

PLM propels innovation

Process transformation built on Teamcenter speeds new product introductions

Business challenges

Competitive industry requires fast time to market and ongoing innovation

Global operation increases collaboration challenges

Keys to success

Strong PLM vision and executive commitment

Process transformation rather than simply deploying technology

Single repository for all product information including Pro/Engineer data

Single engineering BOM

Identical PLM implementations at five worldwide sites

All five sites have design changes synchronized daily, participate in single product change management process

Three different systems were eliminated by deploying a single change management process within Teamcenter

MERCURY MARINE

Marine industry leader

Mercury Marine is the world's leading manufacturer of recreational marine propulsion engines. A \$1.5 billion division of Brunswick Corporation, Mercury provides engines, boats, services and parts for recreational, commercial and government marine applications.

Mercury's strategic vision is to be "the most respected and revered global marine industry leader," which requires product development processes that are flexible and fast enough to support constant innovation. And with manufacturing/supplier facilities in 11 countries and engineering activities in six, these processes must operate seamlessly across multiple sites.

Duplications and delays

"Before the business process transformation, product design data and project data was stored and managed in multiple systems, which led to longer lead times in our product development process," explains Balakrishna Shetty, technical lead for CAD, CAM and PLM Systems at Mercury. "With the defined release processes in Teamcenter to capture the development- and milestone-specific design builds, all stakeholders in the product development process are ensured of using the same information to make the right decisions."

In the past the company also had multiple systems and places where people could take out part numbers. The engineering bill of materials was maintained in spreadsheets by all the stakeholders involved with product development. The engineering change process used multiple systems and it was not automated. "All this resulted in extended lead time in the design and development phase and didn't help the downstream users," says Shetty. CAD data was managed in a PDM environment, preventing the company from leveraging it in cross-functional collaborations.



TEAMCENTER

www.siemens.com/teamcenter

SIEMENS

Keys to success continued

Daily PLM-ERP
synchronization

One system that manages
part numbers throughout
the company

Ability for procurement,
manufacturing, quality and
costing departments to see
latest product information
in real time

Results

Faster product development
process due to the
established guidelines on
storing and managing
product and project data

Increased part re-use
by engineers and
designers because of
one single source for all
the product data

***“Since implementing
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Lenny Grosh
Project Manager
PLM Implementation
Mercury Marine

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Balakrishna Shetty
Technical Lead
CAD, CAM and PLM Systems
Mercury Marine

Choosing a PLM solution

In the search for a PLM solution, Mercury evaluated software from Parametric Technology Corp. and IBM/Dassault Systems in addition to Teamcenter® software from Siemens PLM Software. Mercury’s PLM solution must manage all of the company’s product data, including geometric data created by its Pro/Engineer® CAD software. It also needs to be able to automate and manage processes such as engineering change as well as support multi-site collaboration.

Mercury chose Teamcenter because it was the “best fit” solution that met these requirements. Another factor in the decision was the willingness of Siemens to work with Mercury to ensure a successful implementation. “A PLM implementation requires a close partnership with the vendor,” says Shetty. “Siemens works with us on an ongoing basis to improve the technology mapping of our processes as well as its software.”

Process improvement before PLM

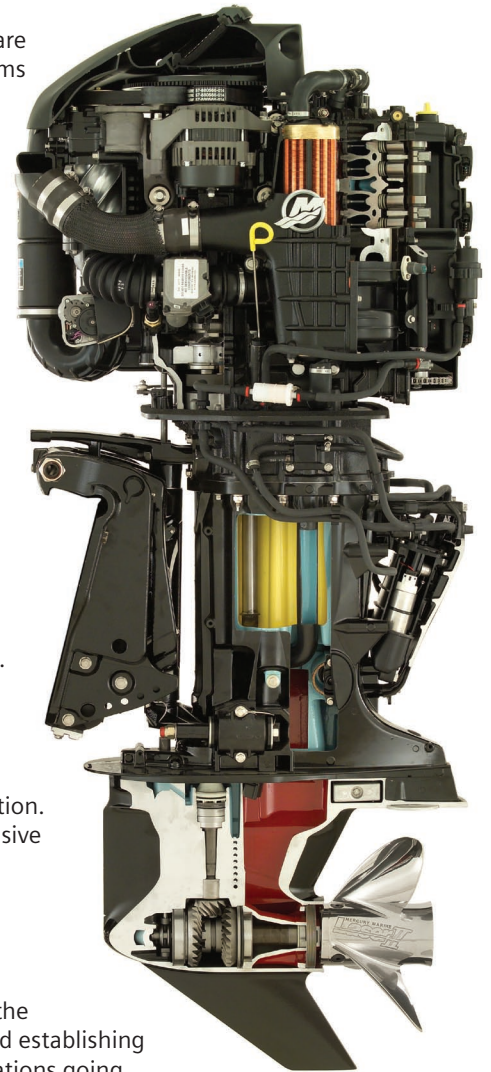
Prior to implementing Teamcenter, Mercury followed a three-tiered process designed to ensure buy-in at all levels. “When organizations embark upon a major software implementation, they tend to jump straight into the technology without first aligning around cross-functional goals and processes,” explains Lenny Grosh, the Mercury project manager in charge of the Teamcenter implementation. “That typically results in either a much longer, more expensive deployment due to mismanaged expectations and misunderstood processes, or an implementation that is deemed unusable by the rank and file, and therefore considered a failure.”

