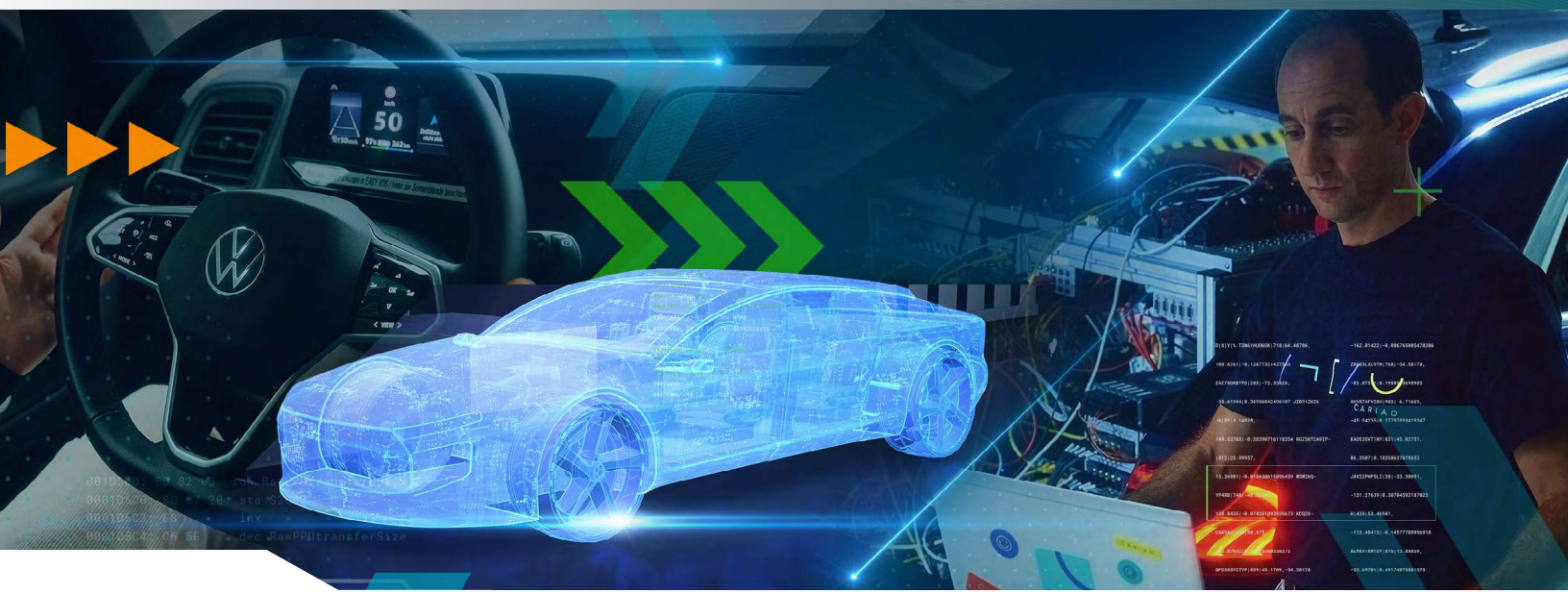
One Platform, One Playbook: How Codebeamer Connects Developers Across Volkswagen Group

How CARIAD harnessed a unified software backbone for delivering innovation for 10 brands and millions of drivers



CARIAD is the software organization inside the Volkswagen Group, responsible for delivering the digital capabilities that power modern vehicles across more than ten brands and millions of customers. As the industry shifts from mechanical engineering to software-defined mobility, expectations around speed and quality have changed dramatically, with CARIAD driving ongoing software innovation for the entire company.

Software has now become a primary driver of vehicle differentiation, safety, and customer experience, placing unprecedented demands on how development is coordinated, governed, and scaled across the enterprise.

Modern cars are now fundamentally software-driven, which means hardware and software must work together seamlessly. That reality demands new ways of working, tighter feedback loops, and systems that help teams manage growing complexity without slowing them down.

Challenge: Racing Against Complexity

The automotive industry is under intense pressure to shorten development cycles while increasing software content. Traditional timelines of three to five years no longer match customer expectations or competitive realities.

"Speed to market is one of the major key elements in our industry," explained Klandt Jesko, Product Manager Application Lifecycle Management at CARIAD. "If you can reduce this time, you have an advantage over your competitors."

Speed has become a competitive necessity, but speed without control introduces risk, rework, and late cycle surprises. Each change made in one area can have downstream impacts across brands, programs, and vehicle platforms, making transparency and impact insights essential.

"Our challenge is not just to move faster, but to understand the impact of every change across the entire vehicle ecosystem," Jesko added. "That transparency is what allows us to deliver innovation to customers faster, with the quality and reliability they expect."

Teams naturally optimize locally, but those optimizations often break at the boundaries.

"People are not intent on building silos. They just want to solve their task at hand," added Jesko. "But local solutions always break on the borders and can't scale."

CARIAD needed a way to unify methods, increase transparency, and ensure that changes made anywhere could be understood everywhere. Without this level of alignment, software organizations face growing rework, slower innovation caused by uncertainty, and compliance or quality issues that only become visible late in the development cycle.

