

# *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

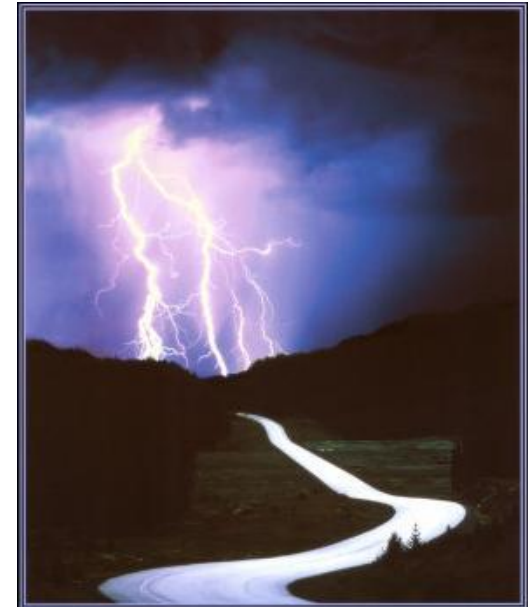




# The global market today...

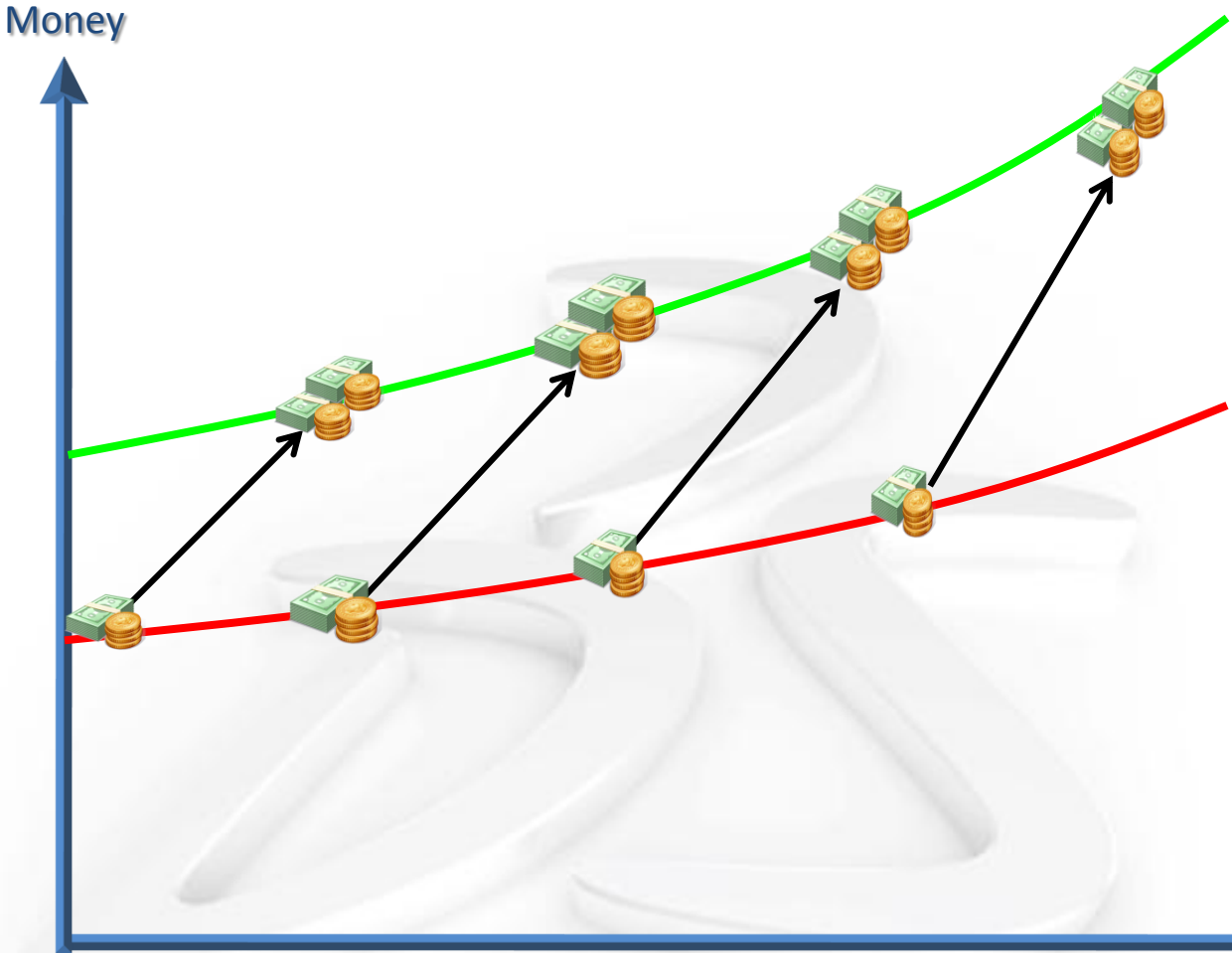
