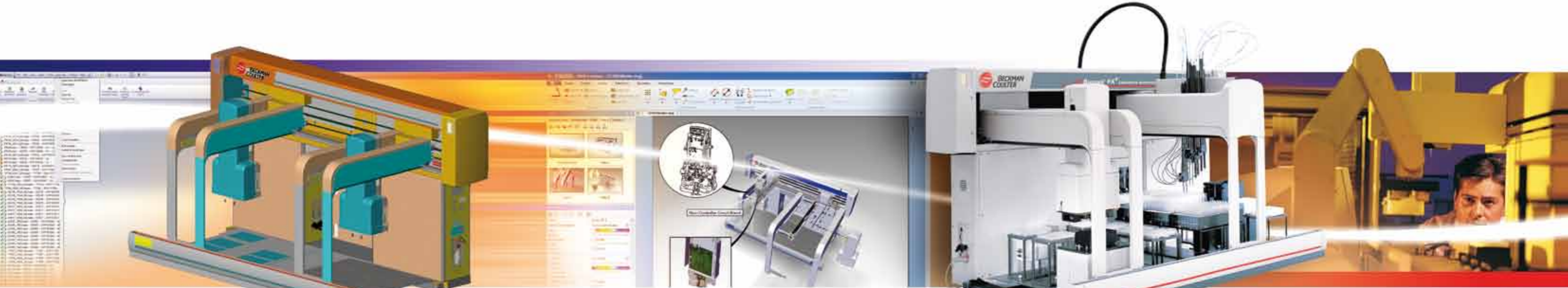


Beckman Coulter

Advancing biomedical device development with DS PLM





Beckman Coulter Objectives

- **Improve time to market and operational efficiencies**
- **Increase design and engineering collaboration among acquired businesses**
- **Reduce manufacturing documentation costs**
- **Improve quality and boost innovation**
- **Control documentation data streams and audit trails**

Company Overview

Beckman Coulter Inc. is a leading developer and marketer of biomedical testing instrument systems, tests and supplies for clinical diagnostics and life sciences tools. Spanning the biomedical testing continuum—from medical research and clinical trials to laboratory diagnostics and point-of-care testing – Beckman Coulter’s 200,000 installed systems provide essential biomedical information that enhances global healthcare.

The company, based in Orange County, California, has more than 12,400 employees in 130 countries and reported 2009 annual sales of \$3.3 billion. In addition to its headquarters, Beckman Coulter operates major facilities in Indiana, Massachusetts, Minnesota, Florida, Germany, Ireland and Japan.

Business Challenges

As a leading manufacturer of biomedical instrument systems and supplies, Beckman Coulter is subject to strict regulations. To comply with those requirements, Beckman Coulter must strictly control and document data streams, processes, workflows, and audit trails.

Beckman Coulter has grown, including several mergers and acquisitions, inheriting a wide range of disparate systems that made collaboration and knowledge-sharing difficult. To leverage Beckman Coulter’s extensive knowledge in new product development, manufacturing, and service after sales, the company depends on its ability to conduct concurrent product development at seven different sites across the US and in Germany and Japan. To improve its ability to get to market quickly and cost effectively, the company has focused on eliminating serial processes, disparate systems, and expensive prototypes. To address these challenges, Beckman Coulter sought a platform that would quickly integrate the operations of new acquisitions while enabling the company to better leverage its intellectual property across a global and highly matrixed organization.

Solution

After evaluating all of its inherited solutions, Beckman Coulter began standardizing in 2007 on Dassault Systèmes (DS) Product Lifecycle Management (PLM), including SolidWorks for 3D product design, ENOVIA for global collaborative product lifecycle management, and 3DVIA Composer for virtual product documentation.

In 2009, Beckman Coulter continued its standardization strategy with the selection of DS PLM Version 6 (V6) for the management of its product development and related compliance processes. Leveraging V6 out-of-box functionality, Beckman Coulter began a multi-phase deployment across the various business groups.

Key advantages of V6 and the DS PLM solution set include its ease of use, ability to facilitate collaboration across multiple dispersed sites, and management of documentation and processes for regulatory compliance.

SolidWorks eases enterprise-wide collaboration

With product development spread across the United States and three continents, Beckman Coulter needed a way for different design groups to share and re-use designs across locations and product lines. “The large pool of available engineers with SolidWorks experience, its impressive support structure and its short training times all contributed to an attractive cost structure for implementation,” says Don Dorff, senior projects administrator at Beckman Coulter.

ENOVIA ensures data is accurate and accessible

Beckman Coulter needed to securely store and back up critical design and manufacturing data and transfer large data sets among sites without overtaxing its computing networks. ENOVIA gives all Beckman Coulter locations access to the data at all times.

3DVIA Composer simplifies manufacturing and assembly documentation development

Beckman Coulter wanted to separate the creation of models and engineering data from the creation of manufacturing documentation, freeing its design engineers to focus on design work and allowing assembly documentation to change without



“With two to three weeks of SolidWorks training, a designer can be proficient on the system, and there’s a huge pool of experienced users we can hire from because it’s so popular.”

