MICROGENESIS

Accelerating Digital-First Automotive Engineering

80%
Faster Trace Reviews

90%
Faster Program Setup

75%
Reduced Change Analysis

ALM Transformation for a Global Automotive Manufacturer

Client Profile:

A flagship Indian automotive innovator ranked among the nation's top three two-wheeler and three-wheeler manufacturers, with a diverse portfolio spanning motorcycles, scooters, mopeds, autos, and electric vehicles. It drives R&D excellence through dedicated innovation centers and global partnerships. Strategically focused on EV mobility, connected vehicles, and agile product development, the organization prioritizes rapid, quality-driven engineering to meet evolving market demands.

Current Business Challenges:

The client faced critical bottlenecks in managing complex, software-driven vehicle development:

Siloed Collaboration:

➤ New product development, Engineering, homologation, and quality teams used isolated systems, delaying change impact analysis and approvals.

➤ Lack of a Standardization process and Engineering Data collection Templates leads to inconsistency and difficulty in data management.

Product Complexity:

➤ Proliferation of advanced features (connectivity, EV tech, safety systems) multiplied software/electronics dependencies.

➤ Teams relied on disconnected tools (Excel/Word), causing version mismatches and errors.

Regulatory Overload:

➤ Compliance with ISO 26262 and ISO 21434, and export market homologation rules demanded end-to-end traceability.

➤ Manual evidence gathering slowed audits and risked non-compliance.

Accelerated Timelines:

➤ Market pressure for faster releases, customized variants, and frequent updates strained R&D.

➤ No reuse mechanisms for requirements/tests, duplicated efforts.

EV Transition Challenges:

➤ Legacy tools lacked capabilities for EV-specific hardware-software integration and traceability.

Our Solution

MicroGenesis deployed CodeBeamer ALM as a centralized digital engineering backbone, integrating best practices and cross-functional workflows:

Strategic Implementation:

Duration: 1.3 years (April 2024–present) via hybrid Agile-SAFe model.

Key Technical Components:

Single Source of Truth: Unified solution for requirements, tests, and compliance artifacts with version control.

Structured Templatization: Standardized Templates for VoCs and Features, Customer and Design Requirements, and Systems & Products.

End-to-End Traceability: Bidirectional links across lifecycle stages via OSLC integration with Windchill PLM.

Change Management Process: "Propagate Suspects" feature triggered real-time alerts for affected artifacts during modifications.

Workflow Enforcement: Review/sign-off cycles and audit trails aligned to compliance frameworks.

Integration Ecosystem:

Seamless Connectivity: Windchill PLM (mechanical/electrical parts)

SSO Authentication: Secure global access via Microsoft Entra ID.

Adoption Enablement:

Custom plugins for test-log uploads and exporting test parameters.

Hands-on workshops and sandbox environments for 200+ users.

Quantified Outcomes:

CodeBeamer ALM delivered quantifiable efficiency gains and strategic advantages:

Metrics	Before	After	Impact
Data Accuracy	Scattered documents across siloed tools	Unified repository with access controls	50% improvement in trust
Requirement Traceability	Manual Excel-based mapping; no live links	End-to-End Traceability	80% less time on trace reviews
Project Setup	Inconsistent formats per team/project	Reusable templates	90% faster program launches
Change Impact Analysis	Manual impact assessment across artifacts	Real-time "suspect propagation" alerts	75% faster analysis
Compliance Audit Prep	Manual evidence compilation	Auto-generated audit trails	70% effort reduction
Cross-Team Collaboration	Delayed feedback, version conflicts	Centralized platform with live notifications	60% faster decision-making
Reporting	Error-prone Excel reports	Real-time dashboards & automated metrics	65% effort in status tracking

Strategic Outcomes:

Achieved full regulatory traceability for global homologation

Established a scalable ALM foundation for various vehicle programs with seamless Windchill PLM alignment.

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