Veoneer Customer Case Study

Veoneer Standardizes on PTC Codebeamer to Improve Automotive Safety

Challenges

- Empower global teams with an all-in-one ALM solution to support best-in-class product innovation

- Replace aging IBM DOORs implementation with modern requirements management solution tuned to the unique needs of the automotive industry

- Align global teams with **"1 Veoneer, 1 Process"** mandate

- Meet stringent end-to-end traceability and automotive SPICE compliance requirements

Results

- Unified product, engineering, audit, compliance, and manufacturing teams on a common systems delivery process

- Doubled ALM user base in two years

- Reduced initial onboarding from 4.5 days to 45 minutes

- Gained end-to-end software, systems, and compliance visibility

- Substantially reduced direct tool costs

Product Used:

PTC Codebeamer

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A Leader in Automotive Safety

Like the airbags and safety restraints for which it known, Veoneer is the supremely capable yet silent partner behind the world's most advanced vehicles. Founded in 2018, this tier-one automotive supplier was spun-off from Autoliv after decades of delivering innovative safety solutions at the forefront of automotive technology.

Veoneer is a leading provider of automotive safety systems, with annual sales of $1.66 Billion in 2021. Headquartered in Southfield, Michigan, the company's 6100 employees span 11 countries, 6 manufacturing sites and 18 technical centers bound by a common purpose: to Create Trust in Mobility.

Veoneer's active safety portfolio spans vision, radar, lidar, and thermal sensing systems powered by ECUs (Electronic Control Units) – vehicular "brains" that build spatial awareness, interpret situations, and act in a split-second to avoid an accident. When a crash cannot be avoided, the company's passive Restraint Control Systems (RCS) come into play by tightening safety belts, deploying airbags, summoning emergency services, and recording data for post-crash analysis.

Embedded software is key to the company's strategic competitive advantage. "Software is the biggest part of our company," explains Tim Brennan, IT Engineering ALM manager. "Hardware components are fairly generic -- everybody's got semiconductors and chipsets. Nobody else has the algorithms we use to determine airbag deployment, for example. Software is the kingmaker."

A thirty-year software development and engineering veteran, Brennan is responsible for managing the technical infrastructure that powers Veoneer's global engineering workforce. Yet when it came time to selecting a new ALM solution, Brennan purposely took a back seat. "I was not involved because we wanted to have end user and engineering feedback determine which tool to roll out," he explains.

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Outfitting Global Teams for Success

In 2018, the company embarked on a search for a single ALM solution to replace multiple tools used to manage its global systems delivery process.

Like many technical organizations, the company's tooling infrastructure had evolved over decades, with pockets of users relying on single-purpose solutions with weak or brittle lifecycle integrations.

The most urgent need was to replace an aging IBM DOORS requirements management solution that would soon be at the end of its life. Rather than endure a painful and costly upgrade to another standalone solution, the company decided to search for an alternative that could support the entire product delivery lifecycle. "We wanted one stop shopping," explains Brennan. "We didn't want to have to train people on ten different tools".

A team defines the company's robust engineering process from requirements management through validation. "We call it 1V1P – 1 Veoneer, 1 Process," says Brennan, referencing a customized version of the familiar engineering V-model. "Our engineering teams use templates defined by the 1V1P teams. These templates cover a Waterfall/ Agile methodology that supports both KanBan and Scrum methods. This is how we meet all of our standards the Veoneer way."

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Structured Evaluation

The search for a new ALM solution was structured, methodical, and thorough, Veoneer tapped key stakeholders in its product assurance, program management, and engineering teams to lead the evaluation.

Key selection criteria included ease of use, full coverage of the software and systems development cycle, and end-to-end traceability. The ability to customize and control the product delivery process was also deemed critical to success.

The evaluation team looked at both ALM and standalone solutions.

> **"In the end it came down to Polarion and Codebeamer, and Codebeamer won out. It was more intuitive. It had a better interface, and it was easier to learn. Performance-wise, Codebeamer delivered great performance around the world. It could inject and pull data much better than DOORS ever could. And the traceability browser is probably the easiest we've seen."**
> – Tim Brennan, IT ALM Engineering Manager, Veoneer

Codebeamer also excelled at meeting the automotive industry's stringent compliance requirements. Explains Brennan, "The automotive industry has multiple ISO standards to follow. You have ISO 26262, FMEA, Automotive Spice, security standards. Right out-of-the-box, Codebeamer supports all of it." Brennan also noted, "Codebeamer out-of-the-box gives you real time traceability across the V cycle. It's one of a few commercial products that actually do that," says Brennan. "If I want to do the entire lifecycle in one tool, this was the answer." The selection was finalized, and rollout began across the organization's global locations.

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Rollout and Expansion

Brennan used Codebeamer as the project repository for the ALM implementation project itself. "It's so versatile, I can use it for IT Engineering," he explains.

The company's requirements for its ALM solution were loaded into a Codebeamer project. Brennan uses the project to validate the company's requirements and manage a backlog of outstanding ALM requests. Whenever Codebeamer or a tool that integrates with it is upgraded, he conducts regression testing to help ensure that nothing was broken in the upgrade. "We did this right out-of-the-box," Brennan explains. "It took me an hour to set up, and I could have never done this in any other tool."

In the past, users required two and a half days of training to learn their way around the ALM solution. Today, Brennan accomplishes the same goal with a 45-minute training video. "It really is that intuitive," he explains. "At the end of that 45 minutes, users have enough knowledge to successfully navigate any Veoneer engineering system, anywhere in the world."

