The Smart Angle:
Your PLM Strategy in Facing Today’s Economic Challenges

Miki Lumnitz
Director of Product & Industry Strategy
ENOVIA
1. Economy Downturn Challenges
2. PLM – Innovation Strategy
   - Short and Long Term Innovation
   - Reductive Innovation
   - Product Innovation
   - Process Innovation
   - Enabling Innovation
3. PLM – Business Opportunity
4. Dassault Systèmes Solution
The global market today...

Economy downturn characteristics...

- Lower sales and business slowdown
- Financial uncertainty (Decline in Earnings, Credit /Funding/Investment)
- Weak demand for product innovation
- Unclear industrial trends and strategies
- Less dynamic markets
The global market today...

Market response on downturn:

- Companies paralyzed into inaction
- Budget cuts
- Reduction of costs and resources
- Drastic cuts for new product development
- Stop product innovation and projects layoffs
The global market today...

The Challenge... *Innovation!*

- Use Right Technology for your Innovation Strategy
- Find a **right balance** between Product Development and Controlled Innovation
- **Maintain profitability** while sales volumes and prices are down
- **Maintain Quality** of products while reducing materials cost
- To **capitalize** on emerging markets during eventual recovery
- Get most of existing resources
Ideal World

Invest today for future profitability and growth
Today's Dilemma

Where and how to invest the next $…

Money

Financial crisis

Forecast

People layoffs

Less Innovation

Losing IP

Losing Competitive edge

© DASSAULT SYSTEMES

Time
Invest today in whatever will bring you the biggest value to maintain your competitive edge and drive you to sustainable revenue growth once the uncertain times have past.
Invest today in whatever will bring you the biggest value to maintain your competitive edge and drive you to sustainable revenue growth once the uncertain times have past.

“The McKinsey Quarterly

“During a down economy, manufacturers can’t afford to hunker down and wait for the storm to pass. Manufacturers in a downturn must innovate.”

James Gordon, Programming Manager

“We are taking the slow times to strengthen processes and procedures, we will be streamlined and better than the competition so we can react more quickly to opportunities as they come up.”
Innovation Strategy - PLM

Be there... ready... with a competitive edge

- Balancing Short and Long Term Innovation Needs
- Reductive Innovation - "Get more from existing"
- Product Innovation - "Do less to get more"
- Process Innovation - "Do more with less"
- Enabling Innovation - “Try new to get much more"
Balancing Short and Long Term Innovation Needs

- PLM solution which is affordable to purchase and can be implemented quickly with limited resources
- Use step-by-step approach to improve product innovation performance. PLM solution should be implemented modularly (in a series of low risk projects with rapid ROI)
- "Start small and grow as you go" - controlled investment into product innovation to ensure positive ROI and rapid payback. Scalable solution which can be easily extended.
Balancing Short and Long Term Innovation Needs

- PLM solution which is affordable to purchase and can be implemented quickly with limited resources.

- Use step-by-step approach to improve product innovation performance. PLM solution should be implemented modularly (in a series of low-risk projects with rapid ROI).

- "Start small and grow as you go" - controlled investment into product innovation to ensure positive ROI and rapid payback. Scalable solution which can be easily extended.

“A big part of our strategy was to go a step at a time, but now, we ultimately have what we wanted.”

Pete Robinson, Engineering Systems Administrator
Reductive Innovation

Decreasing costs - "Get more from existing"

- "Design For Cost" approach
  - Reduce direct product costs (materials, resources and processes)
  - Correct overdesigned, over-engineered and suboptimal designs (Extra materials and extra processes)

- "Design For Supply" approach
  - Reduce of procurement and purchasing costs across supply chain
  - Increasing the level of Parts reuse and standardization of Parts

- "Design For Requirements" approach
  - Maintain product quality (total cost over time vs. cheapest initial cost)
    ("total cost in service" include shipping, installation, assembly and maintenance)
“Design For Cost” approach
Reduce direct product costs (materials, resources and processes) and overdesigned, over-engineered and suboptimal designs (Extra materials and extra processes)

“Design For Supply” approach
Reduce of procurement and purchasing costs across supply chain
Increasing the level of parts reuse and standardization of parts

“Design For Requirements” approach
Maintain product quality (total cost over time vs. cheapest initial cost)
(“total cost in service” include shipping, installation, assembly and maintenance)

“Design For Cost” approach
We have cost improvement projects every year, but we look at it hard when the economy is down, we review material, process, and time – the whole picture.”

James Gordon, Programming Manager
We are looking back on jobs that weren’t as profitable and trying to change them to make them profitable. Now, it’s more important than ever.”
Product Innovation

“Do Less to Get More”

- Rationalize Product Portfolio according to available resources
- Mitigate risks:
  - Incremental Product Enhancements.
  - Product "face-lifting"
  - Breakthrough Product innovation.
  - New Technology introduction
- Differentiate Product data between existing products and new technology products
Product Innovation

“Do Less to Get More”

Rationalize Product Portfolio according to available resources

Mitigate risks:
- Differentiate Product data between existing products and new technology products

Roman Vachal, Marketing Manager

“We started developing new technology before our customers were even ready for it. Now it is our advantage because we were ready when the customers realized that the new technology was the answer.”

Brett Latimer, Product Development Manager

“When the economy is booming we can afford to take more risks, but with a tough economy we look at less risky programs that will make money but have a quicker payback on our investment.”

