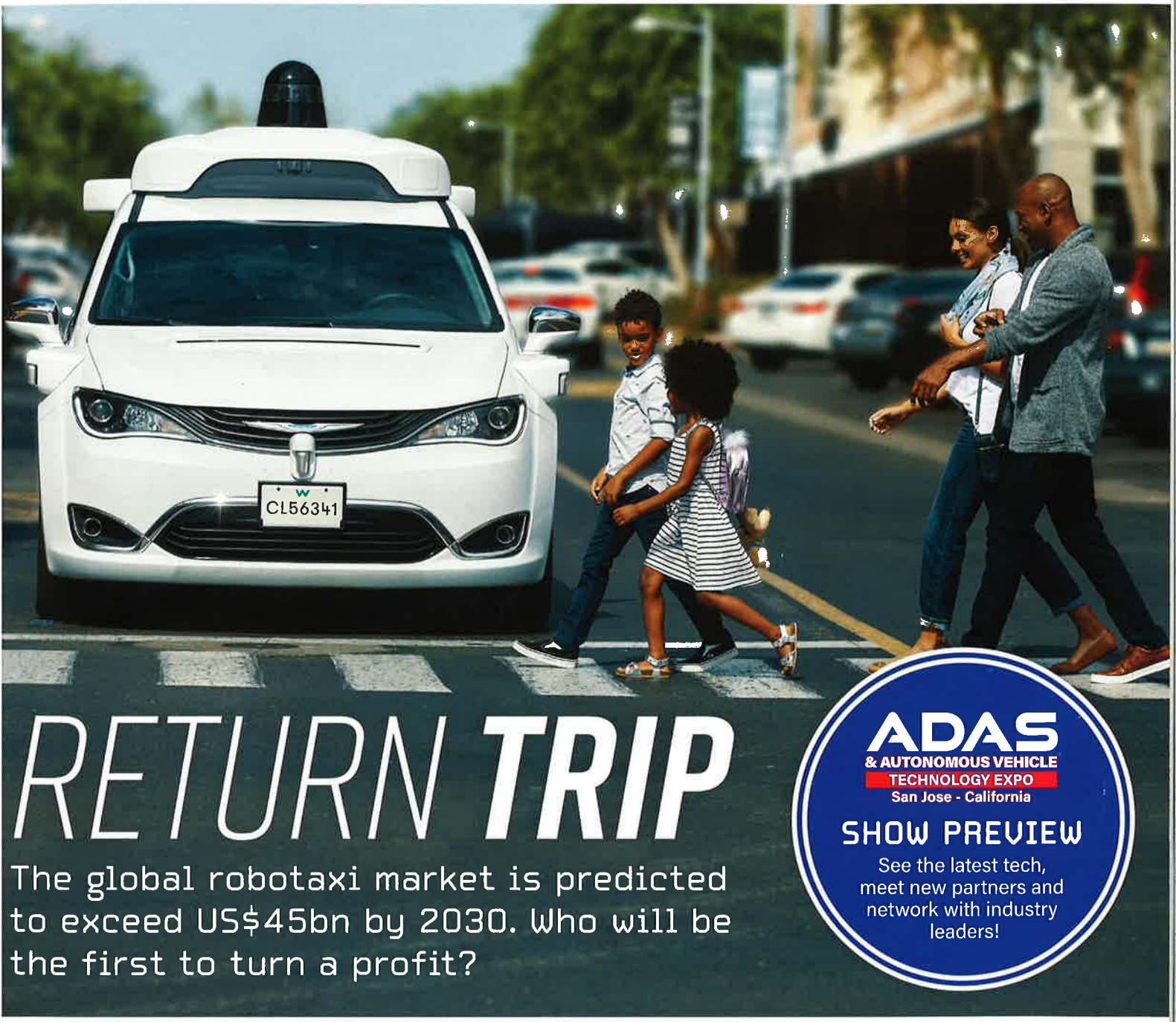
ADAS & Autonomous Vehicle INTERNATIONAL

THE INTERNATIONAL REVIEW OF AUTONOMOUS VEHICLE TECHNOLOGIES: FROM CONCEPTION TO MANUFACTURE TO IMPLEMENTATION

September 2022



RETURN TRIP

The global robotaxi market is predicted to exceed US$45bn by 2030. Who will be the first to turn a profit?

AUTOMATED VALET PARKING

Approaches differ between vehicle- and infrastructure-based perception and computing, or a combination of both – which is best?