## The Challenge... *Innovation!*

- 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



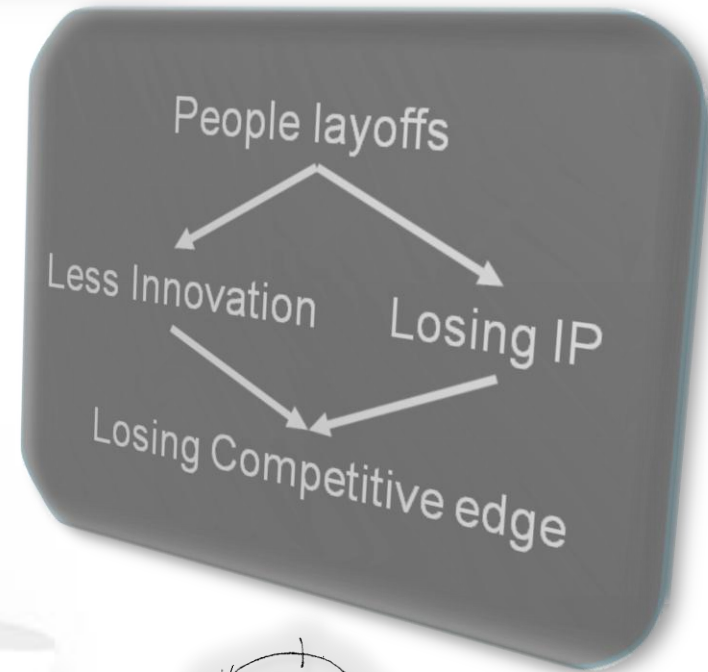
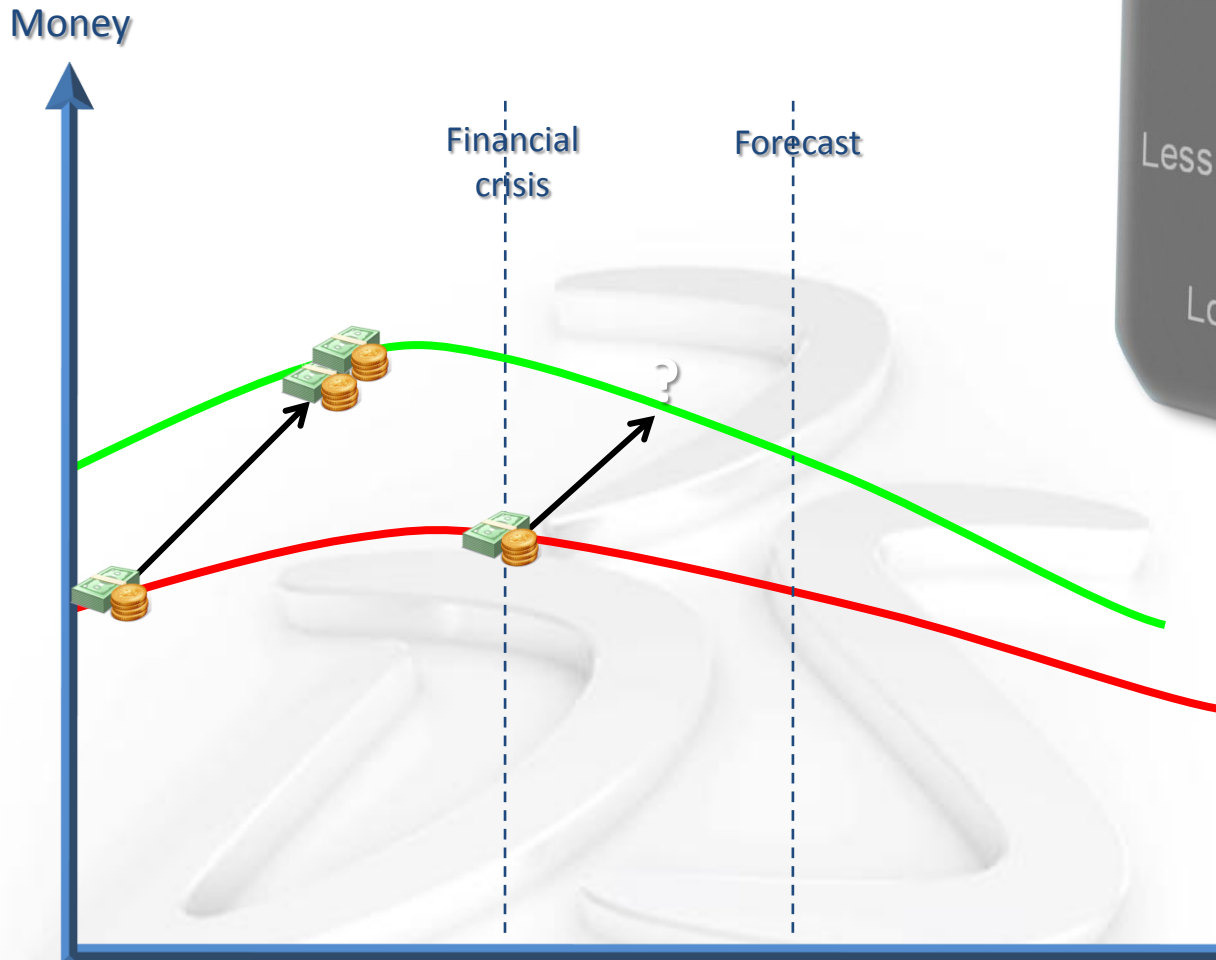
# Ideal World