The company relied on PTC-certified services partner Nanga Systems to support a multitude of planned and ad-hoc implementation needs, from porting data from point-product solutions to fine-tuning system performance and validating the accuracy of automated import and transformation procedures. "Nanga is the best contract house I've ever worked with," recalls Brennan, "and I've worked with a lot. Whatever we needed, all I had to do was ask. They just got things done."

Brennan also tracks company usage data (from Codebeamer, of course.) In the first year of the rollout, Codebeamer uptake grew from 1100 to 3800 employees. The following two years, it expanded to 6900 employees, including departments that had never used ALM before.

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Enabling Key Strategic Initiatives

The Codebeamer solution has helped the company unify multiple departments under the 1V1P (1 Veoneer, 1 Process) umbrella.

> **"Our entire business uses Codebeamer, it's not just for engineering anymore."**
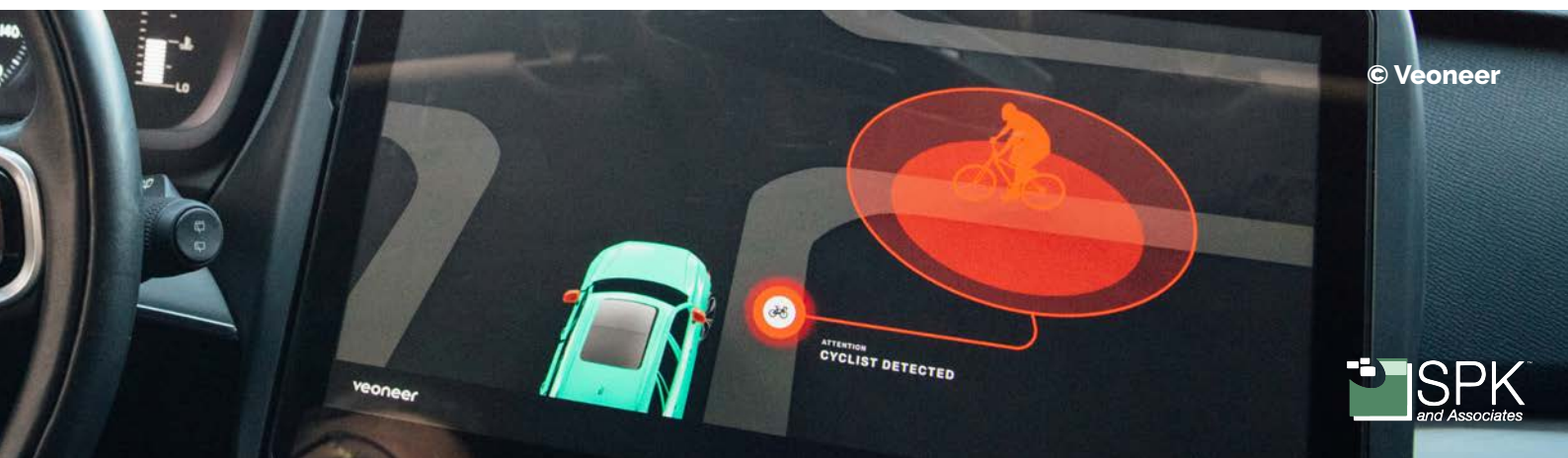> – Tim Brennan, IT ALM Engineering Manager, Veoneer

Process engineers rely on Codebeamer to codify and enforce the Veoneer Way across teams and disciplines. For software, hardware, mechanical, and electrical engineering teams, Codebeamer serves as a single source of truth for managing requirements, source code, and test results at the unit, component, and product level. Manufacturing teams use it to track manufacturing defects (noncomformances) and conduct FMEAs (Failure Mode and Effects Analysis). Auditors rely on it to make every product audit ready through end-to-end traceability and built-in regulatory documentation.

With everyone on the same solution, everyday questions can be answered quickly and authoritatively – helping Veoneer accelerate development cycles in a fiercely competitive market.

New engineers can get up-to-speed quickly and easily from any location with a 45-minute training video – replacing four and a half days of training. The reduced training time improves time-to-value for both on-premises and remote employees.

Not only was the Codebeamer solution vastly superior, it also cost less. "Between the combined cost (of DOORS and other tools), we are realizing substantial savings (on direct tooling costs)," Brennan notes.

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Steering into the Future with Confidence

In the rapidly evolving automotive industry, the only constant is change.

Automotive manufacturers and suppliers are preparing for the electrified, autonomous future of mobility. Brennan believes that while organizational boundaries may shift, the demand for innovation will only grow.

"We've spent 20 years looking outside the vehicle trying to keep it safer. Now we're looking inside the vehicle to make it safer for occupants. For example, the way an airbag gets deployed will change depending on whether you're male or female, young or old, tall or short," he says.

With Veoneer at the wheel, the future of automotive safety is bright.

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About Codebeamer

Codebeamer is an Application Lifecycle Management (ALM) platform with unique configurability and product line configuration capabilities.

Codebeamer X is an integrated Engineering Lifecycle Management (ELM) platform for life sciences companies with regulatory process & compliance support.

About PTC (NASDAQ: PTC)

PTC enables global manufacturers to realize double-digit impact with software solutions that enable them to accelerate product and service innovation, improve operational efficiency, and increase workforce productivity. In combination with an extensive partner network, PTC provides customers flexibility in how its technology can be deployed to drive digital transformation—on premises, in the cloud, or via its pure SaaS platform. At PTC, we don't just imagine a better world, we enable it.

Explore Codebeamer's Automotive solutions in action

Find out why companies like Veoneer, Volkswagen, BMW, and Daimler have selected Codebeamer! See how PTC's Codebeamer technology (formerly Codebeamer) could help you increase development efficiency and reduce costs.

Start your own free trial of Codebeamer today – no strings attached, no credit card required!

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