# Sony Corporation – CATIA V5 helps SONY Car Audio hit all the right notes

## Overview

- ***The Challenge***
  *SONY's e-Vehicle car stereo department needed to reduce cycle times and costs caused by physical prototypes*
- ***The Solution***
  *CATIA V5 analysis modules enabled SONY to create and analyse a virtual 3D model with impressive accuracy*
- ***The Benefit***
  *The number of physical prototypes have been cut from three or four to one, reducing costs and development cycle times.*

**Analysis of virtual models saves time, cuts costs**

Sony Corporation's Mobile Network Company, e-Vehicle Business Group, is a Sony development and design department primarily responsible for the company's car audio systems. These include CD and MD players with MP3 capabilities and AM/FM tuners, CD and MD changers, and high-end car audio systems combining advanced technology with creative design.

Although the e-Vehicle team produces some of the world's finest car audio systems, it needed to cut development cycle times and costs to maintain a competitive edge in this highly competitive industry. To achieve these goals, e-Vehicle's leaders looked to the proven capabilities of CATIA V5, an IBM Product Lifecycle Management (PLM) solution developed by Dassault Systèmes.

The ASC Operational Division of the e-Vehicle Business Group decided to tap the functionality of CATIA's analysis modules, including Generative Part Structural Analysis (GPS), Product Engineering Optimiser 2 (PEO), and Generative Assembly Structural Analysis (GAS). The team believed these modules would allow Sony to design products in 3D and test them virtually, saving time and money compared to building and testing physical prototypes.

> *"CATIA V5 contributes to shortening the design process and improving the quality of our products."*
>
> *– Takehiko Tanaka, Assistant Manager, e-Vehicle Business Group, Personal Audio Visual Network Company, Sony Corporation*

To validate the accuracy of the virtual process, however, the team decided to check its early simulations against the results from physical models. The experiment showed that SONY's analyses were much more accurate with CATIA V5 and that there was little discrepancy between the results of CATIA V5 analysis and the actual measured values.

"Formerly we were designing by verifying the analysis results and the measured values. Now we base our designs on static analysis based on CATIA V5 digital simulation," said Hiroyuki Chigasaki, senior mechanical designer, e-Vehicle Company.

### Faster analysis, real savings

This change has allowed the ASC Operational Division to avoid building and testing multiple physical prototypes, correcting the design, and then repeating the entire process two or three times. “The use of CATIA V5 greatly reduces time from design to die production,” said Takehiko Tanaka, Assistant Manager of e-Vehicle Business Group. “Now the process is completed from die to mass production in one cycle. Also, problems can be investigated, understood and resolved quickly using analytical solutions obtained with CATIA V5.”

In addition to eliminating the need for multiple physical prototypes, virtual analysis now takes just a few hours rather than a week or more, and can be performed early in the design cycle. Errors that once were discovered only at the manufacturing stage have been essentially eliminated.

The design process has been improved at several stages. For example, designers now have the ability to check for interferences between parts after each design change and to model deformations in the manufacturing process. If an interference or deformation is discovered, CATIA V5 automatically changes the part parameters.

### Building on success

The standard CATIA V5 interface facilitates use by employees across the enterprise. “Since the interface is the same for design and analysis, more engineers can conduct analysis,” Tanaka said. “We also are expecting our engineers to widen the analysis scope they can perform in the future”.

The results have been so impressive that other departments in the e-Vehicle Company are adopting the CATIA V5 analysis processes as well. Leaders of the e-Vehicle Company also believe that by extending the use of CATIA V5 beyond analysis, further reductions in man hours will be possible in areas such as product and mold design.

### For more information

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