This required not just new tools, but a common playbook with shared ways of working supported by a single, trusted platform.

Solution: A Unified Software Lifecycle with Traceability at the Core

In 2021, CARIAD adopted PTC Codebeamer as its primary platform for requirements, traceability and change management across the software lifecycle to manage its complexity at scale.

"We wanted a modern software platform with ease of deployment concept and full traceability concept, which is why we selected Codebeamer," explained Jesko. "We needed a way to ensure everyone was working from the same playbook, supported by clear methods and shared understanding. We knew the importance of having strong feedback loops in place and the ability to measure what was happening across the development process. You can only do that with modern software that's capable of supporting this level of coordination and transparency."

Codebeamer provided the backbone for this unified approach. It delivers end-to-end traceability across requirements, development, testing and integration, giving teams a clear view of how their work connects. It also creates shared visibility across brands and teams, helping reduce fragmentation and align decision-making. With faster, clearer impact analysis, teams can understand how changes ripple across

the system and respond with confidence. And by establishing a strong foundation for reuse, the platform enables software components to be shared across brands, accelerating delivery while maintaining consistency.

By embedding traceability directly into everyday workflows, teams gain confidence that change is controlled, compliant and understood across the entire system.

"Traceability and alignment are particularly important for automotive organizations right now due to complex software and systems, and the growing list of compliance requirements and regulations," added Jesko.

"Codebeamer is now the primary platform supporting our requirements management, traceability and change management across our software development activities," he added. "It's not just about the technology, but also the collaboration it facilitates. For us, the collaboration with various teams across the business helps to build trust and mutual understanding across the business, which underpins the success of any project."

Results: Accelerated Delivery, Cross Collaboration and Complexity Management

With PTC Codebeamer as the shared lifecycle platform, CARIAD has strengthened its ability to manage complexity while accelerating delivery. One of the most significant gains is the increase in reuse of software across brands. Reuse is now enabled by design, supported by traceability and impact insights that allow teams to share software confidently without introducing hidden risk.

> **"We finally have end-to-end traceability that scales with the expanding capabilities of modern automotive software. It lets us understand the impact of every change, accelerate reuse and deliver with confidence across all our brands."**
>
> **Klandt Jesko, Product Manager Application Lifecycle Management at CARIAD**

"We want to reuse as much as possible," said Jesko. "Even though each brand delivers its own customer experience, much of the software 'under the hood' remains consistent and shared."

The platform has also given teams much clearer visibility into dependencies. They can now see how changes ripple across the system, which allows them to make faster, more confident decisions and avoid surprises late in the development cycle. This visibility helps reduce rework, improve planning accuracy, and strengthen decision making across complex programs.

Another major improvement is the strength of the feedback loops now in place.

"No matter how well you're doing something, you're always looking for improvements. That's the nature of innovation," said Jesko. "With better data and more transparency, we can iterate more effectively and refine our processes over time.

"We finally have end-to-end traceability that scales with the expanding capabilities of modern automotive software. It lets us understand the impact of every change, accelerate reuse and deliver with confidence across all our brands," Jesko added.

Looking Ahead: Preparing for the Next Wave of Software-Defined Mobility

As vehicles continue evolving into software-defined platforms, the need for speed, traceability and alignment will only intensify.

"We need to challenge ourselves by elevating the products and solutions we deliver and use them in the right way for the benefit of all our engineers within Volkswagen Group," added Jesko.

With strong methods, unified lifecycle management, and a trusted partnership, CARIAD is building the foundation required to deliver consistent, high-quality digital experiences across every brand and every vehicle.

This foundation positions CARIAD to absorb future increases in software complexity while maintaining speed, quality and organizational alignment. By operating from one platform and one playbook, CARIAD is enabling software innovation to scale across the entire Volkswagen Group.

Benefits

- **End-to-end Traceability** – Full traceability across requirements, development, testing and integration, giving teams a clear, connected view of how work flows through the lifecycle.
- **Shared Visibility** – Unified visibility across brands and teams, reducing fragmentation and helping a multi-brand organization stay aligned.
- **Faster, Clearer Impact Analysis** – Teams can rapidly understand how changes ripple across complex systems and make confident decisions.
- **Software Reuse** – Significant increase in software reuse, enabling shared components "under the hood" while still supporting brand-specific customer experiences.
- **Organizational Alignment** – Higher adoption and organizational alignment, thanks to a platform that teams are willing to move to and work within.
- **Scalable Foundation** – Platform for continuous improvement, allowing CARIAD to build better features over time while keeping control of complexity.
- **Greater Consistency** – Support for unified methods and consistent ways of working, ensuring everyone operates from the same playbook.
- **Managing Complexity at Scale** – Improved ability to manage complexity at scale, essential for coordinating thousands of interconnected software components across ten brands.

Customer Overview | CARIAD

Industry	Automotive
Employees	4,400+ (Part of the Volkswagen Group)
Website	cariad.technology
PTC Products	Codebeamer