WINTER TESTING

AAVI heads to Canada and the northern US to talk to the experts proving the latest AV tech in sub-zero conditions

SIMULATION

Advice on closing the 'sim2real' gap, with input from Waymo, Nvidia, Waabi, Horiba MIRA, dSpace and more!

Austrian expertise

A powerhouse in the traditional automotive supply chain is transitioning to be a trailblazer for the new mobility

by **Marlis Müllner,** director, strategic investment, Austrian Business Agency

Austria is one of the most important pacesetters on the path toward the 'new mobility', as a result of its considerable research efforts, numerous networked institutions and highly innovative companies working within this fast-growing sector.

As a traditional component supplier country providing advanced technologies and developments for the automotive industry, Austria has adapted to the far-reaching changes taking place in the industry. Many of the answers to key questions relating to our mobile future come from Austrian players.

For example, TTTech Auto is already shortening development cycles for automobile manufacturers through MotionWise, a software platform for highly automated driving. Its partners include Aptiv, Audi, Infineon, Hyundai and SAIC.

TTTech Auto and BlackBerry recently announced a partnership to integrate BlackBerry's QNX Neutrino real-time operating system (RTOS) and TTTech Auto's MotionWise for advanced driver assistance systems (ADAS) and software-defined vehicles (SDVs).

ADAS and AD systems clearly present increased functional safety and performance requirements. To address the computing performance requirements, high-performance SoCs are required to interconnect with a reliable high-speed communication backbone. Likewise, software functions are required to cooperate within and across all interconnected SoCs in a safe and reliable way.

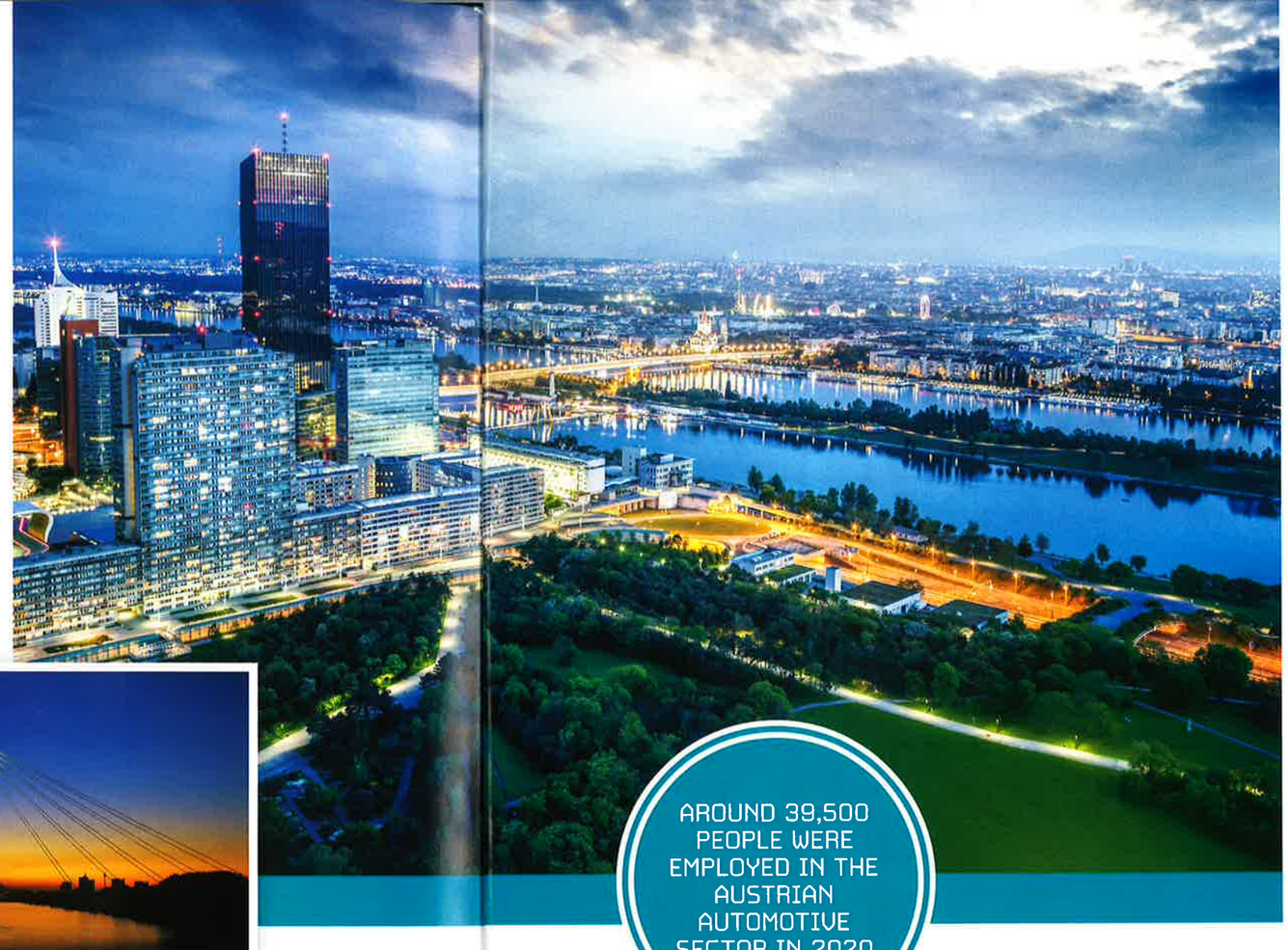
QNX is a foundational software component that runs on individual SoCs. TTTech Auto's MotionWise, in turn, orchestrates software functions across several SoCs – seamlessly, safely and reliably. The tight integration of these two technologies – each of which has been individually proven in production in millions of vehicles around the globe – will ensure the orchestration of workloads across the vehicle level, leading to well-defined system safety and performance properties.

