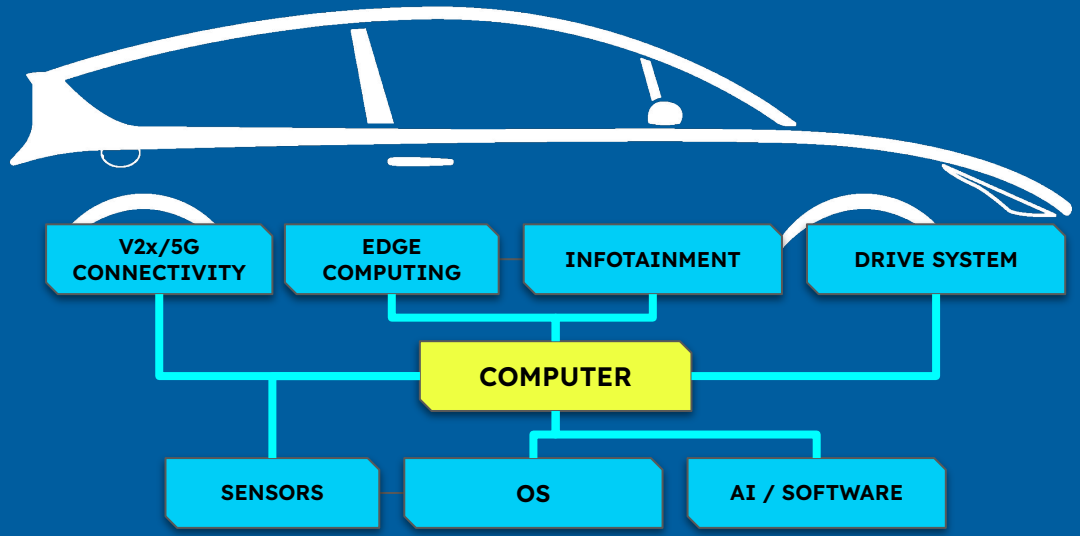
BORÉAL
BIKES

eit Urban Mobility

Co-funded by the
European Union

How we see cars today

Software-Defined Vehicles (SDVs)



The concept of Software-Defined Vehicles (SDV) has revolutionized mobility by transforming vehicles from mere transportation modes into highly adaptable, software-centric platforms. Transitioning from hardware-centric models to software-driven platforms.

Software for SDVs make cars

- Self-aware
- Self-healing
- Self driving and assistive

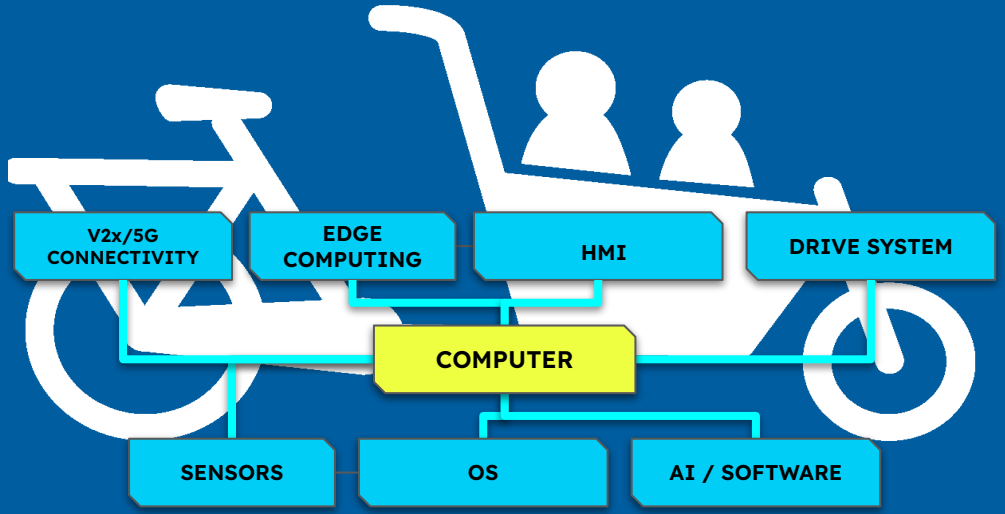
SDV applications facilitate rapid, over-the-air updates, fostering adaptability and continuous innovation. This convergence of automotive and tech reshapes the user experience, making vehicles more integrated and closer aligned to user needs.

