



alkalee

**Shape your  
creativity,**  
drive the future



# Alkalee, the catalyst of the mobility industry modernization



Smart and deeptech startup, Alkalee is a CEA spinoff inheriting from a large innovation program between Renault Nissan and CEA.

From 2016 to 2019, these two technological research giants reinvented vehicle electronics to replace dozens of embedded computers by a unique centralized computing solution.

In the wake of this revolution, Alkalee disconnects hardware and software design cycles to empower integrators to manage software feature deployment at any time in the vehicle life cycle.

## A technological approach **resolutely open**

Convinced that the best products are born from smart and optimized integration, our vision enables the combination of best-in-class technologies to get the most value from the innovation ecosystems.

Our open and agile approach empowers integrators to secure and shorten the path from innovation to product.



We **HELP** suppliers and OEM to create the next generation of vehicles, safe, connected, autonomous and secured.

We **DEVELOP** unique software bricks for centralization and software integration players.

We **DEFINE** DevOps processes to meet user-oriented objectives as well as regulatory requirements.

We **PROVIDE** expert support and insights on the evolution of automotive technologies and market trends.

We **LEVERAGE** key partnerships to master the mobility industry mutations.

# A close-knit action-oriented founding team



**Raphaël David**  
CEO

Expert in innovation management, he had multiple experiences in leading large scale engineering teams in CEA. Used to manage growth in many different domains, he knows how to transform uncertainties into opportunities.



**Laurent Le Garff**  
COO

Expert in automotive industry, he spent 20 years diving into this value chain's niceties. He lead international programs ranging from innovation to engine development in Renault. He knows how to produce and distribute technologies and products all around the world.

**Paul Dubrulle**  
CTO

Expert in embedded system architectures at CEA, he holds many patents and publications in the field of mixed-critical systems. He built European research programs and managed academic and industrial partners. He knows how to transform disruptive technologies into customer solutions.



## Putting its values at **the heart of the company's strategy**



### Expertise

We bring together specialists, passionate about their field of activity. We believe that plurality of know-how drives achievement. Together we see further and aim higher.



### Confidence

Trust and professional transparency unite us. Our ultimate satisfaction is to build a fluid, efficient, and sustainable collaboration that contributes to your success.



### Diversity

Alkalee is built around our diversity. The heterogeneity of profiles, know-how and interpersonal skills creates an agile, rich, and versatile team. We believe in interaction, emulation and collective intelligence.



### Energy

Motivation, positive attitude, proactivity, and commitment are our sources of energy. We believe in the strength of daring realization and decisive action to expand the range of possibilities.

# A robust design for simple and accelerated industrialization

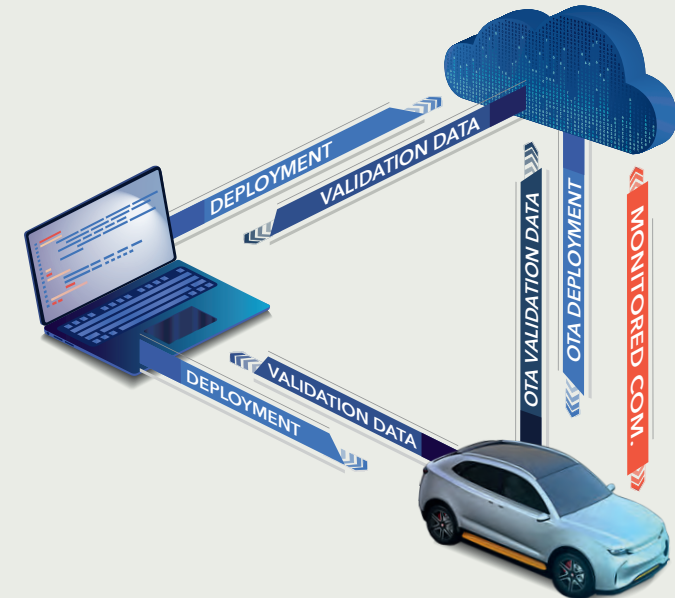
The value perceived in software features is growing up to **40%**

With the massive deployment of connectivity and the perspective of autonomous vehicles, the value perceived in software features is growing.

The whole industry is moving toward the so-called **SW DEFINED VEHICLE** to bring the agility of the sector to the next level.