Invest today for future profitability and growth



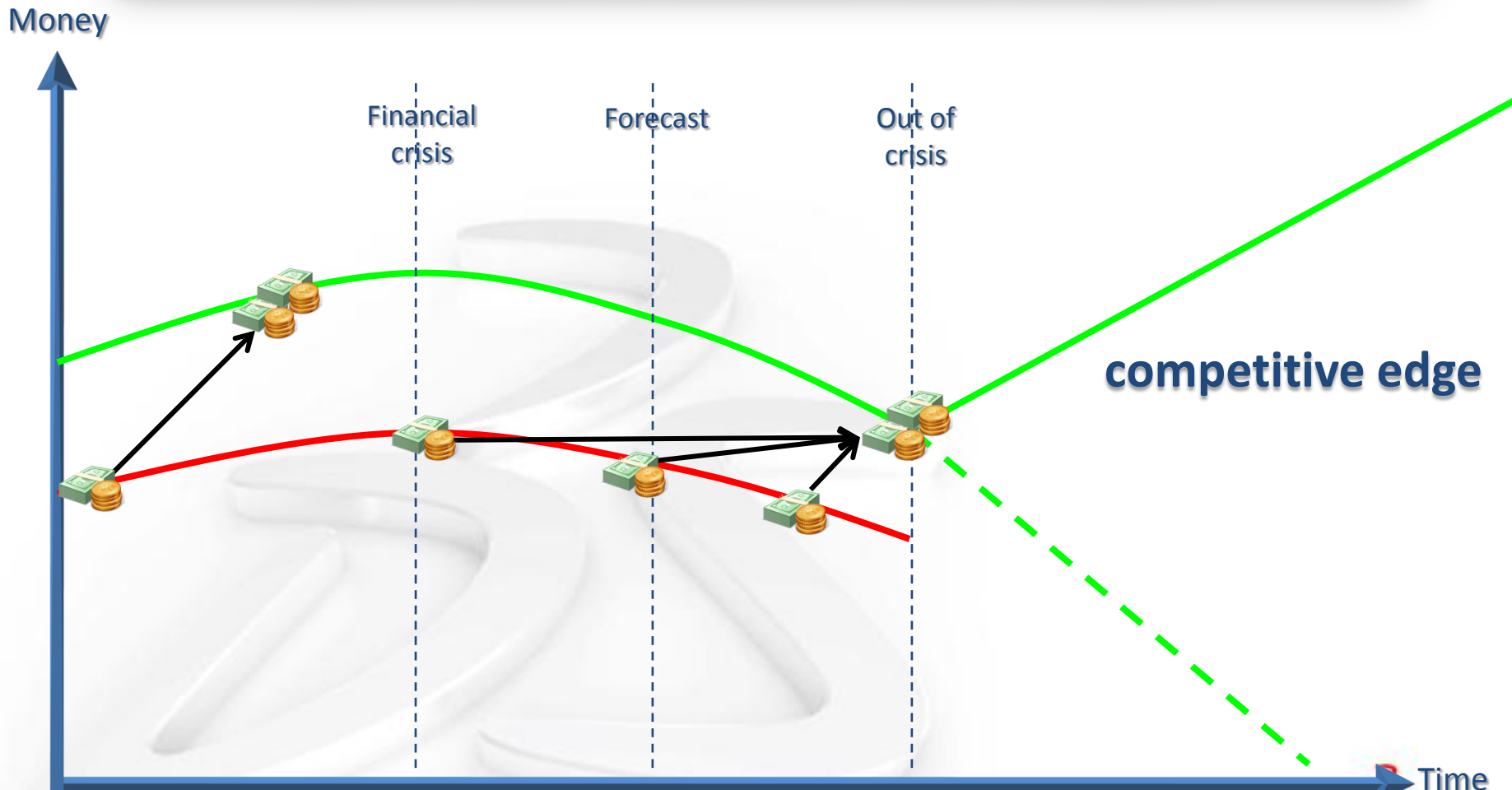
# Today's Dilemma

Where and how to invest the next \$...



# Innovation Strategy - *PLM*

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





# Innovation Strategy - *PLM*

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

Money

*The McKinsey Quarterly* <sup>st</sup>

Out of crisis

*“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*

WEAVER MANUFACTURING

*“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

Pete Robinson, *Engineering Systems Administrator*



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

- "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.





# Reductive Innovation

## Decreasing costs - "Get more from existing"

- **"Design For Cost" approach**
  - Reduce direct product costs (materials, resources and processes)
  - Correct oversized, 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)



# Reductive Innovation

## Decreasing costs - "Get more from existing"

**Brett Latimer, Product Development Manager**



*"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."*

**"Design For Supply" approach**

**James Gordon, Programming Manager**



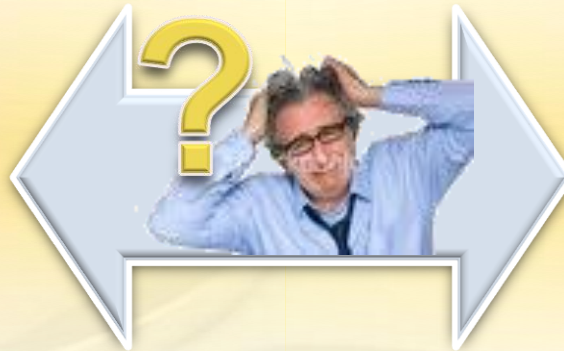
*"We are looking back on jobs that weren't as profitable and trying to change them to make them profitable. Now, it's more important than ever."*



