



IBM Software Group

2nd IBM Digital Manufacturing Forum

Honda F1 - Brackley



Agenda / Format for the day....

- **9.00 – 9.30 : Welcome and Coffee**

- **9.30 – 9.45 : Welcome and introduction**
 - Dip Patel (IBM PLM Solutions Business Executive)

- **9.45 – 10:30 : Digital manufacturing within PLM Solutions**

- **10:30 – 11:15 : Digital Manufacturing at Bombardier Aerospace**
 - Iain Crosbie (Senior Project Manager – I.S.)
 - Brian Welch (Senior Manufacturing Engineer)

- **11:15 – 11:45 : Coffee Break**

- **11:45 – 12:30 : Round Table discussion**

- **12:30 – 13:15 : Honda F1 Team - Design at F1 speed.**
 - David France (IT Director)

- **13:15 – 14:45 : Lunch and Factory Tour**



Today's Attendees



BAE SYSTEMS



GE Aviation





IBM Software Group

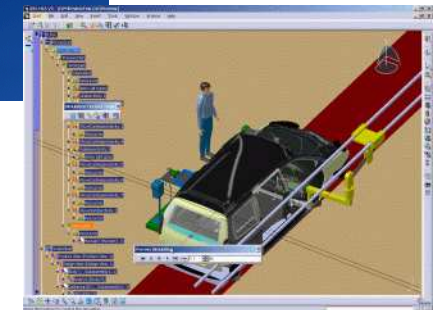
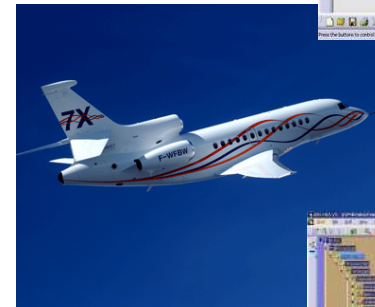
2nd IBM Digital Manufacturing Forum

DELMIA – Introduction and Successes

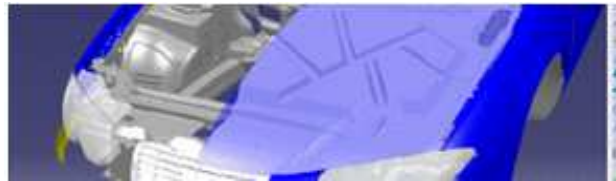
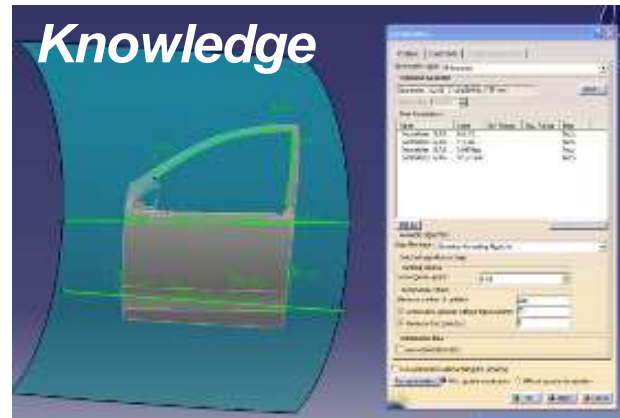


Overview

- **Dassault Systemes PLM – DELMIA**
 - Colin Clemson
- **Delmia Experiences**
 - ▶ Honda Motors
 - ▶ Dassault Aviation
 - Tim Hall
- **3dVia Live**
 - ▶ Introduction to 3dVia Live
 - ▶ Demonstration
 - Nick Woodruff