Benefits for Sustainable Urban Mobility?

- Safer
- More inclusive
- More accessible
- Better adapted
- More convenient

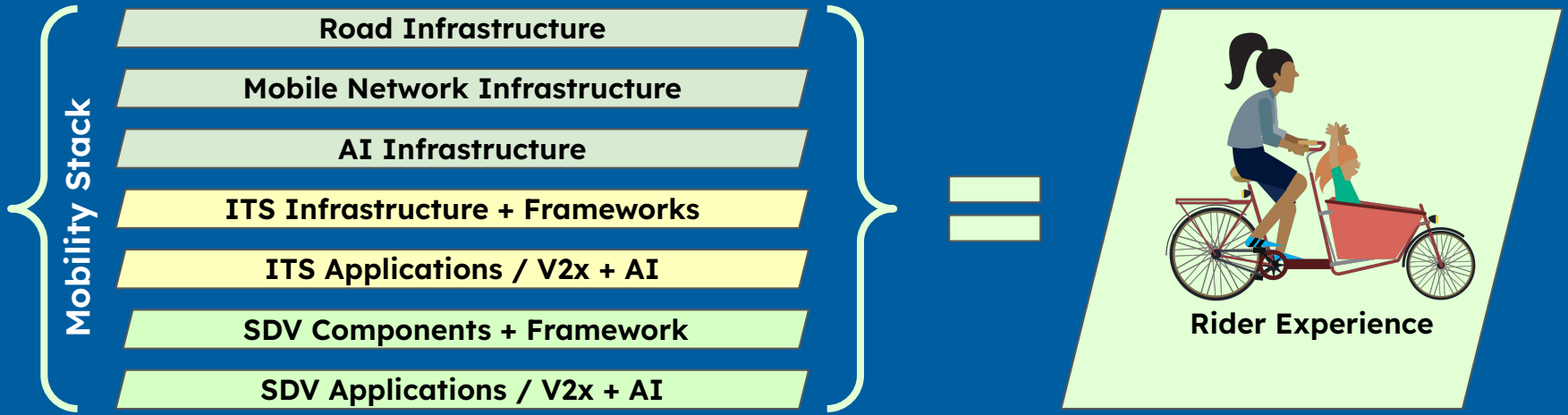
In an interconnected world, SDV architecture isn't just for cars. Imagine cargo bikes optimized by AI, adjusting routes real-time, predicting wear and tear, and customizing rider experiences for greater accessibility. Enhanced connectivity could redefine urban deliveries, making them safer, more efficient and better tailored. This could be the next step in sustainable, smart active mobility.

SDV for Sustainable Urban Mobility



By pioneering an SDV architecture for sustainable urban mobility, Boréal Bikes has removed barriers to innovation for cycling. By unleashing AI and connectivity, we are shaping with our users, a greener, smarter city movement. It's not just progress—it's a redefinition of how we move.

A rider-centric approach to the mobility tech stack



SDV at the core of Rider Experiences

In a world moving swiftly towards sustainability, our approach to infrastructure must evolve. An SDV-driven approach isn't just innovative; it's essential. With Software Defined Vehicles, we harness the power of AI and connectivity, seamlessly integrating them into our cities' very fabric. By reimagining our infrastructure with SDV at its core, we're not just aiming for sustainability targets; we're creating a connected, adaptable, and greener future. It's time we envision infrastructure not as static, but as dynamic and ever-evolving with our changing needs.