Tier 1 involved understanding the top executives’ view of the existing processes, capturing the voice of the customer and establishing metrics for success. “This managed the executives’ expectations going forward,” says Grosh. Tier 2 was a process-definition step in which existing processes were refined at the user level, evaluated and streamlined in preparation for Tier 3. This final tier was the actual aligning of the defined processes to the technology. Once this was completed an extremely rapid implementation was possible thanks to the groundwork done in the tiered approach. “Over the course of five months, we rolled out identical Teamcenter implementations in Wisconsin, Oklahoma (Stillwater and Tulsa), and Mexico; adding a fifth site in China within a year,” Grosh notes. Currently more than 800 Mercury employees around the world use Teamcenter.

Data and processes under control

A key element of the company-wide Teamcenter implementation is the use of a single repository for all product information. This includes Pro/Engineer CAD data, design specifications, design standards, material specifications, supplier data and specifications and any other dataset types relevant to the product data. It also includes 600,000 items of legacy product data that were migrated into the Teamcenter database.

Mercury’s Teamcenter sites are synchronized nightly, allowing a level of global design collaboration. Mercury uses the community collaboration capabilities of Teamcenter for managing project data where teamwork is essential. These capabilities are based on Microsoft SharePoint® server. With the use of Teamcenter the people in areas such as costing, procurement, quality and manufacturing now have access to design data, even though they don’t use Pro/Engineer,” says Shetty. Mercury uses various workflows and statuses to manage the lifecycle of an item from concept to end of life. As part of the drawing sign-off workflow, Teamcenter pushes the released and approved drawing in a PDF format to Mercury’s intranet website for those who need it. Teamcenter is integrated with Mercury’s ERP system; the two programs are synchronized daily.



Solutions/Services

Teamcenter
www.siemens.com/teamcenter

Client's primary business

Mercury is the world's leading manufacturer of recreational marine propulsion systems.
www.mercurymarine.com

Client locations

United States, Mexico, China, Japan

"When you see this happening – people seeking you out to ask if you can put a workflow in Teamcenter – you know PLM is a success for the organization."

Lenny Grosh
Project Manager
PLM Implementation
Mercury Marine

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Technical Lead
CAD, CAM and PLM Systems
Mercury Marine

Teamcenter manages project-related information such as documentation, scheduling, team meetings, individual tasks and feedback. Since implementing Teamcenter, Mercury now has just one place where part numbers are created and managed and one place where engineering bills of materials are stored and managed. In addition, a single, automated change management process is now in place, replacing multiple systems.

Innovation boost

The most telling result of Mercury's process transformation is the way Mercury manages its High Performance Product Development process today. The product development process, along with data management/change management processes, enabled Mercury to introduce more innovative products in short duration using the same or fewer engineers.

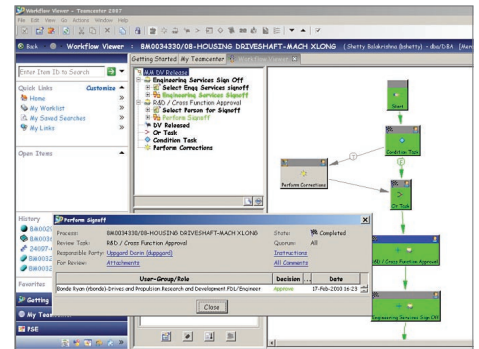
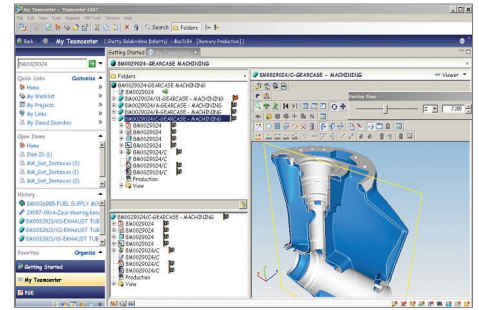
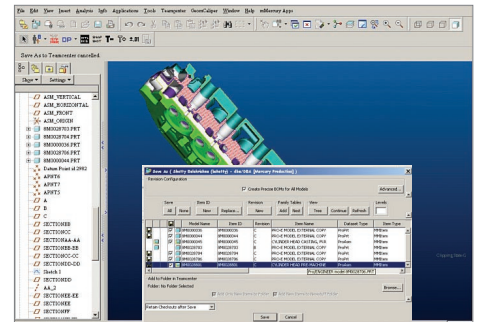
This innovation boost is due to a number of factors. "One is design re-use, which is happening to a much greater extent now that Teamcenter searches can quickly identify appropriate parts and designs in the database," says Shetty. With less time wasted creating duplicate parts, there is more time for innovation. Design re-use also reduces costs.

Mercury's accelerated innovation rate is also the result of fewer delays caused by errors. With single source product information and one engineering bill of materials through the entire development process, people now work within one system where they get all the information they need. Also, design modifications are captured through a disciplined and automated approval process.

Process automation is another area where time saved goes back to innovation. Mercury's engineering change process offers an excellent example. "Having a single engineering change management process that is managed by Teamcenter throughout Mercury Marine produces significant yearly savings," says Grosh. "Since implementing Teamcenter, the average time for an engineering change at Mercury has dropped from 56 days to 22. These benefits are just the beginning."

Mercury plans to add additional Teamcenter functionalities because end users continue to find ways to take even more advantage of the software. "When you see this happening – people seeking you out to ask if you can put a workflow in Teamcenter – you know PLM is a success for the organization," says Grosh.

As director of global processes and systems, Bellio believes that Mercury chose an excellent foundation for transformation when it decided to go with Teamcenter. "Innovation is one of our key business drivers," he says. "When we decided to implement PLM, it was with the goal of strengthening our ability to launch new products. As you can see from what we've done in recent years, Teamcenter and our partnership with Siemens have been a great success."



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