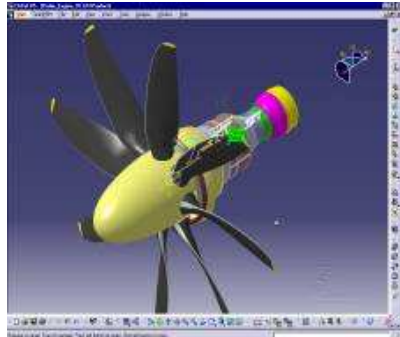


Pervasive Manufacturing Knowledge & Know-how



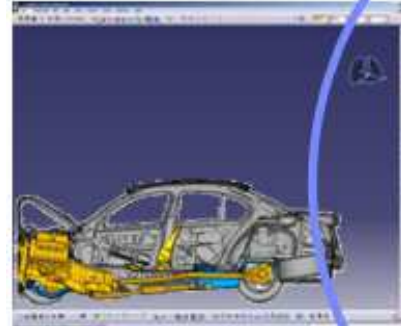
DS Brands : Clear Customer Value

DS
CATIA Virtual Product



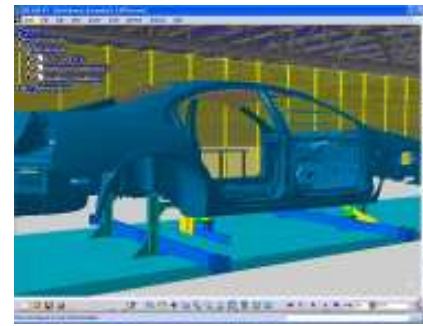
Product Excellence

DS
SIMULIA Virtual Testing



Engineering Quality

DS
DELMIA Virtual Production



Production Performance

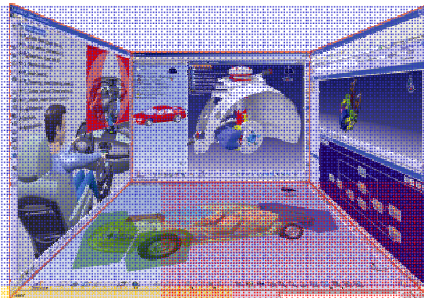
CAAV5
BASED

complementary apps: 400+



Product Complexity ↑

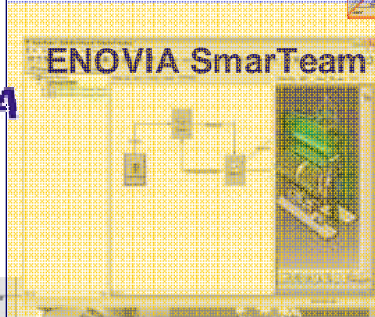
ENOVIA VPLM



ENOVIA MatrixOne

DS
ENOVIA

ENOVIA SmarTeam



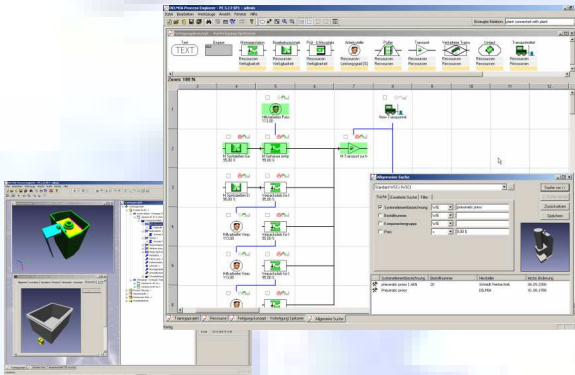
PLM Collaboration



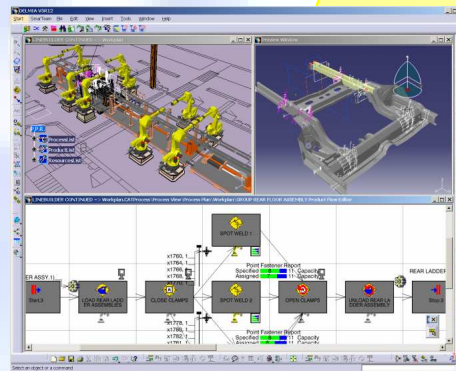
Enterprise Business Process Complexity →

DELMIA Solutions Portfolio

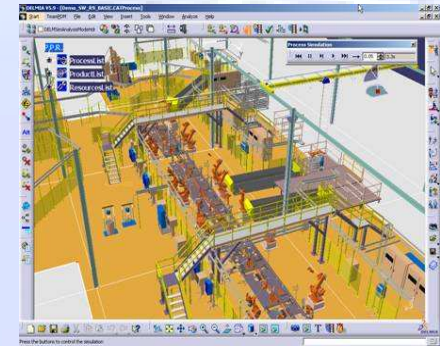
Process planning solutions



3D Process detailing and validation



Resource modeling and simulation



DELMIA Digital Manufacturing Solutions

A Seamless End-to-End Workflow

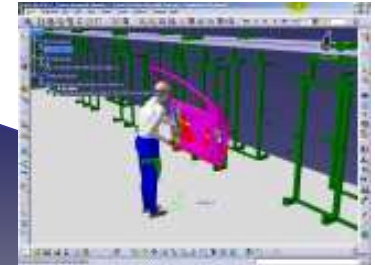
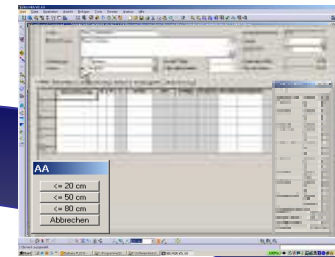
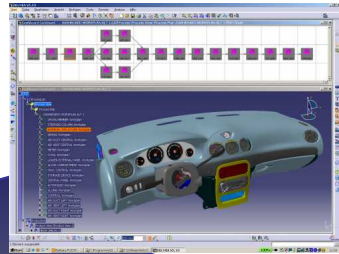
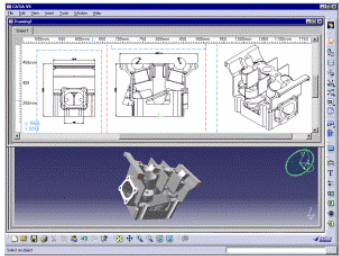
Manufacturing Concept
Layout planning

Process Planning

Standard Time
Measurement

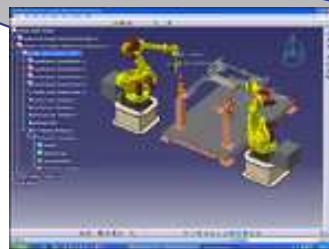
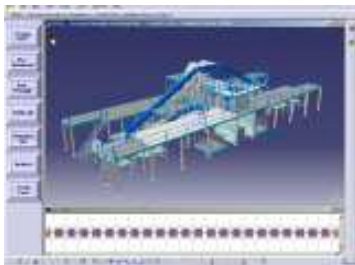
Workstation Layout
Ergonomics