TTTech Auto is founder of The Autonomous – a global community that shapes the future of safe autonomous mobility, with an annual conference in Vienna, Austria. On September 27 this year, The Autonomous is set to bring together the world's key mobility players to shape the future of safe autonomous vehicles. Themed 'Act to Impact', the event will bring together more than 500 leaders and high-level experts in the field of autonomous vehicles to discuss and respond to the biggest safety challenges facing autonomous mobility.

Meanwhile, the Austrian Institute of Technology (AIT) and the automotive supplier ZKW Group are working on a high-performance control unit for the next generation of motor vehicles. It serves as the 'brain' of the vehicle and is designed to generate a 3D real-time model of its surroundings, among other features.

Furthermore, a new type of lighting system from ZKW enables the new Range Rover to illuminate the road ahead. The digital, light-processing LED headlights produce stepless, glare-free high beams that automatically switch to low-beam mode when another vehicle approaches. They can even project animated images onto the road, in preparation for autonomous driving. For example, when the car detects that a pedestrian wants to cross the street, the light can then project a crosswalk onto the road, signaling the pedestrian to walk.

Another example of an Austrian initiative in the ADAS space is the development, validation, testing and operation of failsafe automated driving architectures by the Graz-based research company Virtual Vehicle, to ensure the safe coexistence of highly automated and conventional vehicles in road traffic.



AROUND 39,500 PEOPLE WERE EMPLOYED IN THE AUSTRIAN AUTOMOTIVE SECTOR IN 2020

Testing center

Austria is also highly active as a center for testing. Linz-based Digitrans is currently undertaking the automated transportation of goods under difficult weather and road conditions. The data generated by the test region in Upper Austria drives research into safe automated freight transportation, for example by AIT.

Meanwhile, ALP.Lab, a dedicated test region for automated driving, has created a new online marketplace in cooperation with ASFINAG (the company that plans, finances, builds and maintains toll booths and collects tolls in Austria) and other partners, including Joanneum Research. The ECO System Platform offers data, tools and services for research and development projects in the field of automated mobility.

Another Austrian initiative is developing sensor systems for safer driving in the future: iLIDS4SAM is a flagship project for Austria's future in automated mobility and how to move toward more complex urban traffic scenarios. As part of the project, 11 leading Austrian partners in the fields of industry and science are bundling their know-how under the leadership of Infineon Austria.

Within the context of iLIDS4SAM, the project partners are developing low-cost MEMS-based lidar components and systems with a wide field-of-view and high resolution. These will enable automated mobility applications in complex urban scenarios involving vulnerable road users. Selected use cases and related validation tools will be implemented to test the sensors.

Progressive legislation

On April 1, 2022, the second amendment to the Austrian edict on automated driving (AutomatFahrV) was released. This includes five new use cases for testing and introduces new requirements to ensure the highest possible safety during testing. The new use cases cover automated vehicles for passenger transportation, automated vehicles for the transportation of goods, motorway pilots with automated driving on slip roads, automated valet parking and automated (roadside) working machines.
The revised edict suggests a country ready to embrace 'the new mobility' – and to welcome new partners to its ecosystem of automotive expertise and innovation. ❮