# 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”



**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

**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. “*

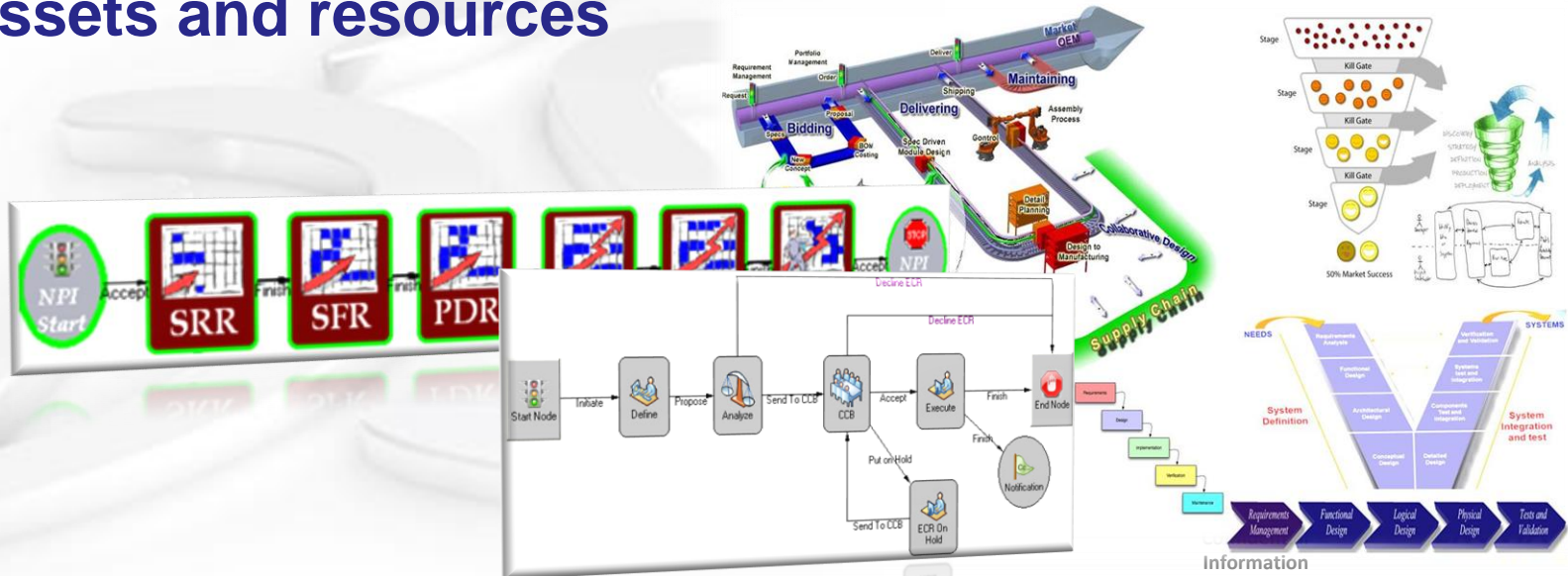




# Process Innovation

## “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”

- Improve Process agility and flexibility for customer 

**Brett Latimer, Product Development Manager**

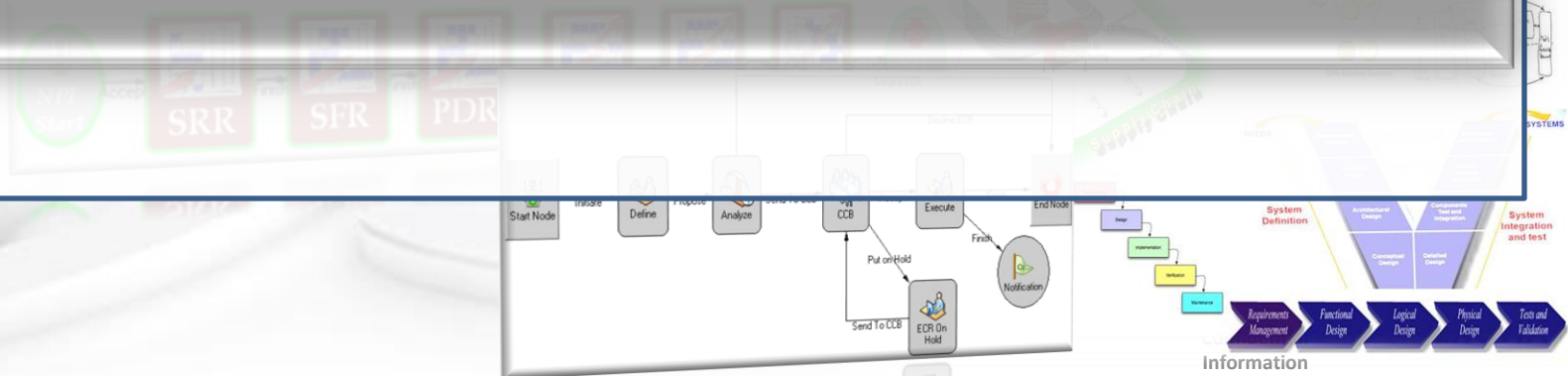
*You can't just cut heads, you have to find a way to do things with less resources. You have to be more efficient, that is how to still make money in a down economy.*

- Automate organizational workflows and optimize decision support

- 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”

## Tech-Clarity

making the value of technology clear

data under control - Managing overall Product  
Product related information - "The single

*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.





# PLM Business Opportunity

## Global Product Development

**40%**  
reduction

Cost per specification via global standard templates

**60%**  
reduction

Cost per RFQ via automation & collaboration

## Supplier Collaboration

**40%**  
reduction

Time managing suppliers via supplier consolidation

**25%**  
reduction

Cost per supplier certification via template, automation and supplier consolidation

## Synchronized Design

**30%**  
reduction

Cost of prototypes including iterations

**70%**  
improvement

BOM accuracy

**25%**  
reduction

Tooling/production equipment costs via reuse

## Visibility, Reuse & Standardization

**35%**  
improvement

Managing projects & programs

**40%**  
improvement

Initiating and processing changes

**70%**  
reduction

Recreating lost data

## Turning Market Requirements into Product Design

**40%**  
reduction

Cost of quality

**35%**  
reduction

Product launch costs

**20%**  
faster

Time to market

## Regulatory Compliance

**33%**  
reduction

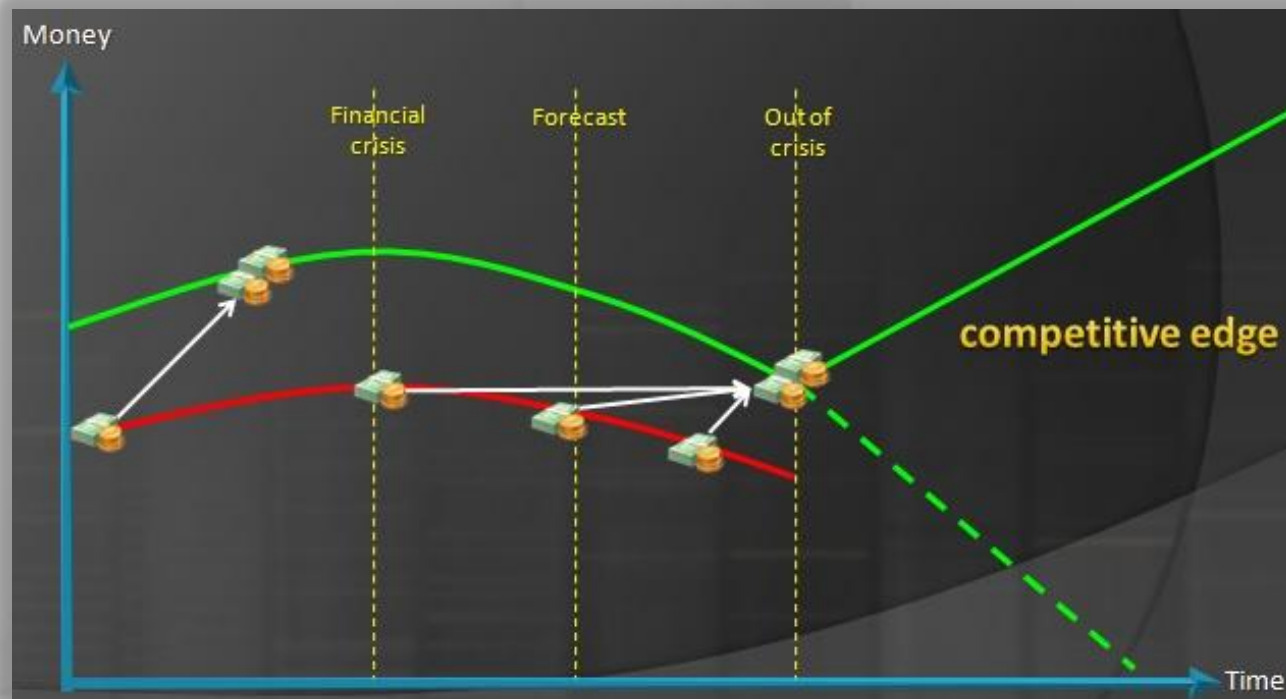
Cost of compliance; Regulatory certification and audit