Product
Development

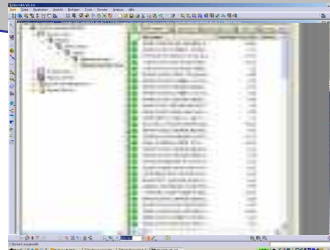


Robot
Simulation

3D Work
Instructions



Control
Engineering



Production
Planning



Material Flow
Simulation

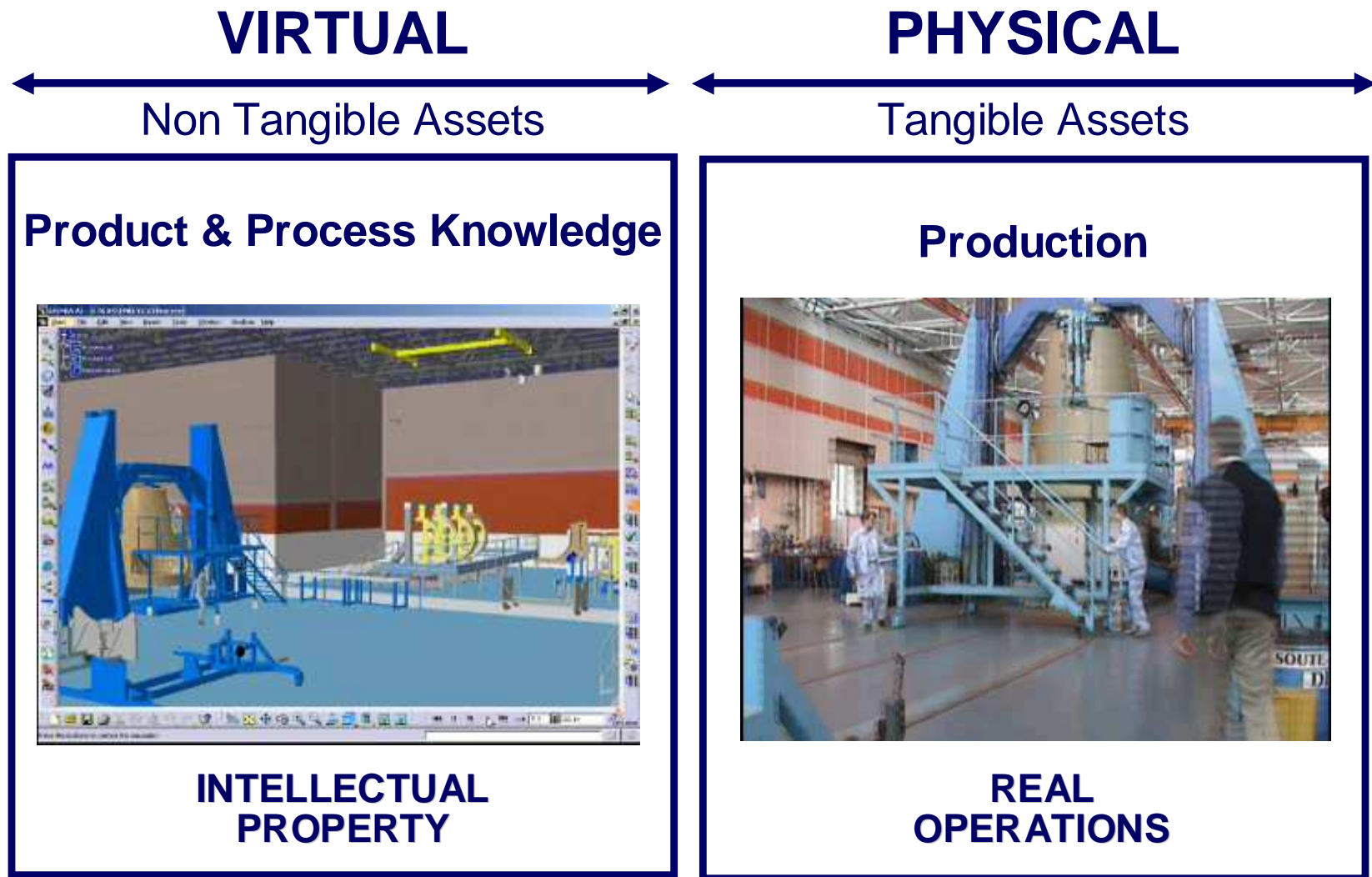


Manufacturing Simulation
Quality Control



Digital Manufacturing a cornerstone of PLM

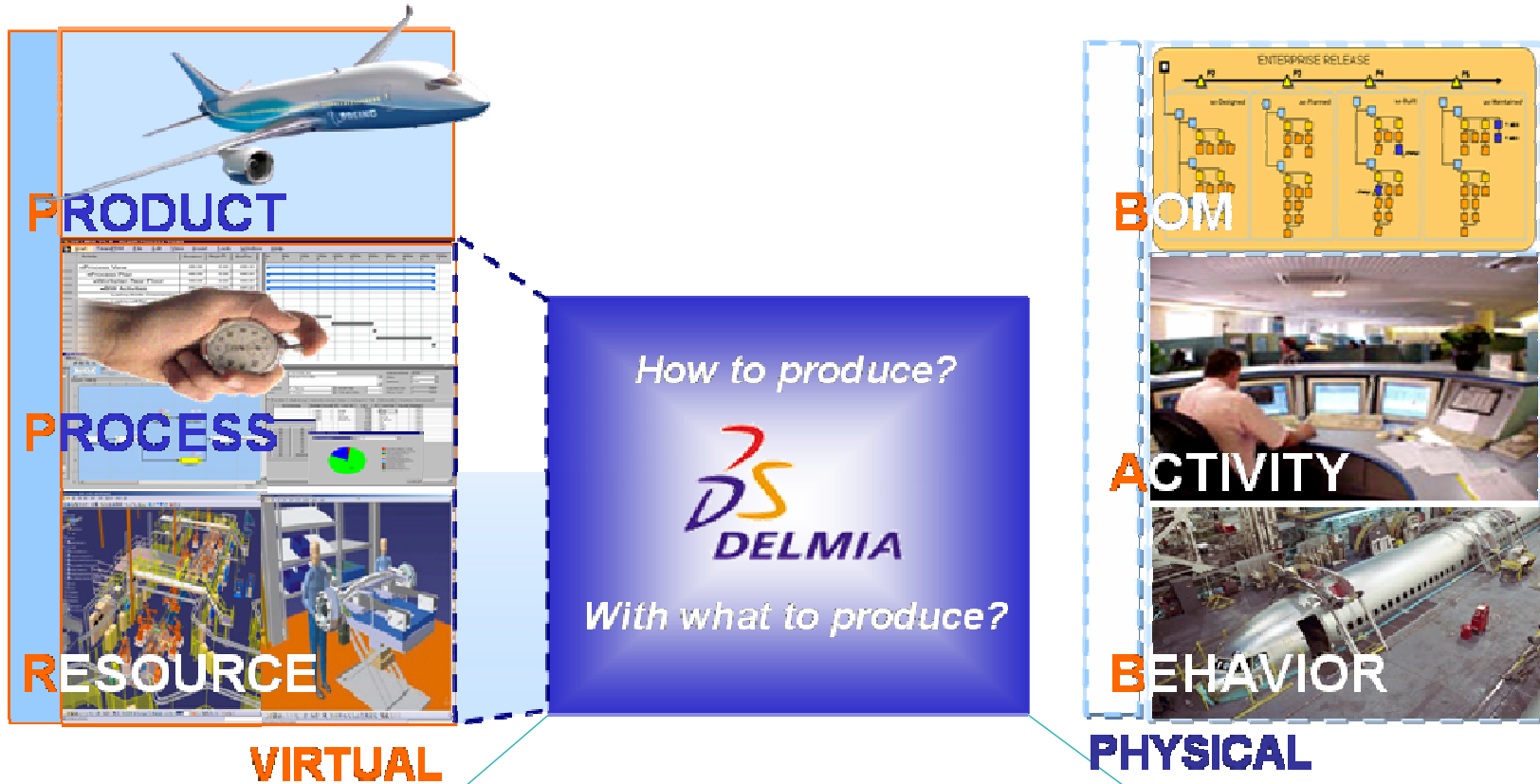
“Define, Monitor and Control the World of Production”



