Driving Innovation with Integrated Codebeamer ALM

Seamless Collaboration & ASPICE Compliance for a Leading Automotive R&D Center

MICRO GENESIS

Client Profile:

The client's central R&D division is the innovation hub of a leading global automotive component manufacturer. With over 400 engineers across R&D centers in Pune, Gurgaon, and Bangalore, the division specializes in developing cutting-edge products like Converters, Lighting Systems, Chargers, and Switches. As a key player in the automotive supply chain, the client requires rigorous processes, compliance with standards like ASPICE, and seamless collaboration to deliver high-quality, innovative solutions.

1.

Problem Statement

The client's distributed engineering teams faced significant hurdles in managing complex, safety-critical automotive product development:

Disconnected Engineering Lifecycle:

- Requirements, tests, and defects were managed in silos using spreadsheets and documents, creating severe gaps in **end-to-end traceability.**
- The lack of a unified platform caused **communication gaps** and **version mismatches** among teams in Pune, Gurgaon, and Bangalore divisions.

Inefficient Compliance & Audits:

- **Unstructured workflows** made **ASPICE compliance audits** difficult and **evidence collection** a manual, time-consuming process.
- No proper **baseline mechanism** prevented effective tracking of **historical changes** and version control.

Manual, Slow Processes:

- **Spreadsheet-based defect tracking** slowed down **root cause analysis** and delayed **issue resolution.**
- Manual **reuse and review** of artifacts led to **inconsistencies** and **duplicated efforts,** reducing overall efficiency.
- Missing **CI/CD and automation integration** reduced **testing efficiency** and **development agility.**

Limited Project Visibility:

- Lack of **integrated planning tools** and **real-time dashboards** reduced **project visibility,** delayed **management decisions,** and hindered **progress tracking.**

2.

Our Solution

End-to-End Codebeamer ALM Implementation

MicroGenesis implemented a unified Application Lifecycle Management (ALM) platform using Codebeamer to automate and streamline client's engineering workflows.

Duration: 8 Months | On-Premises Deployment

Centralized Requirements & Test Management

- Developed and deployed **custom ASPICE project templates** for managing SYS, SWE, and HWE requirements.
- Configured a dedicated **Test Management template** to efficiently manage test cases and support their execution.

Streamlined Defect Management & Collaboration

- **Designed a centralized custom Bug Lifecycle template** to replace spreadsheet tracking, enabling consistent defect management across the organization.
- Conducted training on the Review functionality to foster **collaborative evaluations** and reduce feedback loops.

Integrated Toolchain & Automation

- Integrated Codebeamer with **GitLab** to establish traceability between code commits and ALM artifacts.
- Implemented **computed fields, workflow actions, and guards** to automate processes and ensure consistent workflow execution.
- Connected **VectorCast** and **vTest Studio** to enable **requirements-based test case execution** and maintain end-to-end traceability.

Enhanced Visibility & Control

- **Enabled Project Planning capabilities** for tracking project progress, managing sprints, and ensuring on-time delivery.
- Implemented **project and tracker-level baselining** and promoted the **Document Management System (DMS)** for version control and audit readiness.
- Trained users on **generating reports and configuring widgets** to create insightful, interactive dashboards.

3.

Business Impact:

The ALM transformation established a modern, integrated engineering environment, delivering significant improvements in efficiency, quality, and compliance.

Area	Impact
Traceability	Achieved end-to-end traceability between requirements, tests, code (GitLab), and results, enabling robust impact analysis.
Compliance	ASPICE-compliant templates and automated workflows streamlined audit preparation and eliminated manual evidence collection.
Process Efficiency	Centralized bug lifecycle and automated workflows accelerated defect resolution and reduced duplicate efforts.
Project Visibility	Real-time dashboards and sprint tracking provided full project visibility, enabling faster management decisions.
Collaboration	A single source of truth bridged communication gaps between distributed teams, enhancing synchronization.

4.

Strategic Outcomes:

Successfully transitioned from a traditional, document-centric approach to a modern, integrated ALM environment.

Established a scalable, compliant foundation for all current and future automotive electronics programs.

Enhanced transparency, collaboration, and agility across all engineering teams, reinforcing client's position as an innovation leader.

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