



*ENOVIA VPM: Compete through innovation*





## **The new competitive environment**

The world is changing. A new digital economy is emerging where a primary asset of a company is its organizational knowledge and competitiveness is dependent upon its ability to innovate. Competing on your ability to innovate requires that you change your product creation process. And with change comes opportunity - opportunity to use e-business solutions to improve the product creation process. And if you don't change, your competitors will - the ones you know and new ones who you may have never even heard of.

ENOVIAVPM is about better ways to innovate. It's about real-time collaboration across the extended enterprise. It is parallel product and process development. It's about leveraging your CAD/CAM/CAE investments - and your legacy and ERP systems. With ENOVIAVPM you can expand your markets by designing and building more innovative and desirable products. Leaders in aerospace, automotive, consumer electronics companies and other manufacturers are delivering innovative products - in less time - with ENOVIAVPM.

### It's time for change

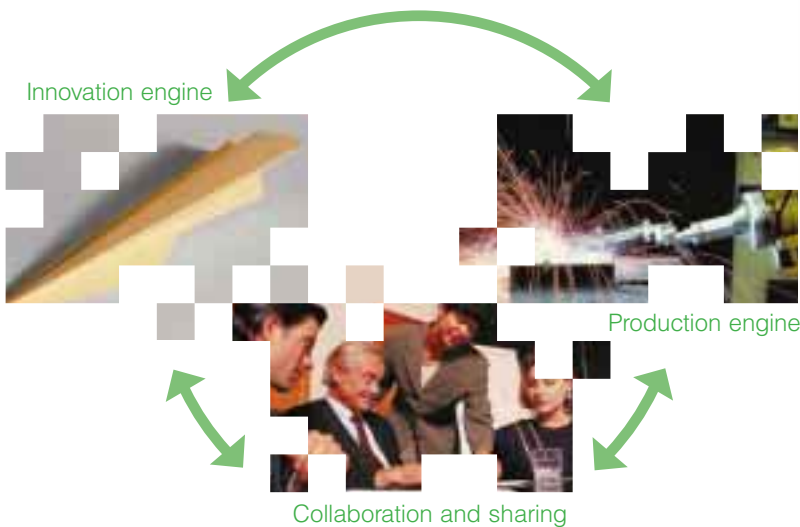
Advanced CAD systems and other applications can now model or simulate a large spectrum of the product creation process. As a result, digital data is accumulating at an alarming rate. Yet, all this data is only available to the few engineers who can actually access and understand it.

Product creation processes and design practices are changing: It's not uncommon to have tens, hundreds and even thousands of engineers from multiple disciplines working in Integrated Product Development teams. With ENOVIAVPM you can exploit this digital product information and new design practices. Product information is shared with everyone - not just among designers - but also with analysts, manufacturing engineers, maintenance personnel, and more. Real-time access to product information enables reengineering of traditional processes, and results in dramatic improvements in cycle time, product quality and your company's ability to innovate.



### CATWEB

*ENOVIAVPM and CATWEB exploit the web to deliver product navigation to every user's desktop. They provide transparent and secure access to configured digital product information throughout the extended enterprise.*



### C=MS<sup>3</sup>: Competitiveness is a business equation

As indicated through increasing use of ERP systems, today's companies are focusing on their production engine. ENOVIAVPM supports the innovation engine, where new products can help increase market size — a key element of overall competitiveness.

$$\text{Competitiveness} = \text{Market size} \times \text{Market share} \times \text{Margin on sales}$$



*“The new ENOVIA project is in line with Bombardier’s strategy of participating early in the development of new information solutions to ensure they are perfectly adapted to the requirements of our customers and our products. Key to our success in delivering the Global Express on time was the use of CATIA’s digital mockup facilities. We are convinced that by extending the digital mockup concept to other sectors of our business, we will enhance our competitive advantage.”*

