

Putting global product development to work

PLM technology helps businesses engaged in global product development improve communication, reduce time to market, and effectively manage change.

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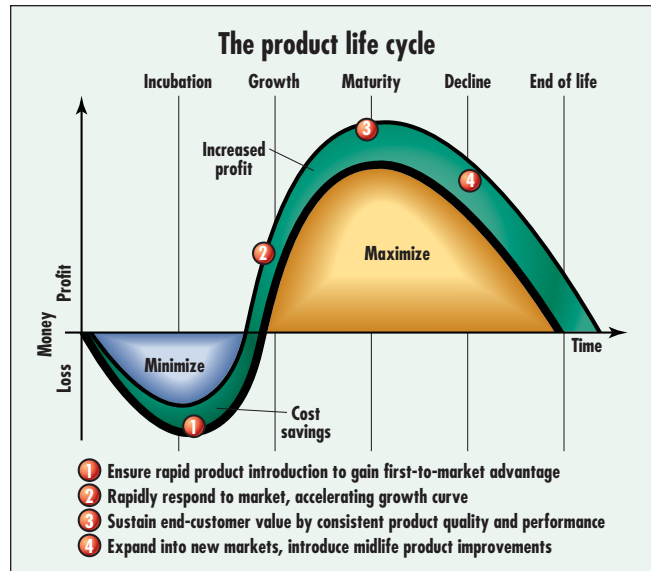
Globalization has dramatically affected companies that develop and manufacture products. Opportunities abound, but companies must keep up with local market conditions. And global competition adds cost pressures and reduces the time companies have to bring products to market. (Time to market decreases an average of 5 to 10% every year.) Globalization also spreads design and manufacturing across various time zones and cultures, hindering communication.

So how do you take advantage of globalization without losing control of product development? More importantly, how can you exploit global product development?

The answer is PLM — Product Lifecycle Management, one of the fastest growing segments of the software industry. PLM helps capture product data as well as design knowledge and expertise.

Most companies, from the smallest to the large multinationals, recognize that new tools are needed to regain control of widely dispersed product data. Many companies have invested heavily in technologies such as Enterprise Resource Planning (ERP), Supply Chain Management (SCM), and Customer Relationship Management (CRM). Combined with these other systems, PLM helps company and supply-chain personnel by combining business-critical systems for quicker innovation and better collaboration.

PLM consists of design tools, Product Data Management (PDM), product visualization, enterprise-wide



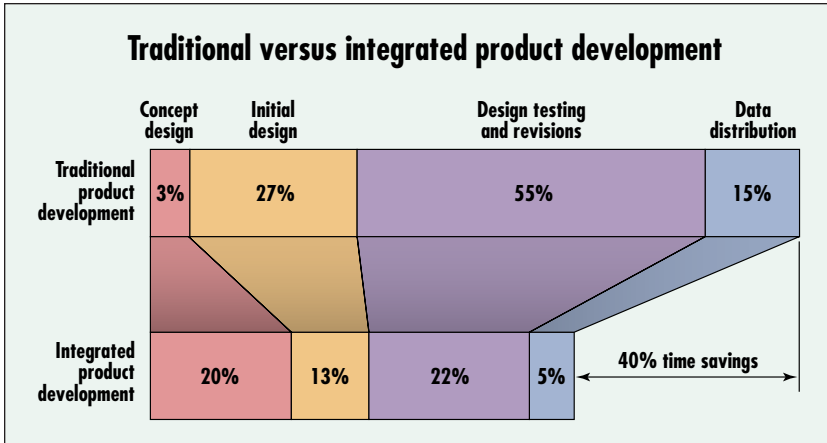
collaboration, and process management. It controls access to all product-related data — from engineering drawings and 3D model files to product specs and manufacturing instructions. It gives people the information they need, any time, anywhere in the world. Using PLM, businesses document and enforce product-development processes, increasing productivity based on well-designed best practices. In short, an effective PLM system provides companies with a single source for product and process knowledge.

THE "MICROSCOPIC" BENEFITS OF PLM

FEI Co., Hillsboro, Oreg., a manufacturer of electron microscopes, knows firsthand how a single source of information provides tangible benefits.

Its four manufacturing plants in the U.S. and Europe were designing microscopes with incompatible CAD systems. There were also cultural and language differences across the company. Consequently, it had great difficulty getting its engineers and others to work together on product development.

"The specialties of our different sites complement each other, but working together often resulted in confusion," explains Frank de Jong, FEI research and technology manager. Flaws went undetected until prototypes were built, wasting months and hundreds of thousands of dollars. Accusations flew across the Atlantic as development sites blamed one another's CAD system, recalls de Jong. The problem was not so much differences in design software, but that databases were inaccessible to those at other locations. FEI needed a compatible system to profit from its product portfolio, mutual architecture, and innovations.



FEI turned to Teamcenter PLM software from UGS to manage its data, including 3D models created by various CAD systems. The software gives all FEI facilities and suppliers appropriate, secure access to data. "We shortened the time to get products right in one go, and the main advantage is sharing data," says de Jong.

FEI now takes advantage of concurrent engineering. Production planning starts early, not after product development is done. And the company gets products to market faster. FEI's multiple sites now offer a competitive advantage with developments shared between locations. There are several other PLM benefits.

Enterprises often grow through acquisitions and partnerships that add complexity. But inconsistency can lead to misunderstandings and project delays. PLM establishes a common workflow that drives consistency. Companies can combine several sites into a single team and standardize practices. Companies with sites across the world can publicize critical project milestones at all locations and at every phase of the product's life cycle. This lets all team

members immediately see how a change affects the overall effort.

GLOBAL COLLABORATION VERSUS SEQUENTIAL PRODUCT DEVELOPMENT

Global companies often find it difficult to work collaboratively, forcing development to proceed sequentially. Take, for example, a simple engineering change order (ECO). Typically, several people from various departments review and approve each ECO. If this process proceeds sequentially, it may take days or even weeks to complete. The longer the process takes, the fewer design iterations can be evaluated, and the longer it takes to get the product to market.

The 2D and 3D viewing and collaboration features of a PLM system let multifunction teams, including outside suppliers and partners, perform design reviews and ECO evaluations at the same time. This slashes development-cycle times and lets the team explore more design options. Used with effec-

tive workflow, all appropriate sign-offs are tracked and recorded, assuring product quality and peace of mind for developers. PLM does this in a secure environment with traceability and assurance that all regulatory compliance requirements are met.

As designs grow more complex, so does the size of the 3D CAD models used to define them. Evaluating the effect of design changes pushes the limit of today's fastest computers.

In the automotive industry, for example, a typical car has more than 10,000 parts. On average there are 2,500 parts changes per model every week. The impact of these changes on weight, cost, and suppliers' schedules must be analyzed. And while engineers are pulling the changes together, more design changes are being made.

REPEATABLE DIGITAL VALIDATION (RDV)

Scenarios such as these require data-handling tools that quickly evaluate numerous design alternatives. UGS does this with Teamcenter's Repeatable Digital Validation (RDV). RDV uses the "lightweight 3D" product modeling of the "JT" format. This lets users share 3D geometry representations over the Internet without having to transport immense CAD files.

The Web-based PLM provides an "always on" digital mock-up of the product and all its variations. Companies can make product decisions more quickly and in "real time" while assessing the affect on product performance. RDV delivers essential data to those who must get the right product to the right market.

By allowing global companies to efficiently manage their production information and processes, PLM might be the final piece in the productivity puzzle. ■

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