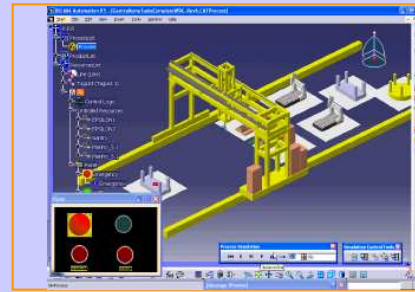
Courtesy Dassault Aviation
- Falcon 7X



DELMIA: #1 Brand in Digital Manufacturing



Product Excellence



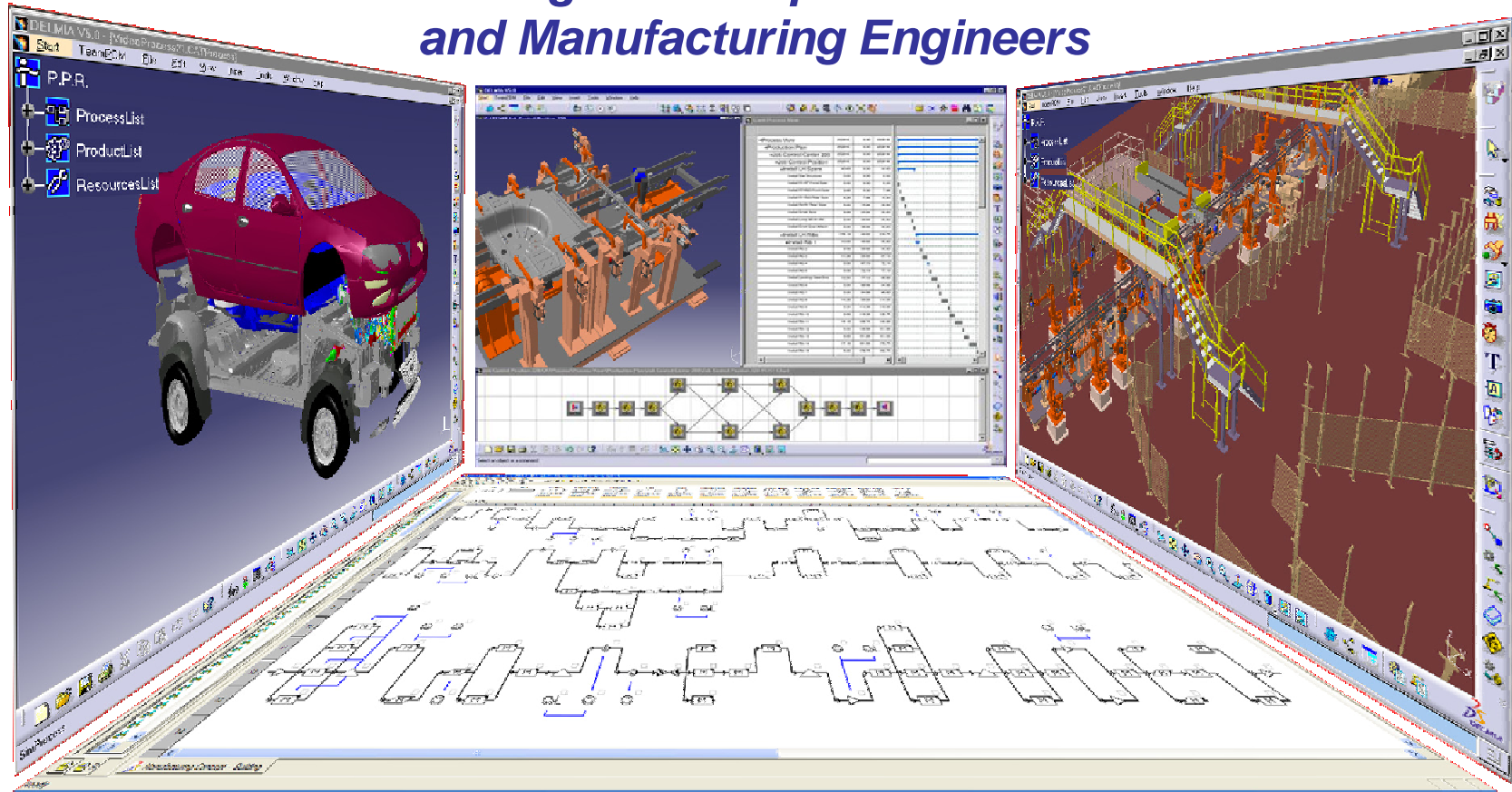
Production Performance



