Enabling Six-sigma Quality & Low Cost Products with ANSYS PDS

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Abstract:

Although great advances have been made over the last two decades in the product design process, tradition and experience still govern many design decisions. The need for innovative tools is apparent now more than ever as the Design Engineer tries to cope with multiple requirements such as time-to-quality, cost, performance, styling/packaging, safety, durability, environmental impact, etc.

Successful organizations realize that probabilistic design techniques have enormous positive impact on reducing product costs. This becomes obvious when the total product cost is considered to include, the costs of poor quality (rework, product recalls, field service, warranty payments, guarantee costs, missed sales goals, lost customers, liability, etc.)

In this paper, a modeling process for integrating the ANSYS Probabilistic Design System (PDS) and optimization to automatically create **optimum robust designs** is presented. Examples from the automotive, battery and fuel cell industries will be presented. This reusable workflow process empowers engineers to generate 6-sigma quality designs early in the design process.