Holoscene Suite: The SDV tools and framework for developing sustainable urban mobility

1. Hardware Development Kit for Rapid Prototyping and Data Acquisition
2. Software Development Kit (SDK) and simulation environment for application development
3. Cloud-based SaaS for easy access to AI and ITS V2x framework tools and resources including AI infrastructure

Tested and proven. Holistic and rider-centric.
A comprehensive approach to the state of the art in urban mobility.

Redefining urban mobility together

DLR TUM TU Delft salzburg research

At Boréal Bikes, we've seen the power of communities in shaping tools. Just like that, our SDV Platform is now a tool for researchers and developers across America, Europe and now Africa. Even French Prime Minister Elizabeth Borne is on board! Together with our active user community, we're constantly iterating, improving our platform including the latest in AI infrastructure and tools.

Leadership Team

Louis Huard
CEO

10+ years executive leadership. Product and ecosystem development.

Dr Julius Gelšvartas
CTO

Kaunas Tech alumnus. Boréal Bike's CTO guiding technological innovation, development, and growth.

Dr Sylvia Niebruegge
COO

Bielefeld University doctorate in Biotech. Drives Boréal Bikes' sales, academic partnerships, and project funding.

Boréal Bikes

SDV Platform for Sustainable Urban Mobility

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Photo: Salzburg Research

Case study: Connected Bicycle: Communicating with Vehicles and Infrastructure

Project overview:

The U.S. DOT's connected vehicles program leverages wireless technology to enhance transportation safety and efficiency. Emphasizing on Dedicated Short Range Communications (DSRC), the initiative supports vehicle-to-infrastructure and vehicle-to-vehicle communications. This includes aiding bicyclists through collision warnings, improved detection, and conveying traffic signal phase.

Location: Cambridge, Massachusetts

Tech stack:

- Road Infrastructure
- ITS Infrastructure + Framework
- ITS Applications / DSRC
- SDV Components + Framework
- SDV Applications / DSRC
- Rider Experience / UI and HMI

Case study: Bike2CAV: Avoidance of cyclist collisions thanks to vehicle-to-everything (V2X) communication

Networking and automation of vehicles offer a great opportunity to increase the safety of cyclists. A consortium led by the Salzburg Research Research Society is working on innovative technologies to protect vulnerable road users. The focus is on options for cooperative detection of collision risks as well as non-distracting warning concepts.

Location: Salzburg. Austria

Tech stack:

- Road Infrastructure
- AI Infrastructure
- ITS Infrastructure + Framework
- ITS Applications / V2x + AI
- SDV Components + Framework
- SDV Applications / V2x + AI
- Rider Experience / UX and HMI

Case study:
SAVENOW.de

Project overview:

The SAVeNoW research project explores the construction and operation of a digital twin for urban traffic, using Ingolstadt as an example. In virtual simulations, we examine, for example, individual traffic situations, individual traffic behavior or completely new mobility concepts and check how changes affect important key figures in traffic: safety, emissions and efficiency.

The goal of SAVeNoW is to develop a tool for testing and validating automated and connected mobility.

Location: Ingolstadt, Germany

Tech stack:

- Road Infrastructure
- SDV Components + Framework
- SDV Applications / V2x + AI
- Rider Experience / UX and HMI

Case study:
RADBEST

Project overview:

A cross-border consortium from Germany, Austria and Switzerland is now developing evidence-based recommendations for cycling guidance, especially in congested road conditions, as well as professionally sound evaluations of various alternative solutions. For the first time, this research work also creates a comparative empirical data basis for objective safety and subjective safety perception for representative stretches of road and different cycling routes. Both mobile and stationary sensor technologies – ultrasound, LIDAR and video – are used to measure objective safety. This is used, for example, to objectively assess overtaking procedures by motor vehicles. In addition to the objective sensor data, the subjective perception is also recorded and analysed using surveys and sensor technology to measure stress.

Tech stack:

- Road Infrastructure
- AI Infrastructure
- SDV Components + Framework
- SDV Applications / Sensors + AI