



Press Release

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Marelli and AWS pioneer AI-based system for validation of software-defined vehicle solutions

Marelli, a global technology supplier to the automotive industry, has developed with **Amazon Web Services (AWS) next-generation, AI-driven System Test Generation (STG) Agent** that automates one of the most critical and work-intensive steps in the validation process: the generation of system test cases from engineering system requirements. This marks a much-needed advancement in the validation cycle – as vehicle platforms are becoming increasingly software defined, engineering teams must manage large volumes of requirements, engineering data and system specifications while ensuring full consistency and traceability.

The STG Agent, developed with the expertise of the [AWS Generative AI Innovation Center](#) using **Amazon Nova foundation models, Amazon Bedrock Knowledge Bases, and the Strands Agents framework**, is a pioneering solution that helps Marelli to improve efficiency and boost consistency in how product features are validated against customer requirements. The new tool aims to reduce validation time and to achieve stronger alignment between system requirements and validated product behaviors. This may help vehicle makers to accelerate product development especially for software-defined vehicles and to deliver new functionalities with greater reliability. The solution is also designed for seamless integration with requirement management tools, supporting compatibility with existing automotive engineering workflows.

Within Marelli's established development process, customer requirements are first translated by R&D engineers into system requirements — a human-driven step that defines what the product must do. The STG Agent then comes into play: it analyzes and identifies the expected behaviors implied by each system requirement and automatically generates corresponding clear, structured, traceable system test cases that support Marelli engineers in validating that each feature behaves exactly as intended.

"The STG Agent represents an important step forward in how we validate solutions for software-defined vehicles," said **Daniele Russo**, Head of System Performance Optimization in Marelli's Electronics Engineering team. *"By combining our engineering expertise with advanced AI capabilities from AWS, we significantly accelerate validation cycles and ensure consistent quality across global programs. This solution enables us to support our customers faster and more efficiently, strengthening the foundation for the next generation of software-defined vehicles."*

"Marelli's approach to automating system validation demonstrates the transformative potential of generative AI in automotive engineering. By leveraging Amazon Nova foundation models and Amazon Bedrock, companies are setting new standards for how software-defined vehicles are developed and validated. This solution shows how advanced AI can accelerate innovation while maintaining the rigorous



quality and safety requirements that define the automotive industry" said **Giulia Gasparini**, Country Leader of AWS Italia.

About Marelli

Marelli is a global mobility technology supplier to the automotive industry. With a strong and established track record in innovation and manufacturing excellence, our mission is to transform the future of mobility through working with customers and partners to create a safer, greener, and better-connected world. With around 40,000 employees worldwide, the Marelli footprint includes over 150 sites globally.