**10%**  
reduction

Warranty costs via production readiness

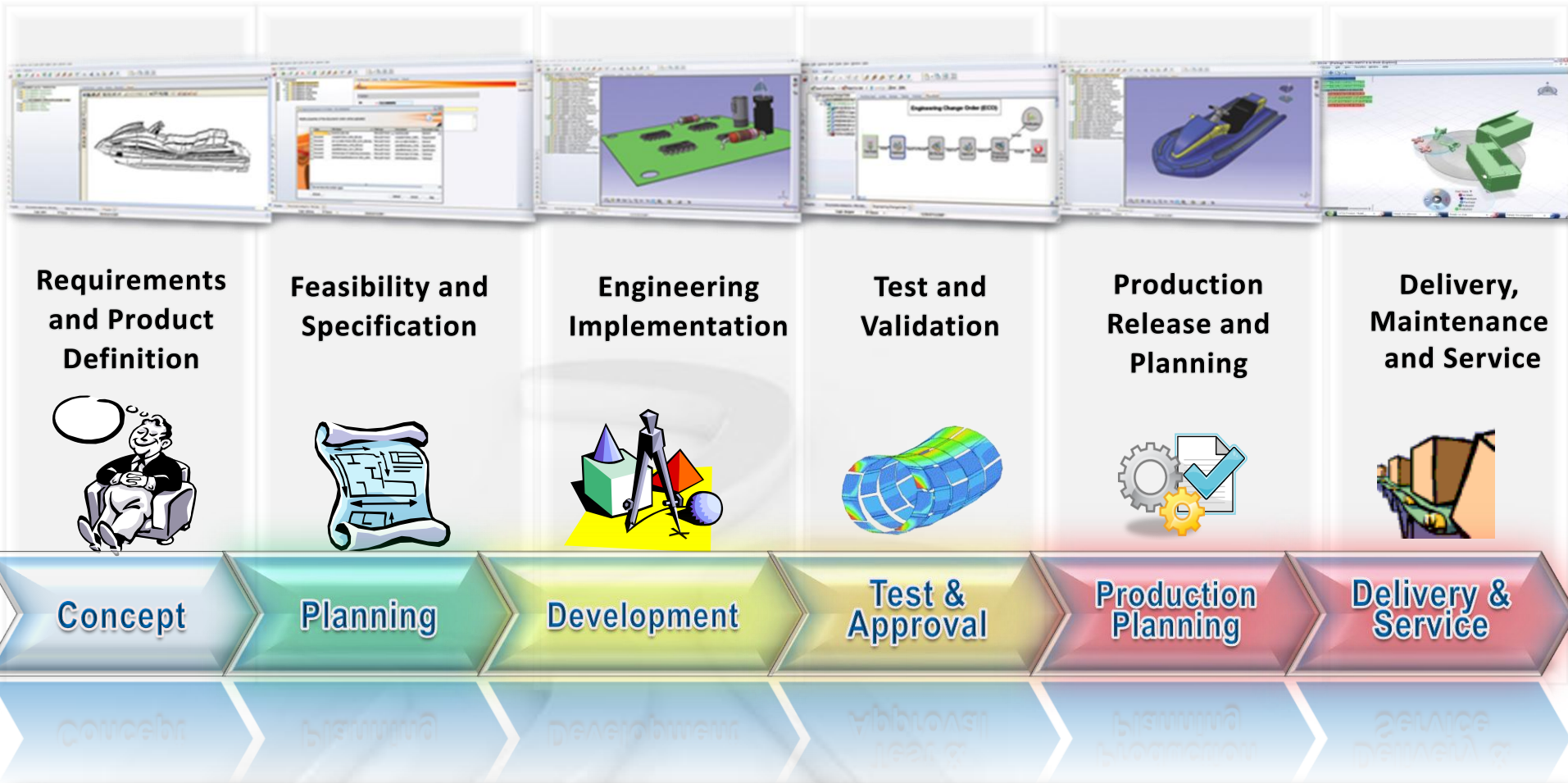
# PLM Business Opportunity

- 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

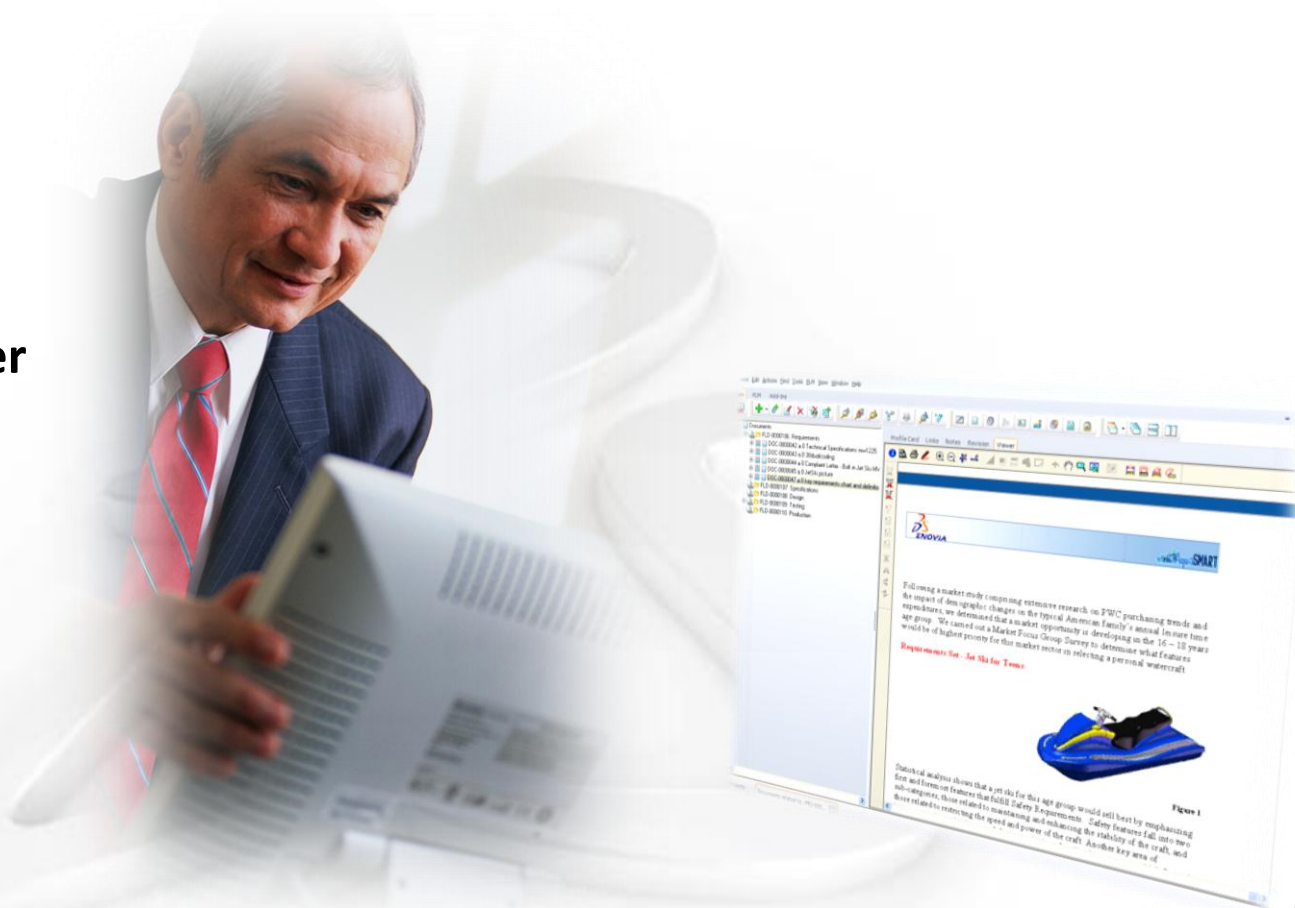


**Life like collaboration across the entire product lifecycle**



# Capture & analyze new product requirements

Sales  
Manager





Concept

Planning

Development

Test &  
Approval

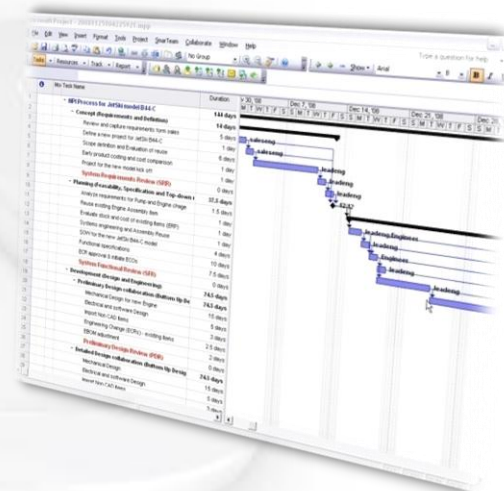
Production  
Planning

Service

Concept

- Capture and analyze new product requirements
- Defining Project Planning and NPI

Project  
Manager



Concept

Planning

Development

Test & Approval

Production Planning

Service

Planning

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