DELMIA for Collaborative Intelligence in MFG

“Global Engineering for Innovation”

① Single Desktop for Planners and Manufacturing Engineers



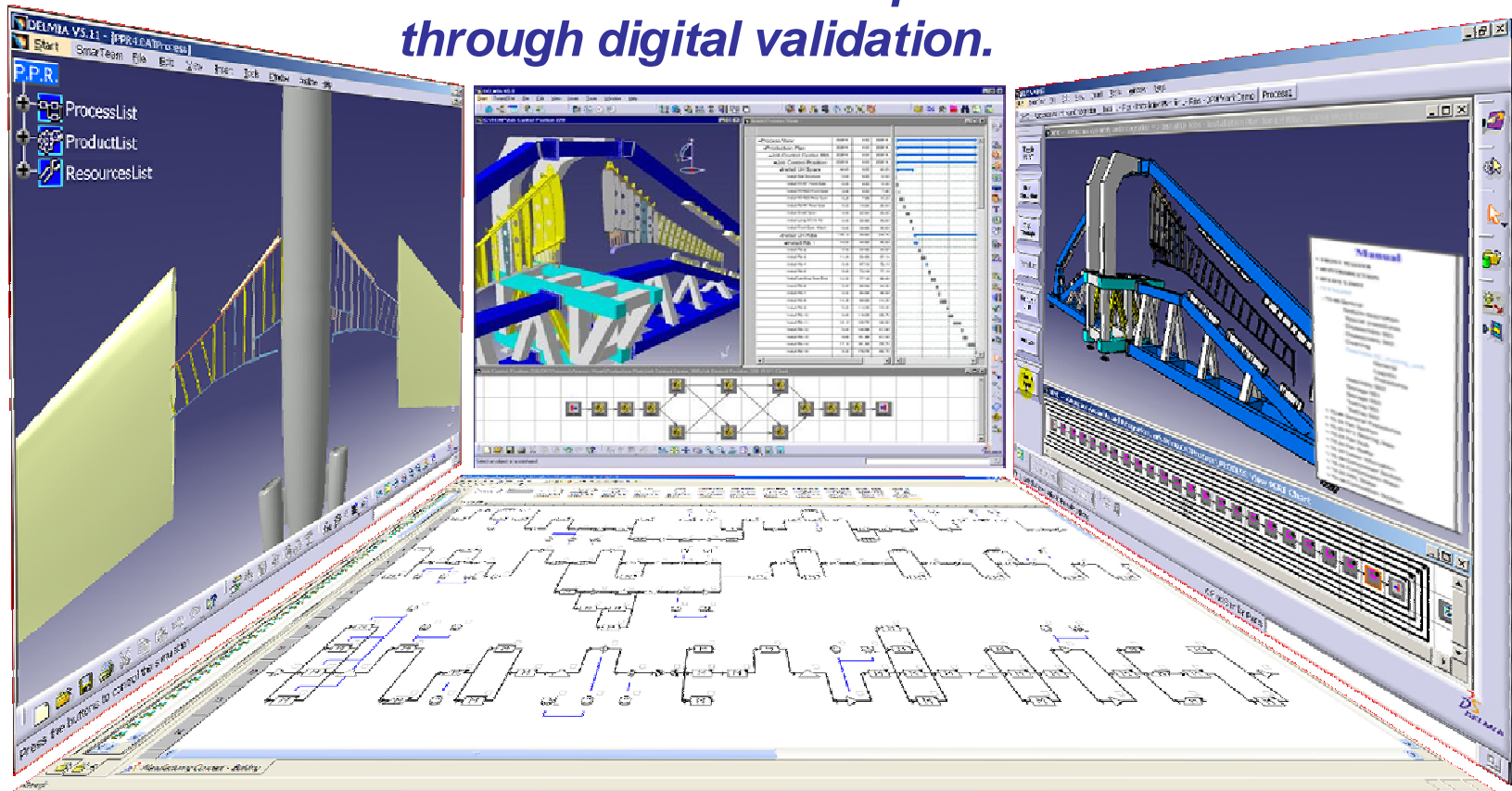
② Digital production Engineering concurrent with product design.