*Bombardier*

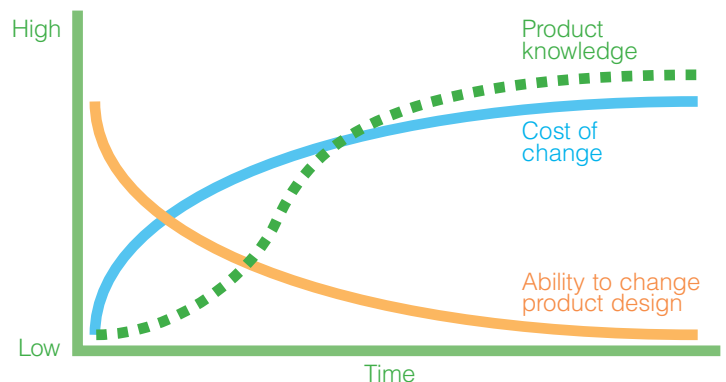
### From information to knowledge

Traditional engineering processes require lots of information. Most of this is used to establish milestones and checkpoints in the product development process. Traditional systems support these traditional processes with little regard to the wealth and content of the digital product information. ENOVIAVPM, with its design-in-context approach, manages the evolution and sharing of the product information, not just the checkpoints or gates. New product creation processes can now fully exploit the digital product definition. Sharing, managing and exploiting the digital product definition enables the capture and re-use of product knowledge. All participants in the product development process - from conceptual design and simulation through maintenance and support - can understand product requirements, performance characteristics, and even maintenance issues.

### Design in context

Design is meaningful only in the context of a particular product. Studies have shown that engineers spend only 25 to 40 percent of their time designing products. The rest is spent in looking for data - and the correct design context. Even when the data is available, the context may or may not be current. To make matters worse, the context is rapidly changing and evolving during the product creation process. ENOVIAVPM fuels innovation by providing to all disciplines within the product development process the proper context in which to exploit product information:

- Configurations: Manage and share alternatives, trade studies or product variants.
- Actions: Communicate and capture change, in context.
- Relationships: Exploit dependencies between data to drive change and communication.
- Publish/Subscribe: Internet-based alert and stay informed over the Net.
- Roles: Manage the roles and responsibilities of all the participants in the product creation process.



### Value of product knowledge

PDM II pushes the product knowledge curve to the left. Earlier knowledge about product performance allows needed changes to occur earlier, when they are easier to make, and much less expensive.

### **Shorter cycle times**

A significant benefit of sharing, managing and exploiting product knowledge is a reduction in cycle time at no expense to quality. Cycle time is reduced through multiple participants simultaneously evolving product designs. Yet without ENOVIAVPM, management of these parallel processes is manual and ineffective; furthermore, cycle time reduction will come at the expense of product design optimization. ENOVIAVPM promotes and manages rapid, parallel design iterations required for design optimization. Configuration Management ensures that the changes are applicable to the correct alternative, variant or baseline design. Maturity Management allows a manufacturing engineer, for example, to begin work before designs are even formally released. If the design changes before release, ENOVIAVPM notifies the manufacturing engineer that updates may be required. If the design doesn't change, the manufacturing engineering is already complete at the time of design release. Achieve cycle time reduction without risking quality, rework or performance.

### **Better product quality**

As product development progresses, changes become more difficult - and more expensive. Traditional paper methods discourage emphasis on product quality early in the process. Quality should be designed into the product - not engineered later. The lack of involvement by all the participants early in the product creation process results in poor quality.

ENOVIAVPM allows all participants to share digital information and knowledge in real time. ENOVIAVPM provides an exploitable design and manufacturing definition available to anyone, anywhere, anytime.

“Roles” define and manage the involvement of all the participants. “Relationships” and “actions” ensure that all applicable design changes and iterations are incorporated into the product creation process. This ensures that quality considerations are designed into the product - not just manufacturing constraints, but other criteria such as performance considerations and maintenance requirements.



### *4D Navigator*

*ENOVIAVPM and 4D Navigator create an enterprise level product synthesis environment to visualize, exploit and analyze multidiscipline, multiorganization digital product information.*

## Digital Enterprise

*The Digital Enterprise is the cornerstone of IBM's e-business solution for the manufacturing and design industries. ENOVIAVPM, in concert with the other Dassault Systèmes and ENOVIA solutions and IBM's consulting and services, is the recipe for transformation of your business into a Digital Enterprise.*