**Lead Engineer**



Concept

Planning

Development

Test & Approval

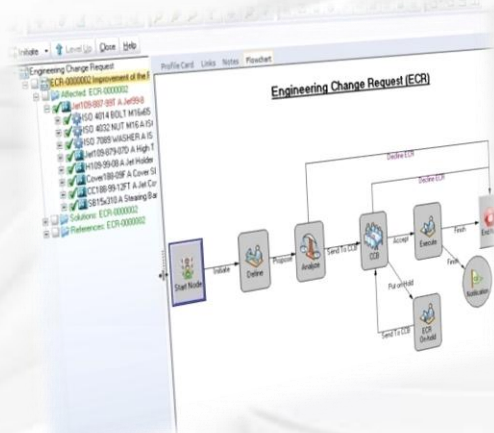
Production Planning

Service

Planning

- **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





Concept

Planning

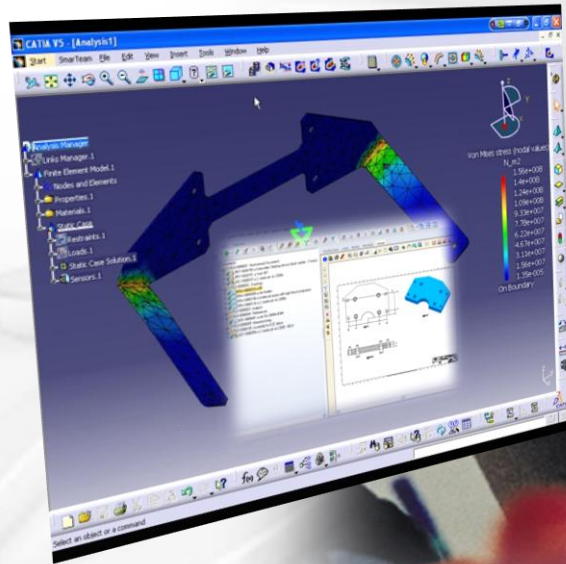
Development

Test & Approval

Production Planning

Service

## Design and Update Engineering BOM Mechanical Design and Simulation Analysis



**Mechanical  
Designer**



Confidential  
Information



Concept

Planning

Development

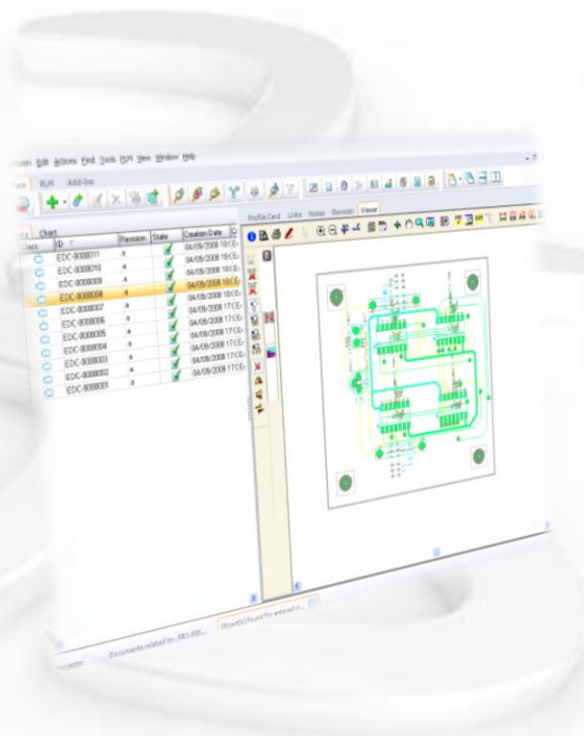
Test & Approval

Production Planning

Service

Development

- **Design and Update Engineering BOM**  
**Mechanical Design and Simulation Analysis**  
**Electrical Design**