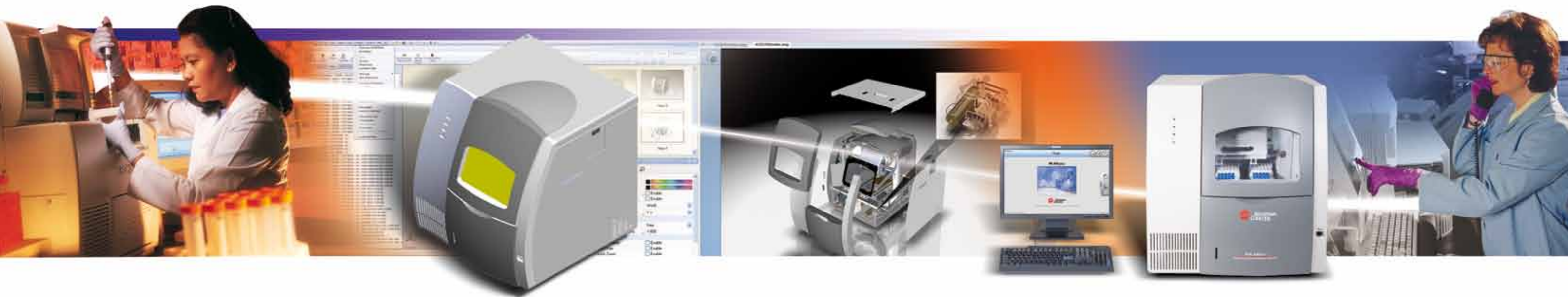
Don Dorff, Senior Projects Administrator, Beckman Coulter



“Dassault Systèmes is helping us drive our products to where we think they need to be.”

Lora Kerr, Director, Business Process Office, Cellular Analysis Business Group, Beckman Coulter





“3DVIA Composer has freed up 15% of our engineers’ time for higher-value tasks and allowed us to reduce drawings by 85%.”

Jernail Hothi, Staff Technical Operations Engineer, Instrument Assembly, Beckman Coulter

affecting the design data required for regulatory compliance reporting. With 3DVIA Composer, which is being rolled out site by site, Beckman Coulter can maintain the critical relationships of its SolidWorks design data, separate from the creation of manufacturing and assembly documentation. The application also is easy for non-CAD users to master, which frees the company’s engineers to focus on design, not documentation.

Results

SolidWorks and ENOVIA streamline design and data access

Beckman Coulter’s previous file-sharing data models involved complicated directories and structures that made it difficult to assemble all of the most recent data on a design. In the past, a designer could spend several days locating all the data and verifying that each piece was current. “ENOVIA does that same operation in less than 30 minutes, and there’s no question that you have the right data,” Dorff says. “We particularly appreciate the fact that we could implement it at our pace, in our time, instead of doing it in a way that adversely affects our ability to put product in the marketplace.”

SolidWorks also contributes to substantial time and cost savings. Within three weeks of completing SolidWorks training, a designer can finish a new product model. “We’re on the right path if we’re using tools that allow our users to be successful and that simplify their lives,” Dorff says.

DS PLM makes it easy to reuse existing data and knowledge for new product innovation, which speeds time to market. Rather than design subsystems like pumps and cooling equipment from scratch each time, the desired characteristics can be used to easily search SolidWorks designs in ENOVIA, saving time and additional cost.

ENOVIA also allows designers from one product line to research designs from other lines or locations for reuse in new assemblies. “We’ve broken the boundaries of product development between sites, and we’re sharing our knowledge so that everyone can benefit from it,” Dorff says. “Tools are no longer a constraint to where project work is done.”

Because Beckman Coulter’s products utilize many off-the-shelf components that can become unavailable, the ability to redesign quickly is imperative. “It’s great that we can integrate a change and get the product out the door, because we don’t carry a lot of inventory,” explains Bernie H. Marroquin, senior technical operations engineer with Beckman Coulter’s Instrument Assembly group. ENOVIA allows Beckman Coulter to quickly identify the current design, substitute a part from another supplier, and modify the design as needed to get the revised product into production without delay.

3DVIA Composer dramatically reduces documentation change times

Beckman Coulter wanted a manufacturing and assembly documentation solution that could take design data from SolidWorks and maintain the relationships in that data, but keep it separate from the data set used for regulatory documentation. “When we want to make a change that has nothing to do with form, fit or function, we don’t want to require engineering involvement or changes to the engineering data set,” says Jernail Hothi, staff technical operations engineer, Instrument Assembly. “That data set is the lifeblood of our compliance documentation, so we don’t want that changed simply because we decide to assemble something in a different order.”

3DVIA Composer pilots have been conducted at three sites so far, and Marroquin says users appreciate how easy it is to manipulate documents, change them, and import design changes from SolidWorks without having to recreate the entire document. As a result, change order times on manufacturing assembly documents have been cut from as much as a week to two days or less, a savings of more than 50%.

