



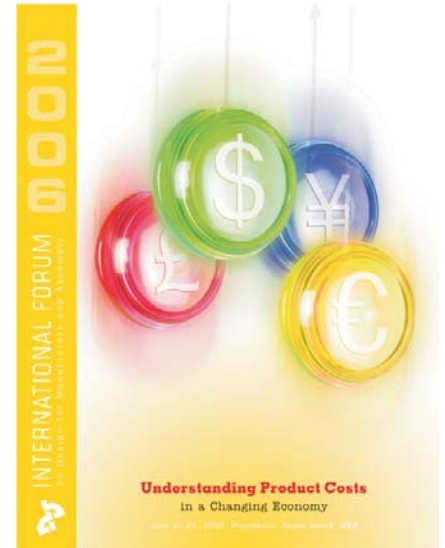
A Personal Invitation

The 2006 International Forum on Design for Manufacture and Assembly is short weeks away, and we are excited about welcoming some of the best DFMA practitioners in the world for two days of presentations, discussions, and networking. The theme for this year's Forum is "Understanding Product Costs in a Changing Economy." Starting with a fascinating Tuesday morning keynote by costing expert Robin Cooper, this event promises to be one of the most interesting gatherings in twenty-one years of DFMA conferences.

Won't you consider joining us on June 20 and 21? Click [HERE](#) to learn more about scheduled papers, special events, and registration. We hope to see you soon.

Sincerely yours,

John Gilligan, President




DFMA in Practice

Speedy Spectrometer

MDS Sciex, based in Ontario, Canada, is a leading manufacturer of quadrupole mass spectrometers. A few years ago, the company introduced its QSTAR product line in response to customer demand for a hybrid mass spectrometer combining time-of-flight technology with conventional quadrupole design. DFA software from Boothroyd Dewhurst helped transform a complex R&D breadboard concept for the new spectrometer into a high-quality, cost-competitive product.

The QSTAR project was the largest product development program in the company's 25-year history and involved a 75-member team of scientists and engineers. Redesigning the QSTAR so it had as few components as practical, and devising components that were self-jigging and self-locating, were important goals for simplifying the breadboard design. Even after simplification, the QSTAR contained 8,000 parts.



Assembly time for the 144-part QSTAR reflector subassembly is now only 45 minutes.

One of the most important assemblies redesigned with the aid of DFA software was the flight tube, a component that allows the traditional quadrupole apparatus to generate orders of magnitude more data about the substance being tested. The software flagged a problem with insulation separating a series of metal rings in the fragile reflector subassembly. In the breadboard, ceramic balls had been used as spacers between each metal ring to regulate the -5 to +1 kV potential across the assembly. Moving to flat Kapton sheets as insulators cut costs tremendously and led to a more-rugged assembly.

The software also flagged fasteners. Each of the 32 resistors in the breadboard reflector had been mounted with four screws, which contributed to the 8-hour assembly time. In the end, the team designed a reflector that can be put together in only 45 minutes and can be removed and serviced without disrupting the rest of the instrument. Part count went down from 289 to 144. Only three screws and three nuts hold all 144 parts together.

DFA also helped MDS Sciex to cut overall materials costs by \$35,000 per unit and to shorten the development cycle by 20 percent. The company calculates that getting to market in 14 months increased revenue by \$20 million and allowed the QSTAR to capture one-fifth of the global market in its first year of sales.

To read the full-length case study, please click [HERE](#).



DFMA Forum News

A special guest this year at the International Forum on DFMA is Robin Cooper, Professor in the Practice of Management Accounting at Goizueta Business School, Emory University. Formerly on the faculty of Harvard Business School, Professor Cooper has worked extensively with industry to implement activity-based cost systems. His research interests include strategic alignment and strategic cost management.

Professor Cooper will give the conference keynote address, titled "Cost Management for Product Design: The Big Picture," and he will participate in a panel discussion on "Achieving Cost Goals Across the Supply Chain." With moderator Winston Knight, the panel will discuss product-costing practices that are applied across the engineering supply chain and offer insights into how manufacturing organizations can successfully coordinate their costing efforts with multiple partners and suppliers.

DFMA News Briefs

Mike Shipulski, director of engineering for Hyperthem, Inc., writes convincingly about the advantages of DFMA in an article for the Manufacturing Advancement Center Action Newsline. He points out how part count reduction can lead to far-reaching savings on overhead costs such as floor space and facility size. Please click [HERE](#) to read the article.

In an article titled "America's Secret Weapon: Better Design," Nick Dewhurst talks with the editors of *Design News* about analyzing products for manufacturability, about common design mistakes, and about China. He offers thoughtful answers to many good questions. Please click [HERE](#) to read the article.

Machine Design recently published a case study called "A Less-Costly Fuel-Cell Design," about the use of DFMA software by Directed Technologies, Inc. The company compared alternative designs for an onboard fuel-cell reformer in a multiyear project funded by the Department of Energy. Please click [HERE](#) to read the article.

Q&A With Brian Rapoza: Cost vs. Price

Q: What is the difference between a cost model and a price model?

BR: A cost model uses fundamental principles of cost modeling to estimate the true cost of manufacturing an item. A price model takes more of a parametric approach, basing cost estimates purely on historical data compiled from supplier price quotes. Most price models have no scientific basis.

Q: Why is it important for manufacturers to use cost models instead of price models?

BR: The responses required and results presented in a cost model provide time, cost, and processing information that can serve as a legitimate foundation for supply chain management. With cost models, manufacturers manage their supply chain. With price models, suppliers are more in control.

Minimum Part Count Results in a Day

Come to Boothroyd Dewhurst's hands-on DFMA workshop, and leave with tangible results. In this one-day workshop, we work directly with you on team-based DFMA analysis and redesign of your own products. You won't leave the building without a new vision of how to improve manufacturing efficiency and product quality. In just one day, you'll

- ▶ Learn about Design for Manufacture and Assembly and how DFMA software works
- ▶ Perform a real benchmark analysis of your product or assembly
- ▶ Brainstorm numerous ideas for redesigning your product
- ▶ Analyze your redesign alternatives to investigate potential savings
- ▶ Finalize your DFMA analysis results in a printed report to take away

To learn more about this hands-on DFMA workshop and our other training sessions, please click [HERE](#).

Get Started Now

Nothing beats advice from experienced DFMA practitioners. Boothroyd Dewhurst has pulled together 18 excellent technical papers presented over the years on the application of DFMA and concurrent engineering techniques. Called "How to Get Started on DFMA & Concurrent Engineering," it includes contributions from Harley-Davidson, General Motors, Hewlett-Packard, Maytag, Teradyne, and other leading companies. Please click [HERE](#) to learn more.

