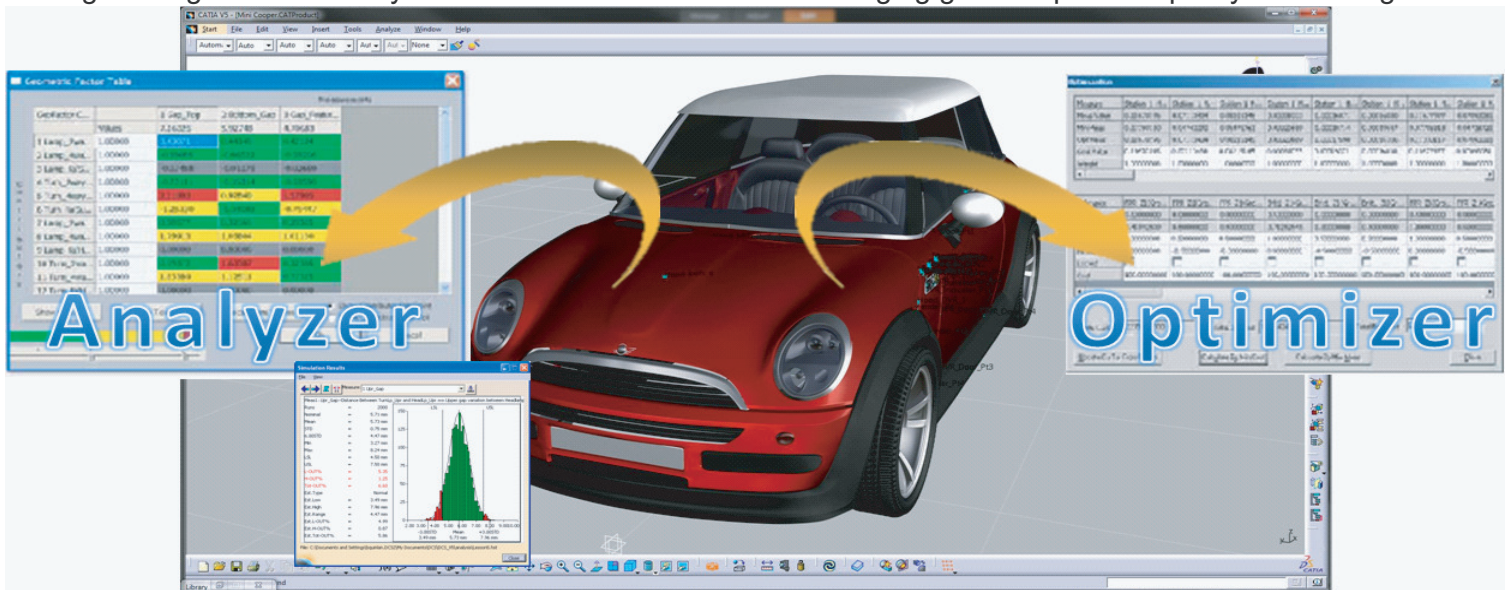


# Visually Observe Dimensional Variation

## 3DCS Advanced Analyzer/Optimizer

Now, more than ever, global manufacturing companies need to employ efficient and comprehensive Product Lifecycle Management while still meeting demanding cost and quality targets. Program timing is shrinking and first-time-right engineering is key. It is imperative to simulate assembly variation in the digital prototype phase. It is just as important to get fast analysis results based on design, engineering and process changes. Pinpointing the source of assembly variation during the digital phase provides manufacturing agility to address dimensional challenges. 3DCS Advanced Analyzer/Optimizer gives engineers the necessary tool they need to analyze variation results quickly, to make engineering decisions early - *and at a lower cost* - in the challenging game of product quality risk management.