③ Model based process planning enables manufacturing best practices capitalization & reuse

PLM Manufacturing Desktop

“Global Engineering for Innovation”

④ Creation and validation of Virtual Build & Maintenance processes through digital validation.



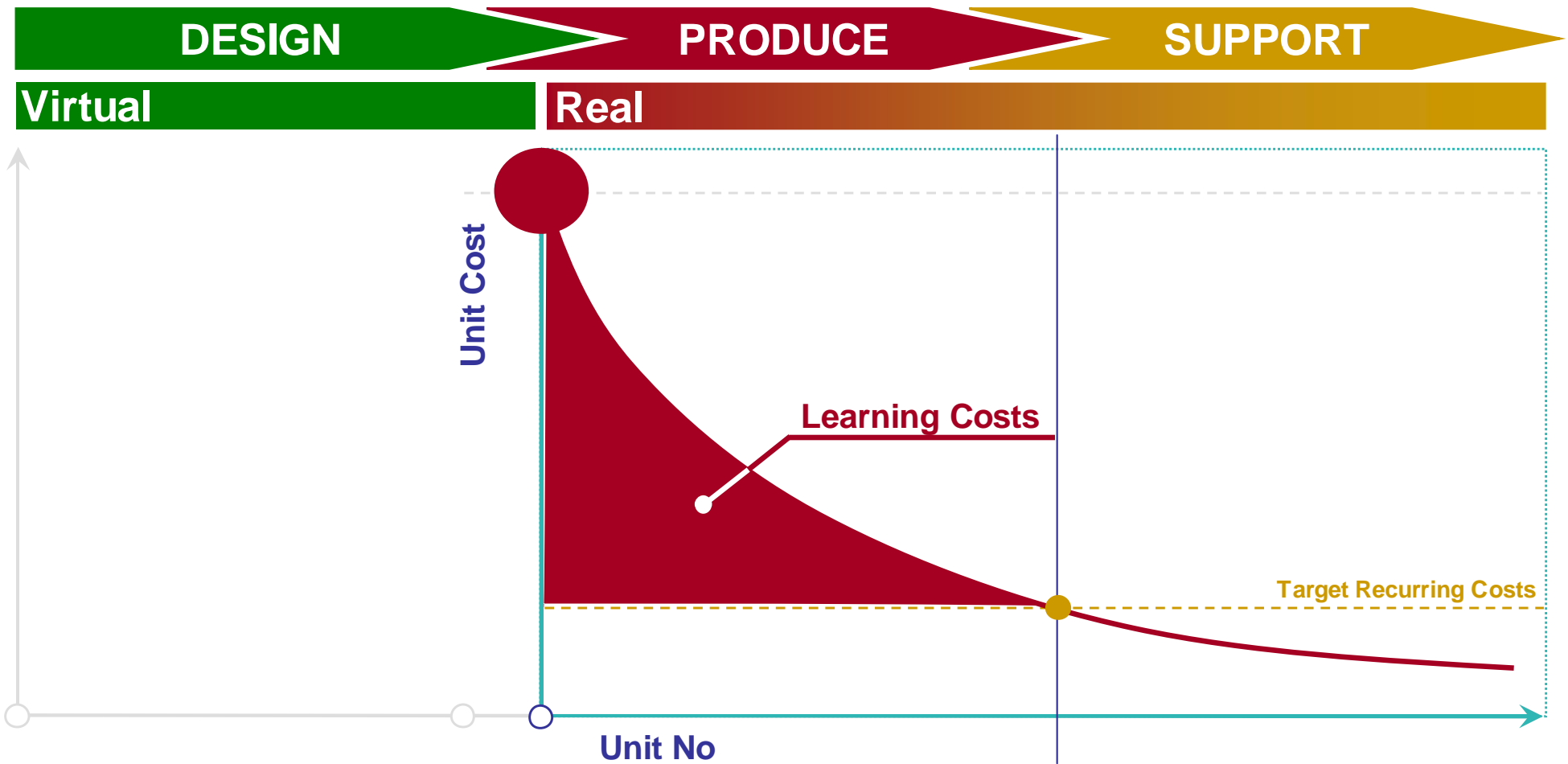
⑥ Virtual start-up of the factory and leverage of production engineering data on the shop floor