Concept

Planning

Development

Test & Approval

Production Planning

Service

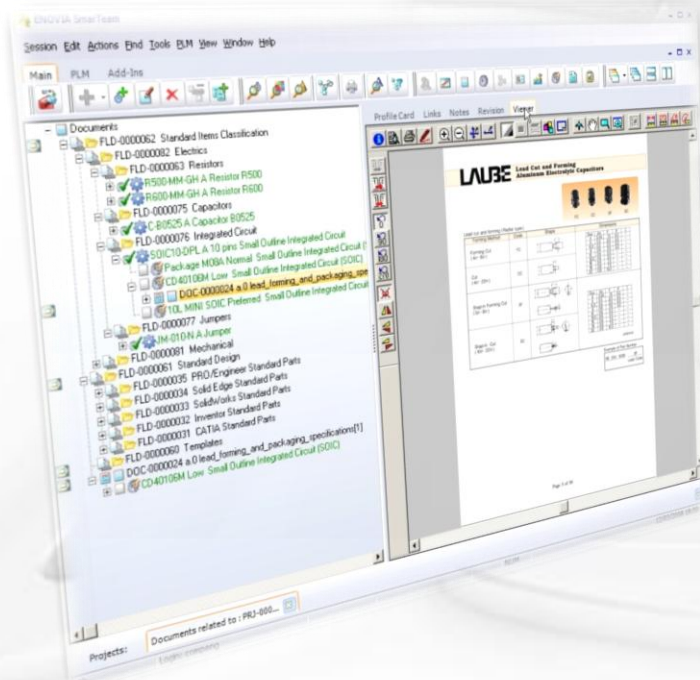
Development

## Design and Update Engineering BOM

### Mechanical Design and Simulation Analysis

### Electrical Design

### Classification & Components Engineering



Components Engineer

Concept

Planning

Development

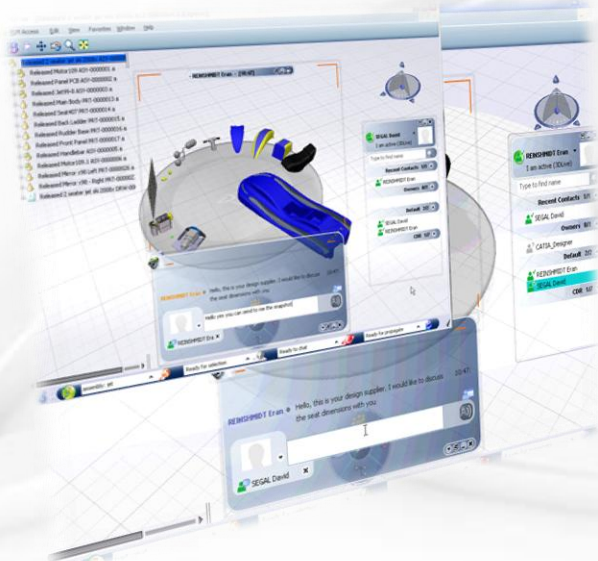
Test & Approval

Production Planning

Service

Development

- **Design and update engineering BOM**
  - Mechanical design and simulation analysis
  - Electrical design
  - Classification & Components Engineering
- **Supply Chain Management**





Concept

Planning

Development

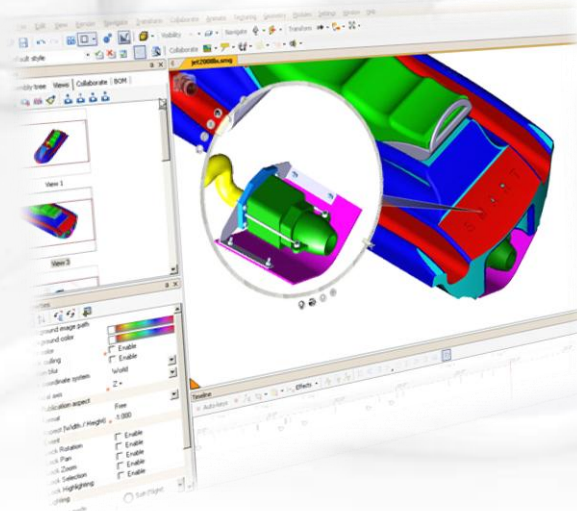
Test & Approval

Production Planning

Service

Development

- **Design and Update Engineering BOM**
  - Mechanical Design and Simulation Analysis**
  - Electrical Design**
  - Classification & Manufacturer Management**
- **Supply Chain Management**
- **Technical Documentation**



Technical  
writer  
DS  
VIA

Concept

Planning

Development

Test & Approval

Production Planning

Service

- Validate the engineering BOM  
CDR – Critical Design Review
- Approve for production planning



Lead  
Engineer



Concept

Planning

Development

Test & Approval

Production Planning

Service

# Manufacturing BOM Planning (MBOM)

Item	Description	Material	Cost	Currency	Warehouse
1	Main Body	Male	3400	USD	
2	Seat07	Male	470	USD	
1	Back Ladder	Male	130	USD	
2	Rubber Drive	Male	262	USD	
1	Front Panel	Male	230	USD	
1	Mirror v30 Left	Male	237	USD	
1	Mirror v30 Right	Male	230	USD	
1	Flange09	Male	230	USD	
1	Handrail	Male	4800	USD	
1	Mirror101	Male	150	USD	
2	Row Material 003	Male	1460	USD	
1	Row Material 005	Male	760	USD	
1	Row Material 006	Male	4270	USD	