e-business

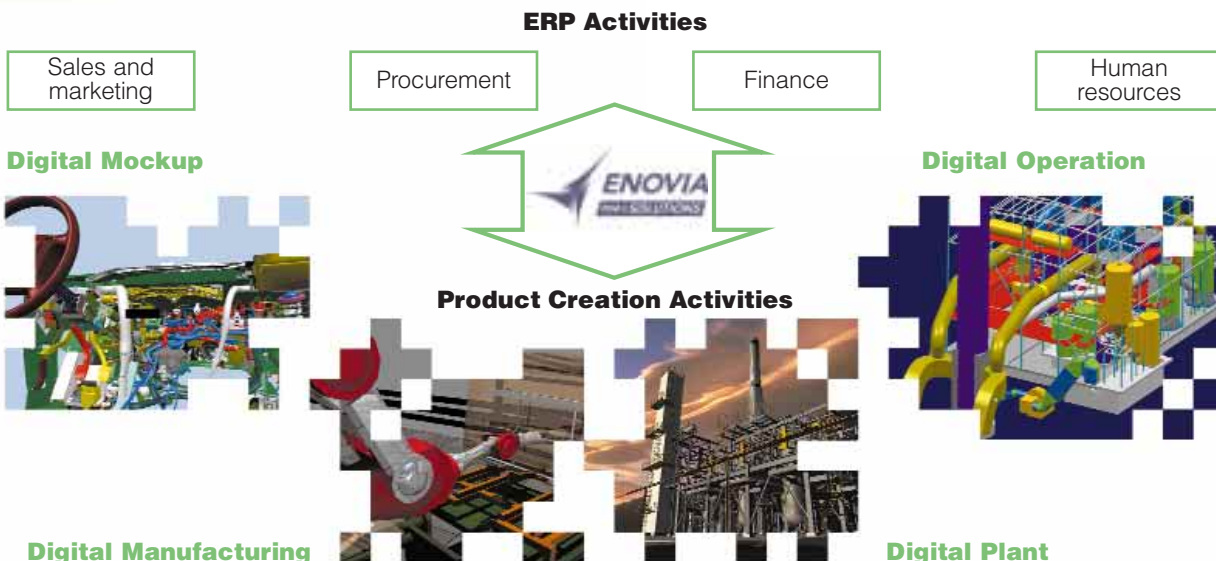
## Leveraging everyone in the extended enterprise

Current computing environments are often comprised of multiple CAD, PDM, ERP and legacy systems - all of which contain valuable data that is critical to the product creation process. ENOVIAVPM provides facilities to exploit the product and process data within these systems and present them to a diverse and globally distributed user community.

But data access alone isn't enough. Gaining competitive advantage requires that you implement improved business processes to leverage this data to drive collaboration everywhere - across different departments, different divisions and even different companies within your supply chain. Processes proven by leading corporations. Processes based on the application of proven solutions and proven technologies. ENOVIAVPM provides the architecture, applications and methodologies to support, manage and leverage the product creation process across an extended enterprise.

## New and expanded markets

Product knowledge is a key to innovation. Managing, sharing and exploiting the digital product definition creates and reuses product knowledge. Using the product knowledge and design context captured by ENOVIAVPM, companies can afford to design and build products they never before thought feasible. Early visualization allows understanding of market acceptance. Early simulation allows determination of product performance. ENOVIAVPM allows companies to truly experiment - at low cost and with little risk. Hitting one, successful, new innovative product can create an entire new market, and mean the difference between being a follower - or a leader. ENOVIAVPM truly releases the power of innovation.



### **ENOVIAVPM - An integral element of PDM II**

Product Development Management (PDM II) is a superset of processes and corresponding technologies designed to enable manufacturers to compete on their ability to innovate. ENOVIAVPM is an integral part of PDM II, and is complemented by ENOVIAPM. Together, the ENOVIA solutions are enabling a new era in product development, helping companies to be more competitive by optimizing the product creation process.

### **IBM - Supporting the Digital Enterprise**

The world is changing. The new digital economy compresses space and time as never before. To compete, you must leverage your organizational knowledge and your ability to innovate. And that requires reinventing your business processes with the best technology and with expertise you can trust.

IBM has created worldwide consulting and services organizations to help ensure a successful implementation of ENOVIA solutions at all levels of the extended enterprise. At the corporate level IBM helps a company develop engineering strategies to achieve specific business targets. At an operational level IBM re-engineers specific processes to take advantage of the ENOVIA solutions. At an infrastructure level IBM implements the IT infrastructure and software that support these business processes.

Utilizing best practices benchmarking and unparalleled skills and experience, IBM has helped companies all over the world improve their competitiveness. Moreover, IBM has utilized these consulting methodologies and ENOVIA technologies to improve competitiveness within its own worldwide operations.

These consulting, services and support capabilities of IBM - combined with the technical leadership and software development expertise of ENOVIA - can help turn your product creation process into a competitive weapon. A Digital Enterprise for the digital economy.



*“Developing a brand new Chrysler vehicle is a complicated process. It involves hundreds of designers, engineers and other people, both locally and around the globe, working on thousands of parts. The ENOVIA products help us better manage the product development process, which is really a massive communications challenge.”*

*Ron Bienkowski  
Chief Engineer  
DaimlerChrysler Technical Computer Center*



#### FOR MORE INFORMATION...

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