⑤ Collaborative digital manufacturing workplace



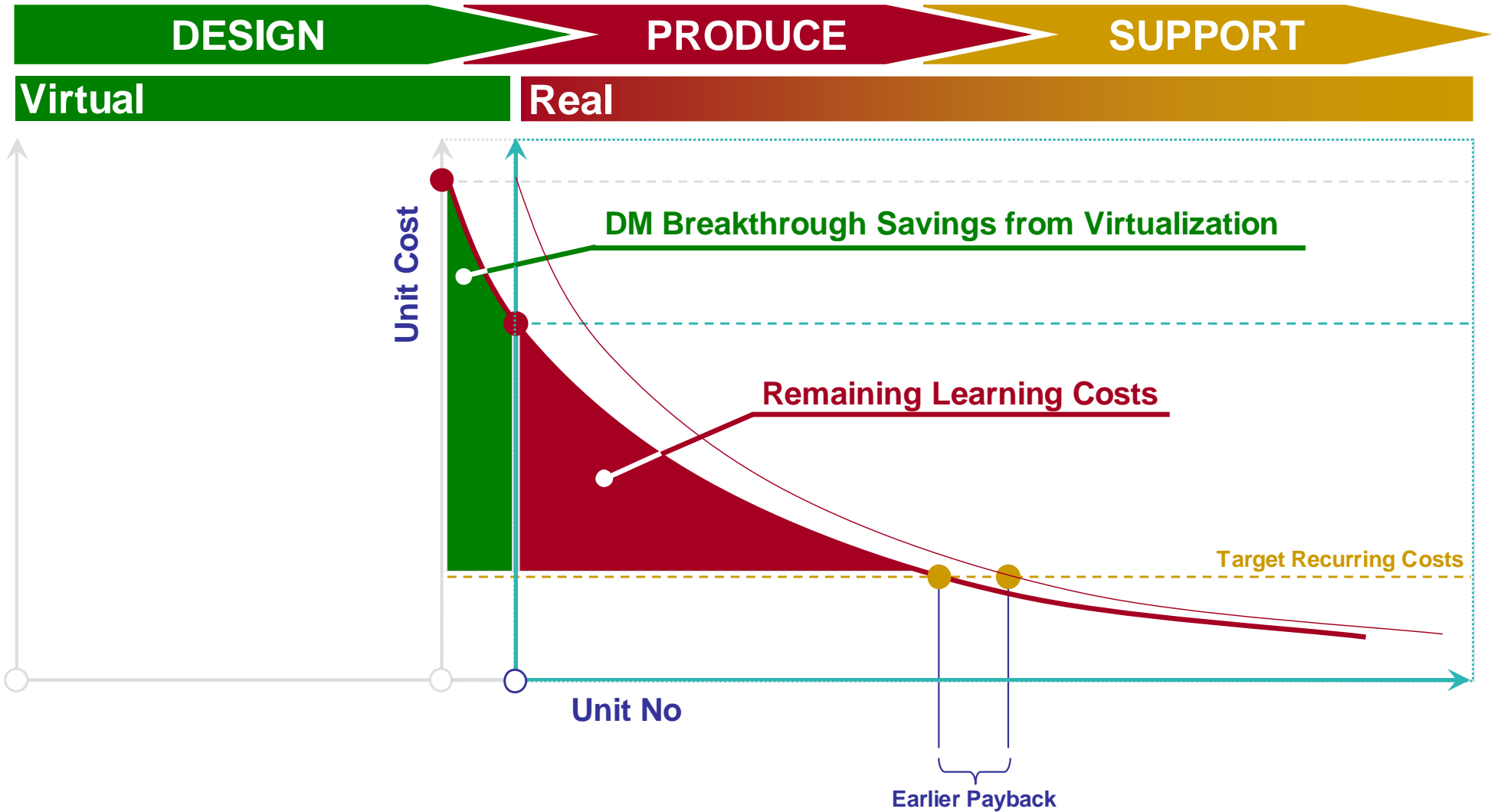
Learning Curve

Legacy technology did not enable simulation of the product or the production processes. High recurring costs early in the program could not be avoided.