- Incremental Product Enhancements.
- Product “face-lifting”
- Breakthrough Product innovation.
- New Technology introduction.
Process Innovation

“Do More with Less”

- Improve Process **agility and flexibility** for better customer responsiveness
- Improving efficiency of the **change management** - introduction of the change to the market
- Automate **organizational workflows** and optimize decision support
- Get the most of existing assets and resources
Process Innovation

“Do More with Less”

Brett Latimer, Product Development Manager

You can’t just cut heads, you have to find a way to do things with less resources. You have to be more efficient, that is how to still make money in a down economy.

Roman Vachal, Marketing Manager

“We introduced workflow for engineering changes to facilitate the process, but it also eliminated mistakes and errors. “
Enabling Innovation

“Try new to get much more"

- Getting Product data under control - Managing overall **Product portfolio** and all **Product related information** - "The single version of the truth"

- **Configuration management and control** - automated maturity tracking - innovation efficiency

- **Global Collaboration**: cross-departmental and dispersed teams. Manage both: technical and commercial product data in life-like environment

- Apply **best practice methodologies** for business processes optimization

- **Mechatronics** – manage electrical design software.
Enabling Innovation

“Try new to get much more”

Centralizing and managing product data in PLM improves innovation efficiency and promotes design and part reuse.

PLM helps provide the data management, process improvement, and collaboration capabilities that manufacturers need to survive in a downturn.

Mechatronics – manage electrical design software.
<table>
<thead>
<tr>
<th>Area</th>
<th>Metric</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global Product Development</strong></td>
<td>Cost per specification via global standard templates</td>
<td>40%</td>
<td>60% Reduction</td>
</tr>
<tr>
<td></td>
<td>Time managing suppliers via supplier consolidation</td>
<td>25%</td>
<td>Cost per supplier certification via template, automation and supplier consolidation</td>
</tr>
<tr>
<td></td>
<td>BOM accuracy</td>
<td>70%</td>
<td>Cost per RFQ via automation &amp; collaboration</td>
</tr>
<tr>
<td></td>
<td>Tooling/production equipment costs via reuse</td>
<td>25%</td>
<td>Cost of prototypes including iterations</td>
</tr>
<tr>
<td></td>
<td>Managing projects &amp; programs</td>
<td>35%</td>
<td>Cost of quality</td>
</tr>
<tr>
<td></td>
<td>Initiating and processing changes</td>
<td>40%</td>
<td>Product launch costs</td>
</tr>
<tr>
<td></td>
<td>Recreating lost data</td>
<td>70%</td>
<td>Time to market</td>
</tr>
<tr>
<td></td>
<td>Turning Market Requirements into Product Design</td>
<td>40%</td>
<td>Warranty costs via production readiness</td>
</tr>
<tr>
<td></td>
<td>Regulatory Compliance</td>
<td>33%</td>
<td>Cost of compliance; Regulatory certification and audit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>
PLM Business Opportunity

- More balanced downturn survival and longer “catch up time”
- Respond rapidly to new opportunities
- Be better prepared to eventual recovery and market growth
- Be ahead of competition
- Product cost optimization for faster time-to-market
- Accelerates Product Development speed
Concept to Manufacturing... and beyond

Life like collaboration across the entire product lifecycle
Capture & analyze new product requirements

Sales Manager
Capture and analyze new product requirements

Defining Project Planning and NPI

Project Manager
Functional & Technical Specifications

Top Down Engineering – Create Initial BOM
Functional & Technical Specifications
Top Down Engineering – Create Initial BOM

Change Management Process
ECR Definition & Impact Analysis
ECO Process Initiate

Lead Engineer
Change Management

- ~45% of PLM ROI is due to change management implementation
  - Reduce number of engineering changes
  - Reduce engineering change cycle time
  - Reduce cost and errors with ability of change impact

“It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.” Charles Darwin
Design and Update Engineering BOM
Mechanical Design and Simulation Analysis
Design and Update Engineering BOM
Mechanical Design and Simulation Analysis
Electrical Design
Design and Update Engineering BOM
Mechanical Design and Simulation Analysis
Electrical Design
Classification & Components Engineering

Components Engineer
Design and update engineering BOM
Mechanical design and simulation analysis
Electrical design
Classification & Components Engineering

Supply Chain Management
Design and Update Engineering BOM
Mechanical Design and Simulation Analysis
Electrical Design
Classification & Manufacturer Management
Supply Chain Management
Technical Documentation
Validate the engineering BOM
CDR – Critical Design Review

Approve for production planning
Manufacturing BOM Planning (MBOM)
- Manufacturing BOM Planning (MBOM)
- Bill of Process Planning (BOP)
- Work Instructions Preparation
- Release for Production

Production Engineer
Serialized and Packaging Process

Serialized BOM (As Built) management
Packaging BOM (As Delivered) management

Maintenance – In service work order Management
Summary

- **ENOVIA SmarTeam offers a scalable, secure collaborative environment**
  - Serves as a single source of product/manufacturing/processes knowledge
  - Puts business-critical information at your fingertips
  - Allows online access to PLM knowledge from anywhere

- **Easy to use out-of-the-box solution**
  - Supports best practices such as Design and Engineering methodologies, NPI methodology
  - Business process with end-to-end scenario coverage

*Be there... ready... with a competitive edge*
Tech-Clarity White Paper

- Jim Brown [jim.brown@tech-clarity.com](mailto:jim.brown@tech-clarity.com).

Tech-Clarity Insight:
Innovating Through an Economic Downturn

A PLM Action Plan for Small to Mid-Size Manufacturers Facing Difficult Times
3D Opens the Door to the World We Imagine