Improved first-pass yield

First-pass yield – errors found by Quality Assurance (QA) after the first assembly attempt – has improved by more than 20%, Hothi says, which raises Beckman Coulter’s end-customer satisfaction rates even higher. Better documentation also helps the company deal with turnover among assembly workers. “With 3DVIA Composer, if we lose a worker, their replacement can learn to build an assembly in minutes or hours versus days and weeks,” he says. “We’ve eliminated 95% of the words in our

DS PLM Key Benefits

50% Reduction in documentation change order time
Reduced from a week to two days or less with 3DVIA Composer pilots

99% Less time searching for latest data on a complete assembly
Reduced from as much as 3 days to just 30 minutes with ENOVIA

95% Fewer words needed in assembly documentation
Online, interactive 3D instructions have replaced most of the words in assembly documentation

22% Improvement in first-pass yield
QA finds first assembly attempts are significantly more accurate



“It’s great that we can integrate a change with ENOVIA and get the product out the door, because we don’t carry a lot of inventory.”

Bernnie H. Marroquin, Senior Technical Operations Engineer, Instrument Assembly, Beckman Coulter

assembly documents and replaced them with pictures that move, so you can see exactly how to assemble something.” Improved production and process control and improved employee training with 3DVIA Composer also are contributing to impressive ease in complying with regulations. Animated instructions with isometric views reduce manufacturing errors, and traceability with associate ID numbers and time stamps are incorporated in final assembly reports, providing detailed product traceability from the smallest part to a total assembly.

Faster time to market and improved quality and value for customers

When Beckman Coulter had to produce and photograph prototype parts before it could begin to create assembly documentation, the process could not begin until the entire design was complete. With 3DVIA Composer now implemented at several of its sites, Beckman Coulter routinely completes its assembly documentation in parallel with development of a new product design, streamlining instrument design and assembly document creation and release. “We’re improving the quality of build,” Hothi says. “We have far fewer reworks and initial issues in the field, which of course translates to a much better perception of the quality and value of our products.” 3DVIA Composer combines both digital pictures and quality validation checks into a single operation.

Beckman Coulter’s designers previously spent as much as 20% of their time working on documentation, now down to 5% in the 3DVIA Composer pilots. “3DVIA Composer has freed up 15% of their time for higher-value tasks,” Hothi says. “It also has allowed us to reduce drawings by 85%. What used to require 150 pages of model prints is down to five pages with 3DVIA Composer.”

Beckman Coulter also is saving time and getting products to market faster by using ENOVIA to accelerate business process and change management. Automated workflows have helped the company identify bottlenecks and streamline processes. By customizing its workflows for different stages of product development, Beckman Coulter has reduced the number of signatures needed to ensure compliance, allowing the company’s document control teams to drive the process and keeping its most skilled design workers on task.

Future

Beckman Coulter perceives DS V6 as an enterprise-level solution for all of its product development and related compliance processes. With a focus on creating a single source of trusted information that eliminates disparate systems, automates processes and workflows, provides a framework for collaboration and enables flexible, modular system consolidations, Beckman Coulter executives see V6 as the engine to help enable additional efficiencies and continued excellence in its business. “Our goal is to achieve operating excellence by enabling operational autonomy for our various businesses while providing the appropriate level of corporate governance,” says Lora Kerr, director of the Business Process Office within the company’s Cellular Analysis Business Group. “We consider V6 a key enabler of our ability to manage and integrate change in a rapidly evolving company.”

“The Dassault Systèmes product suite gives us a big advantage because it has all of the best-in-class solutions and a favorable cost structure and learning curve.”

Don Dorff, Senior Projects Administrator, Beckman Coulter

DS PLM FOR THE LIFE SCIENCE INDUSTRIES

Dassault Systèmes has worked with major Life Science organizations for many years to provide a range of leading PLM solutions that support quality management, regulatory compliance, and product innovation business processes.

DS PLM solutions cover the highly regulated product development needs of pharmaceutical, biotechnology, medical device, and patient care organizations working to improve the condition of precious human lives.

The DS PLM portfolio of CATIA, DELMIA, ENOVIA, SIMULIA, 3DVIA and SolidWorks enable Life Science manufacturers to increase innovation, reuse company knowledge and part design, standardize processes, ensure quality, increase flexibility, and reduce product development costs to accelerate the development of innovative medical products while streamlining quality assurance processes for regulatory compliance.

For information about DS PLM solutions for Life Science industries, visit www.3ds.com/life-sciences

The Dassault Systèmes home page can be found at www.3ds.com

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As world leader in PLM (Product Lifecycle Management) solutions, Dassault Systèmes brings value to more than 80,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire life cycle of products from conception to retirement.

The Dassault Systèmes PLM offering consists of 3DVIA for 3D lifelike experience, CATIA for integrated product design, DELMIA for digital manufacturing and production, ENOVIA for global collaborative innovation, SIMULIA for realistic simulation, and SolidWorks, which offers 3D for professionals.

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