MatrixOne

Changing the Way the World Brings Products to Market™

The Company

3M is a $16 billion diversified technology company with leading positions in healthcare, safety, electronics, telecommunications, industrial, consumer and office, and other markets. Headquartered in St. Paul, Minnesota, the company has operations in more than 60 countries and serves customers in nearly 200. 3M businesses share technologies, manufacturing operations, brands, marketing channels, and other important resources. 3M's Wuppertal, Germany-based unit is a leading supplier to the world's telecommunications and data network industries. The unit develops, manufactures, and markets passive and active components for telecommunications and networks. With almost 2,500 employees in 20 countries, the unit operates production facilities around the world.

The Challenge

In the course of a review of product development processes in 1999, 3M recognized an opportunity to drastically reduce the time and expense associated with traditional paper-based methodologies. While investigating product lifecycle management systems that could manage design data and drawings online, 3M realized that the system could also efficiently support the ISO 9000 quality management process by making available company-wide all product-related documents including CAD, CAE, CAM and ERP data to all manufacturing sites; supporting simultaneous engineering practices; granting role-based access to information; and making information in 3M's SAP system available without generating redundant data. 3M anticipated benefits such as: cost reduction and time savings by eliminating non-productive activities, shortened development cycles through concurrent engineering practices, and substantial quality improvements through uniform current data availability at all of the company's international locations.

Telecommunications

The Success

- **Global Collaboration**
  Collaboration throughout the design and manufacturing process delivers tremendous benefits in time, quality, and cost.
- **Accelerated Product Delivery**
  Integrated SAP ERP, CAD, CAE and other systems with eMatrix speeds products to market.
- **Regulatory Compliance**
  Full ISO 9000 compliance through documentation and vaulting in eMatrix.
- **Rapid Deployment**
  Successful 12-week rapid roll out made possible with eMatrix dynamic business model capabilities.

The Story

"By having information at the earliest possible time in the pre-production cycle, participants contribute their specific knowledge to the development of the product. This eliminates costly redesigns and helps to adopt the cheapest possible solution while maintaining the highest level of quality. eMatrix makes this possible."

Willi Geser
Manager,
Technical Information

Additional requirements 3M defined for its ideal product lifecycle management system included an SAP R/3 interface, integrations to MCAD systems and Microsoft Office, Web access, CAD neutrality, multi-lingual support, and a modern flexible systems architecture.

"Apart from the availability of interfaces to our existing CAD and CAE systems, the accessibility of SAP data was a major requirement," says Willi Geser, Technical Information Manager of 3M. "High on the list of requirements was also an innovative approach to systems architecture and support of Web access."

The Solution

eMatrix™ emerged as the solution of choice for its SAP integration, the availability and quality of CAD interfaces, and its dynamic data modeling capabilities. "Another prime aspect was MatrixOne's exclusive focus on collaboration and information management technologies," explains Geser. "Though we needed a tight integration for our CAD solutions, we wanted to maintain a maximum of independence from our CAD vendors."

Rapid Implementation

To ensure a fast return on investment, 3M devised a detailed plan to introduce functionalities into production in a phased roll-out. In just 12 weeks, 3M deployed eMatrix functionality for migration, implementation of CAD and CAE integrations, and test. 3M created a digital archive in eMatrix that allows for 200 different object types to hold files previously stored on microfilm; in CAD, CorelDraw, Image, Office Files, and more. Geser comments, "Due to time constraints, we had to do much of the testing during the initial phases of productive use. eMatrix flexible data model made this both possible and easy."

ISO 9000 Compliance

To meet ISO 9000 quality management guidelines, 3M integrated its project workflow encompassing product definition, product specification, product and tooling development, qualification for production, and production in eMatrix. In the change management process, a new revision of the component is automatically generated by eMatrix, with previous versions maintained and provided upon request. This enables a full documentation of every product over its complete lifecycle, so that a user can request information regarding what components and related documents are used in every single assembly at any time. 3M also implemented a quality management process and a CNC job management in eMatrix. Every promotion to the status "pre-production releases" in the component workflow is subject to a quality management process. CNC jobs are managed within eMatrix together with the related components and revisions.

SAP R/3 Integration for Accurate BOMs

A direct interface between eMatrix and the company's SAP R/3 system enables users to generate material master records in SAP directly out of eMatrix. This eliminates the time consuming and error-prone entry of product data into SAP. In addition, the eMatrix user can request information on existing parts from SAP, such as purchasing info, availability, or pricing. BOMs are generated in eMatrix and passed to SAP R/3. The user can also transfer BOMs from SAP R/3 back to eMatrix. The communication between eMatrix and SAP R/3 is initiated automatically through events in the lifecycle or the user can manually start the process

Consistent Data Eliminate Revision Errors

In the future, Info-only users will be able to access information in eMatrix via the Internet. Users in production, quality management, product marketing, sales, and marketing will be connected through eMatrix, enabling data consistency throughout the entire product lifecycle and eliminating error-prone, paper-based information transfer.

Looking Forward: Dramatic Savings through eMatrix

Geser describes the future benefit of the foundation that was laid with the introduction of the eMatrix process with the example of an ISDN Net terminating device that is used in many households and offices across Europe: "In the future we may well collaborate with our subsidiaries and suppliers in virtual development teams. A possible scenario could be that the mechanical casing of the product is developed in Cluses, France, while the electrical engineering is done in Wuppertal, Germany. At the same time the development of the machine tools for the casing can be farmed out to an external contractor in Germany, France or the UK. The production of the printed circuit board and the assembly of the device could then be done at yet another site, such as one of our premises in the UK. By providing up-to-date product information with no latency simultaneously to all of these participants, we can reap huge benefits in terms of time, quality and cost. This eliminates costly redesigns and helps to adopt the cheapest possible solution while maintaining the highest level of quality. In the final consequence, even sales or the customer can receive an update of the progress of the project."

The Bottom Line

Going forward, 3M will enable various locations worldwide to access eMatrix in addition to integrating and reconciling processes across 3M. Geser anticipates no challenges commenting, "Due to the flexibility of eMatrix, we can even implement site-specific processes. This makes harmonization of processes across 3M easily feasible with a reasonable effort."

About MatrixOne

MatrixOne, Inc. is changing the way the world brings products to market™ by helping customers to accelerate the right products to market profitably. Committed to the success of innovative companies, MatrixOne, together with its partners, offers product lifecycle management (PLM) solutions that enable enterprises to reduce costs, speed innovation, and maximize revenues across global value chains. MatrixOne's approximately 600 global customers represent the aerospace/defense, automotive, consumer products, general machinery, high technology, and life sciences industries, and include GE, Procter & Gamble, Philips, Siemens, Agilent Technologies, Johnson Controls, and Honda. A global corporation, MatrixOne is headquartered in Westford, Massachusetts.

MatrixOne

210 Littleton Road, Westford, Massachusetts 01886 T. 978 589 4000 F. 978 589 5700 www.MatrixOne.com