

CAD Quality Check Automation for a Global Commercial Vehicle Manufacturer from Japan

Case Study



Business Challenges

- ❖ Manual execution of CAD quality checks for parts, assemblies, and drawings was time-consuming, inconsistent, and resource intensive.
- ❖ A previously used automated checker tool was unavailable post-organizational restructuring, leading to a gap in validation capabilities.
- ❖ Over 200 quality checkpoints—spanning modelling standards, drawing standards, attributes, and certification regulations—were difficult to enforce manually.
- ❖ Absence of automation increased the likelihood of errors, rework, and non-compliance with internal and regulatory standards.
- ❖ Dependence on multiple licensed users for running CAD validations created operational inefficiencies and elevated license costs.

Proposed Solution

- ❖ Developed a centralized web-based solution to standardize and automate CAD quality validations across engineering workflows.
- ❖ Designed a modular architecture capable of integrating with enterprise systems such as CAD platforms, PLM, and configuration management tools.
- ❖ Enabled backend automation to perform quality checks efficiently using minimal software licenses and system resources.
- ❖ Created interfaces to support seamless data exchange, validation execution, and communication of results to end-users.
- ❖ Established an execution framework that supports phased implementation, beginning with high-priority modelling checkpoints and built for future scale.

Business Benefits

- ❖ Reduced manual efforts by 63% and turnaround time by 49% through automated, rules-based CAD quality checks.
- ❖ Improved design quality and consistency by enforcing compliance with modelling and documentation standards.
- ❖ Lowered operational costs by optimizing license usage through backend execution of validation processes.
- ❖ Accelerated product development cycles by eliminating bottlenecks associated with manual CAD validation.
- ❖ Provided a future-ready architecture, enabling seamless scalability to incorporate remaining checkpoints and system enhancements.
- ❖ Enhanced collaboration and governance by centralizing validation logic and integrating with enterprise design systems.

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