Production Engineer

Confidential Information



Concept

Planning

Development

Test &  
Approval

Production  
Planning

Service

Planning  
Production

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



**Production  
Engineer**



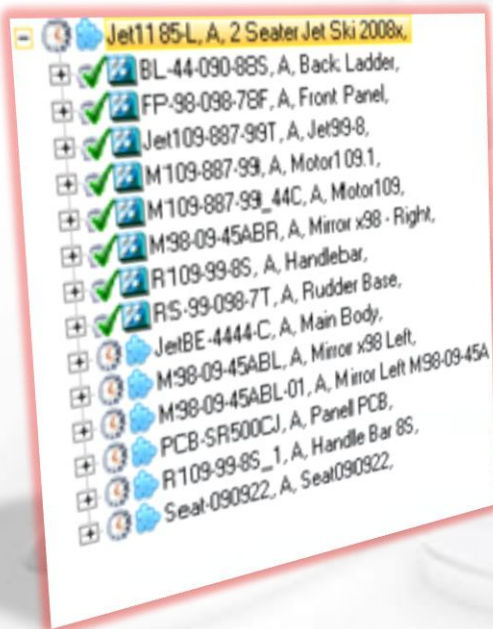
Confidential  
Information

## Serialized and Packaging Process

Serialized BOM (As Built) management

Packaging BOM (As Delivered) management

## Maintenance – In service work order Management



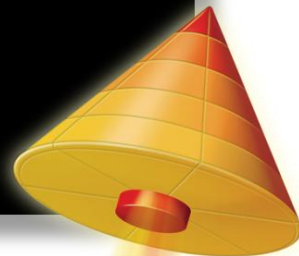
Service  
Engineer

# 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

- [http://www.tech-clarity.com/overviews/innovate\\_economy.htm](http://www.tech-clarity.com/overviews/innovate_economy.htm)
- Jim Brown [jim.brown@tech-clarity.com](mailto:jim.brown@tech-clarity.com).

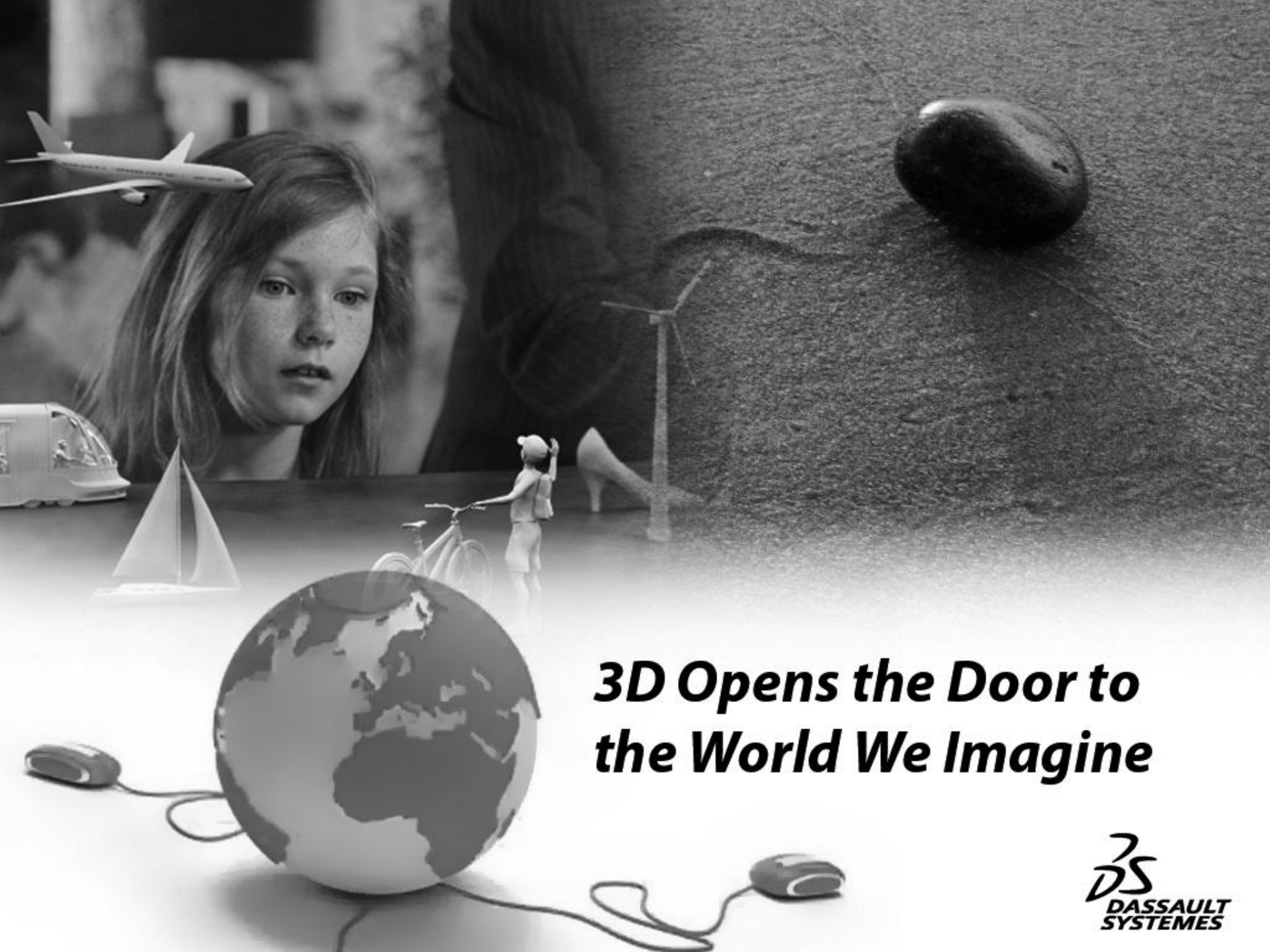
**Tech-Clarity**

*making the value of technology clear*

## 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***

**DS**  
**DASSAULT  
SYSTEMES**