

Why Simulation-Based Innovation and Cost Savings Go Hand in Hand

Dramatic efficiencies give engineers freedom to creatively explore new ideas for unique products.

Doing more with less in shorter time frames is the business norm these days. Financial pressures are huge for manufacturers to lower costs throughout the enterprise — including engineering and product development. On the other hand, smart companies know — or should know — that cost cutting alone in the short term won't sustain them over the long haul. The key to long-term success is innovative products — ones that stand out from the crowd, take competitors by surprise, and ride the leading edge of rapidly evolving market trends.

What baffles many manufacturers is how they can accomplish both — cutting costs while managing to find the time and resources for developing innovative products that meet appropriate safety, reliability and quality standards. The solution is Simulation Driven Product Development. With this approach, engineers compare alternatives, refine designs, and optimize product performance quickly and economically with simulation models early in development, when concepts are just starting to take shape. Innovation occurs naturally in this type of free-flowing virtual world — not in spite of cost and time savings but because dramatic efficiencies give design teams the freedom they need to creatively explore new ideas and leverage their engineering skills, ingenuity and insight.

An excellent example of cost-effective innovation is in the cover story, "Bladeless is More," in which engineers at Dyson relate how they developed the Dyson Air Multiplier™ — a unique bladeless fan. Air is drawn into the device, accelerated through an aperture and channeled over an airfoil. To maximize airflow, engineers used fluid dynamics software to evaluate up to 10 different designs per day compared to two weeks of work with physical prototypes for just a single design. Because of this efficiency gain,

the team investigated 200 different designs — 10 times the number that would have been possible with physical prototyping.

Engineers at Gamma Point used the approach and explain in the article "Cutting Extrusion Die Design Costs" how they balance resin velocity distribution in hours instead of weeks in the innovative design of plastic parts. Potential annual savings add up to hundreds of thousands of dollars — quite a hefty ROI for a unique process, one that puts them ahead of competitors.

Other articles focusing on the same theme include "Star Light," describing how Dynamic Structures saved an estimated \$5 million in construction costs while significantly improving optical performance of the most powerful telescope on Earth — or the story "Taming the Cost of Respiratory Drug Development," in which researchers at FluidA propose an innovative simulation method that has the potential to shorten drug development time by years and save hundreds of millions of dollars in bringing a single drug to market. That's truly cost-saving innovation in action.

These companies clearly recognize the tremendous business value of simulation-based product development, as they boost top-line revenue growth through innovation and bottom-line profits through significant cost savings — two benefits that remain compelling whether the economy is up or down.



John Krouse
Senior Editor and Industry Analyst

Invented the Supercomputer, Reinvented the Workstation

The Cray CX1 brings high-return, low-risk benefits to design productivity and efficiency for ANSYS® FLUENT®, ANSYS® Mechanical™, HFSS™ and more.

**Visit the Cray and ANSYS
Partner Media Center at
www.cray.com/reinvent**



www.cray.com/reinvent

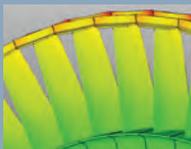
ANSYS®

CRAY



Phoenix Analysis & Design Technologies

*Providing service and support to hundreds of
ANSYS users since 1994 — a CAE
partner you can trust.*



Mechanical Simulation

Structural, Thermal,
Vibration, Impact,
Multiphysics



Fluids Simulation

ANSYS CFX, ANSYS FLUENT,
ANSYS Icepak,
Meshing, UDF Development



Training & Mentoring

Custom or Standard
in Tempe, AZ
or on-site

Contact PADT to Discuss your Consulting or Training Needs

1-800-293-PADT

www.PADTINC.com

steve.hendry@padtinc.com