Through the unique combination of a Model Based Engineering Tool and an embedded Software infrastructure, unified around an innovative computing model, we manage:

- The coordination in the development of multi-sources and heterogeneous features upstream during the vehicle design,
- The deployment of features onto heterogeneous (HW & SW) platforms at any time during a vehicle's life cycle,
- The assessment of software validity and enforcement of safety in the deployed systems.



## Alkalee puts the **vehicle features into equations**

Alkalee's innovation cornerstone is a model of computation (MoC) providing a formal framework that guarantees the consistency of multi-source real-time systems, from specification to integration. Unique and patented, the software empowered by this mathematical foundation enables Alkalee to provide tools for the specification and design of complex systems by aggregating software components from multiple vendors in a secure, modular, and transparent manner.



**+**<sup>+</sup>

Features addition, even after sales



**-3** months

To deploy a new feature



**÷2**

The validation costs



# Unique assets with many benefits in various application fields

## Industrial vehicles



### Composition

Use the latest in-house or third-party components to create always more innovative features.



### Standardization

Get access to technologies proven in mass market like automotive.



### Digital

Integrate the digital dimension early in design of your product development.

## Defense



### Development cycle

Optimize your process by disconnecting Hardware and Software design cycles.



### Industrial Innovation

Prepare products and new experiments in a process leading directly to the industrialization.



### Reuse

Maximize usage duration of your devices with field upgrades.



## Automotive



### Ecosystem

Stay on top thanks to a strong, independent, and dynamic innovation ecosystem.



### Speed

Develop quickly, integrate seamlessly, and always be one feature ahead.



### Value

Master your centralized EE architecture and retain control of the vehicle value.

## Autonomous vehicles



### Added Value

Increase your system's added value in simplifying and accelerating its integration.



### Proof

A proven behavior in complex environments thanks to sound mathematical foundations.



### Data

Monitor your system and leverage on cross-system data collection to improve the user experience and system efficiency.

# Innovative and customizable products for simple and efficient usages



## SaaS tool for software integration

Euphilia is the unique toolsuite enabling SW integrator stakeholders to join their efforts to imagine, validate, and deploy your innovations.

Formal methods at our customers' service to secure the crossing of the innovation-to-product chasm.



## Heterogeneous embedded infrastructure software

Receef is a tailor-made software infrastructure with all the OS, middlewares, and libraries our customers need to run their favorite applications on a centralized computing platform.

Embedding the formal model expressed in Euphilia, it ensures the execution supervision and applies customizable safety strategies according to our customers' safety concept.



## Modular computing platform for rapid prototyping

Using the latest processors, network technologies, OS on the market, Koreel is a future-proof computing and prototyping platform.

Modularity and flexibility to anticipate the advent of the SW Defined Vehicle.

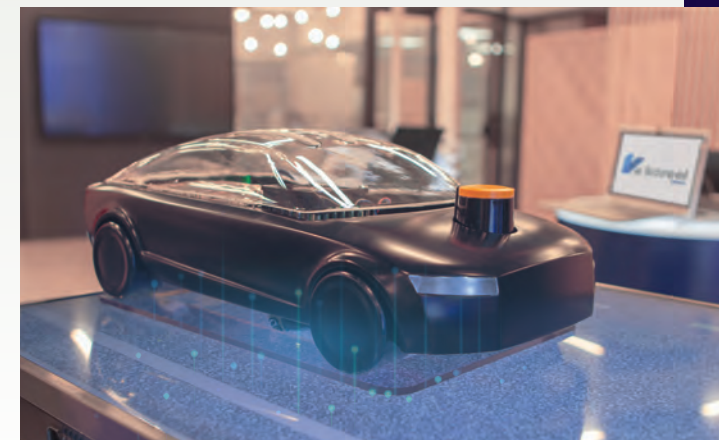
## With tailored services to support our partners in their most ambitious challenges

### PROTOTYPING

To support our partners in selecting the most appropriate technologies for their usage. From state-of-the-art to in-situ benchmarking we can help measure, compare, and select in all impartiality.

### BENCHMARKING

To support our partners in early product development stages to bring-up, deploy and integrate execution platforms, anticipating a fast and secured industrialization.



Update your vehicle  
with **Alkalee**



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