

# 3DCS Variation Analyst for the 3DEXPERIENCE

## Variation Analysis fully integrated into CATIA V6 3DEXPERIENCE

### The World's Most Used Variation Analysis Software

3DCS Variation Analyst is used by the world's leading manufacturing OEM's to reduce their costs of quality. By controlling variation and optimizing designs to account for inherent process and part variation, engineers reduce non-conformance, scrap, rework and warranty costs.

#### Fully Integrated into the 3DEXPERIENCE - The What

As the first Dassault Systemes Gold Partner, 3DCS has long been integrated into CATIA V5, and is now also integrated into the 3DEXPERIENCE. This integration supports 3DEXPERIENCE PLM by utilizing the shared environment allowing access to all of 3DCS' tolerance analysis tools from within the 3DEXPERIENCE.

#### Model Part and Process Variation - The How

Using three methods of simulation, 3DCS software highlights the sources of variation, as well as the potential build issues of the product. By accurately modeling the build process, the user can accurately simulate the product in a virtual environment, essentially creating digital prototypes to test and validate design objectives.

#### Gain New Insight Into Your Design - The Why

By simulating products in a digital environment, engineers are able to account for variation in key areas, reducing rework, non-conformance and scrap at final assembly. In addition to this, specifications deemed less critical can be relaxed, increasing tolerances and allowing the use of less expensive manufacturing processes and thus reducing costs without affecting overall quality. 3DCS software has automatic report generation for fast, effective communication of analysis results, and easy collaboration with peers and managers.



### Key Product Highlights:

#### Three Analysis Methods -

Monte Carlo Analysis, High-Low-Mean (Sensitivity Analysis) and GeoFactor Analysis (Relationship)

#### Store Your Data Together

As an integrated tool, 3DCS information is stored with your model.

#### Identify the Source of Variation -

Find the true source of your problem to root cause build issues and non-conformance.

#### Apply Plant and Measurement Data -

Incorporate physical or actual measurements to validate products and trouble shoot production.

#### Account for Processes and Tooling -

Model assembly process, tooling, fixtures, clamping, Datums, Locators and account for their added variation.

#### Customize Your Setup -

Use Add-on modules to quickly upgrade your system to utilize Finite Element Analysis, Mechanical Kinematic Assemblies and more.

#### Test and Optimize FTA and GD&T -

Move from general tolerances to more specific tolerances that reflect your processes and manufacturing capability.

## Control Variation Through Design Optimization

### Determine Design Objectives with 3DEXPERIENCE Live Rendering

View gap and flush conditions with given tolerances to determine the effect of variation on the appearance of your products. Set Build Objectives and view the effect of tolerances on Perceived Quality.

### Create a Model to Simulate Product and Process Variation

Apply part and process tolerances to simulate manufactured products. Validate design and FTA (GD&T), and optimize for the best quality at the lowest cost.

### Run Analyses to Determine Contributors and Critical to Quality Features

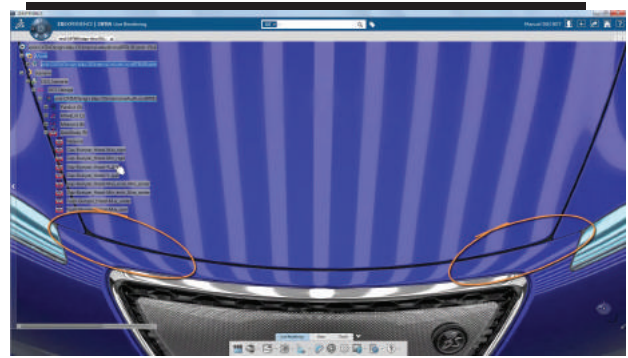
Find primary contributors to variation and focus in on critical to quality features to monitor through production. Improve your design through iterative changes. Find issues and resolve them before production begins.

### Create Reports and Collaborate

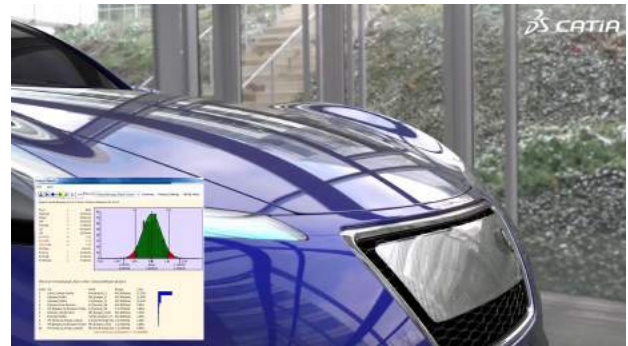
With push-button reporting, instantly create html and excel reports from your analysis results to share with colleagues and present to managers. Collaborate with teams in different regions while effectively communicating your results.

### Automate Measurement Plans and Inspection

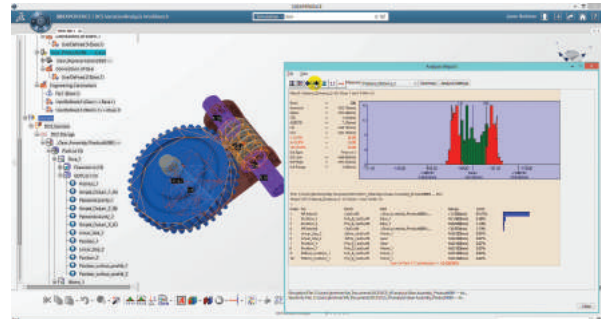
Utilize the connection to QDM to create Measurement Plans from your CAD data to correlate design and manufacturing. Then bring your inspection data back into your CAD model to account for mean shift and root cause production issues.



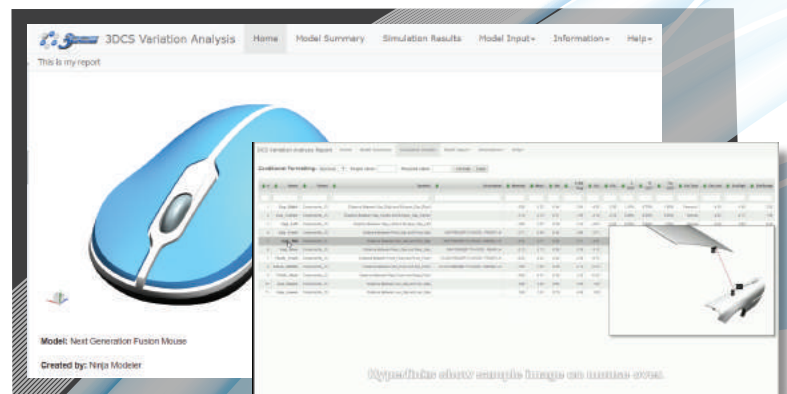
Spec Studies Show Variation



Assemble and Test in a Virtual Environment



Use Six Sigma - View Primary Contributors to Variation



Use Reports to Quickly Share and Collaborate

DCS has been supporting quality management in industries including automotive, aerospace, medical device, electronics and industrial machinery for over 20 years. DCS solutions are used daily by companies like Airbus, BMW, GM, LG, Nissan, Phillips, Sony, Textron Aviation and VW. By applying DCS's 3D Model Based environment for Predictive Variation Analysis and Responsive SPC, manufacturers have reduced quality costs related to yield, scrap, rework and warranty issues.