**3DCS Advanced Analyzer/Optimizer (AAO)** enhances the existing 3DCS capability for efficiently assessing and optimizing design / tolerances to meet cost and quality objectives. 3DCS Advanced Analyzer/Optimizer is comprised of two core functionalities:

- ✦ **3DCS Analyzer** is an advanced analysis output which provides immediate results that are intuitive and easy to read via a graphical interactive matrix. 3DCS Analyzer provides engineers and managers with an effective tool for collaborating on dimensionally related engineering decisions.
- ✦ **3DCS Optimizer** optimizes tolerances to achieve best quality based on minimal costs or optimize quality based on a fixed budget. 3DCS Optimizer will automatically solve for optimized tolerances and validate feasibility of design.

### Predict

the assembly variation of manufactured products with virtual prototypes

### React

to specific contributors of cumulative variation for optimizing designs

### Control

costs and dimensional integrity with proactive 3D tolerance analysis

# 3DCS Add-On Solutions

## 3DCS Advanced Analyzer/Optimizer

### Business Values

#### Reduce time to market

3DCS Advanced Analyzer/Optimizer (AAO) allows engineers a way to identify dimensional problems early in the design cycle thereby avoiding costly assembly build and quality issues. 3DCS AAO is the solution for identifying design inefficiencies before committing to tooling.

#### Improve product quality

3DCS AAO quickly analyzes dimensional variation and identifies critical tolerances and assembly processes that are key contributors to variation. Careful monitoring of these areas is vital as they have a significant impact on product quality.

#### Reduce costs

3DCS AAO reduces cost by improving the process of tolerance allocation. Process optimization improves product quality and accelerates time-to-market. In addition, manufacturing costs can be reduced with tolerance optimization that maximizes allowable part tolerances, while still controlling dimensional assembly specifications. Controlling dimensional characteristics helps minimize scrap, rework, engineering changes and warranty defects. With 3DCS AAO, product quality is significantly improved by ensuring that parts fit and work together properly as the design had intended.

### Targeted Users

Design and manufacturing industries on a global scale focusing on Automotive, Aerospace, Heavy Industry, Consumer Goods and High Tech markets.

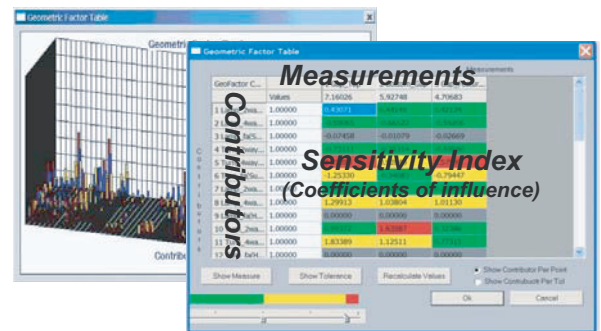
### Key Product Features

#### 3DCS Analyzer:

- Real time analysis - no waiting for simulation runs
- Quickly view and change tolerances in a graphical interactive matrix and view new analysis results from a global perspective instantly
- Quickly identify contributors to variation - sensitivity index (Coefficients of influence) quickly identifies where design is sensitive to variation
- Analyze at any level within the assembly process in either a numerical or graphical format
- Use the color-coded sensitivity index matrix to interactively emphasize contributors that are of great importance to the measurements

#### 3DCS Optimizer:

- Optimize tolerances to achieve best quality at a minimum cost. User can allocate the largest possible tolerances (larger tolerance = less cost) while still meeting dimensional objectives
- Optimize quality for a given fixed budget. User can allocate largest possible tolerance at least amount of cost to achieve "Target Cost"
- Embed supporting data from purchasing to achieve quality and cost objectives
- Buy-off tolerances



#### Dimensional Control Systems, Inc. (DCS)

DCS is a world-class provider of Dimensional Engineering Consulting Services and Software Solutions. DCS is a trusted source of highly-acclaimed 3D tolerance analysis technology. DCS has been successfully supplying organizations worldwide with full-service, "turnkey" Dimensional Quality Solutions. 1DCS, DCS-DFC, 3DCS, 3DCS CAA V5 Based, GDM-3D and DataGrabber are all trademarks of Dimensional Control Systems, Inc.

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