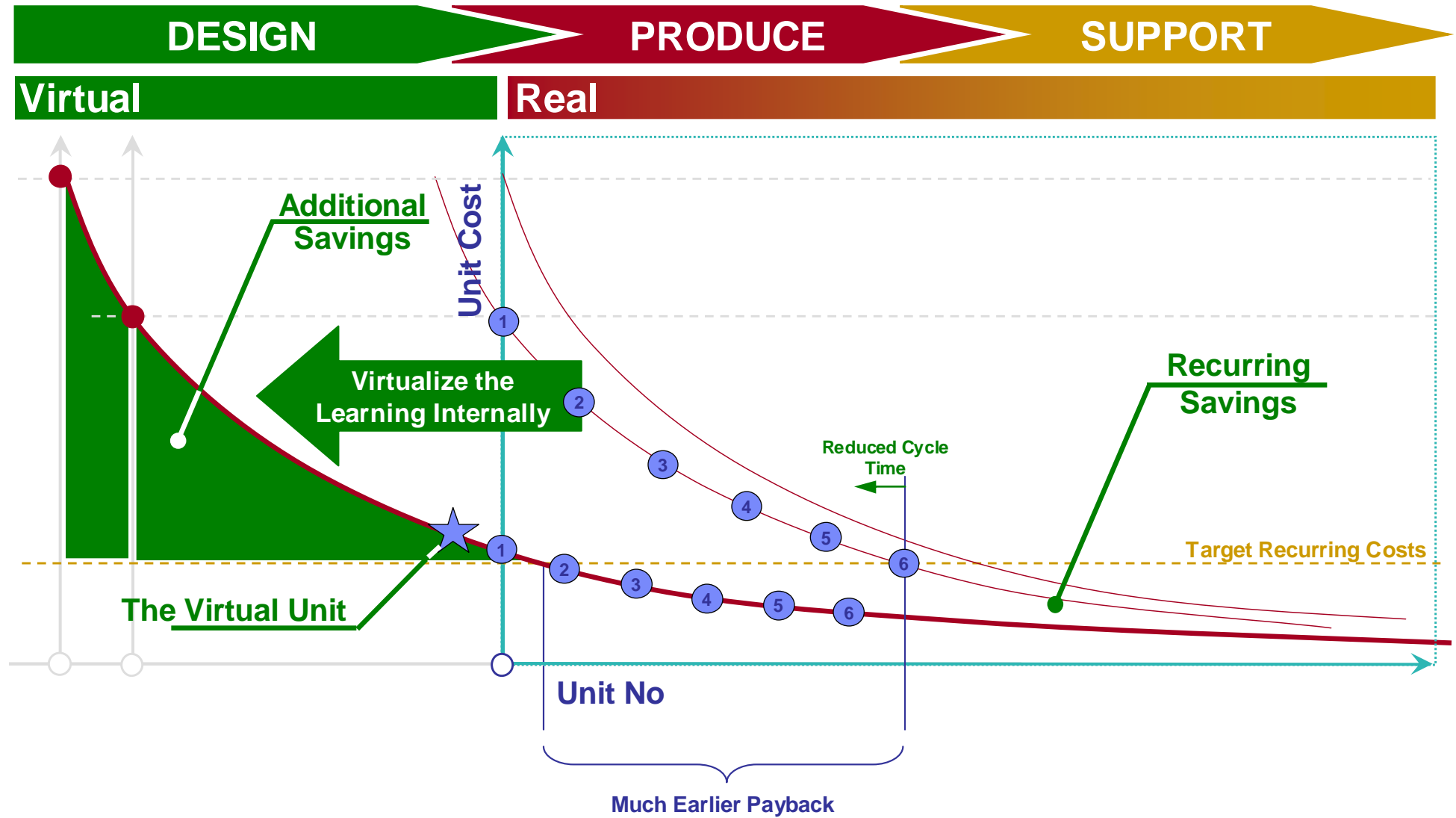
Learning Curve

Early Dig Manf experience proves we can move learning into the virtual space using 3D technology to aid fabrication and reduce interferences.



Learning Curve

To achieve target recurring cost earlier, almost all learning must be completed in the product definition phase, i.e. “virtualizing the learning curve.”



Why Digital Manufacturing?

Decrease bottom line costs

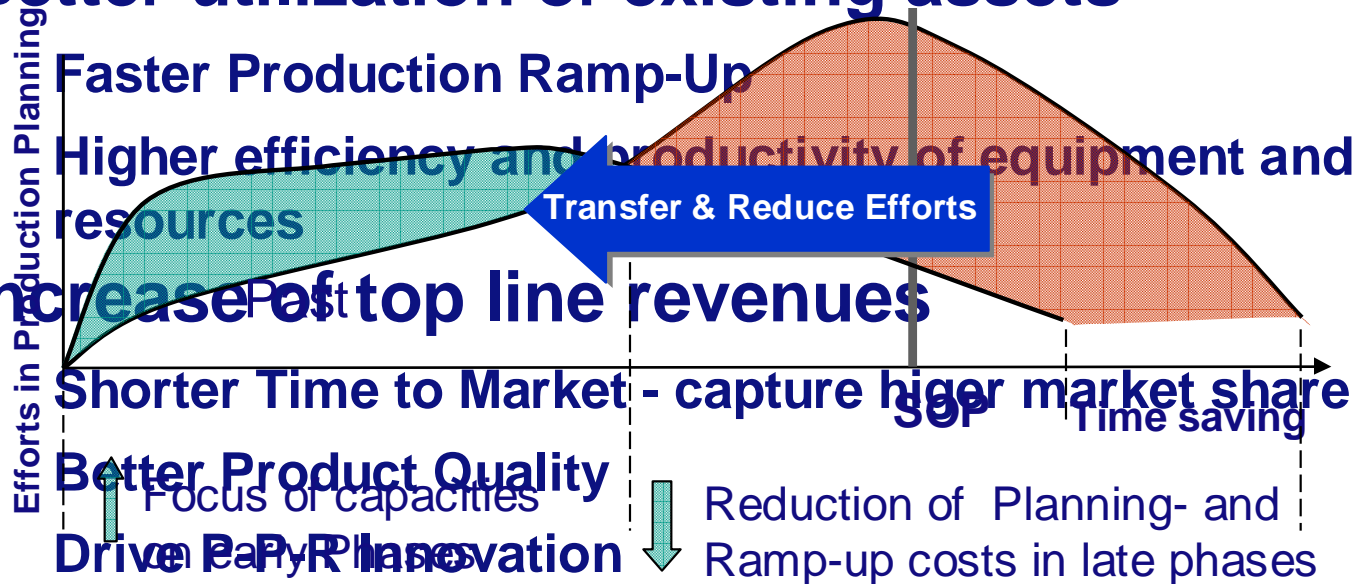
- Better Planning Quality – Digital Kaizen, what if scenarios
- Meeting Time & Manufacturing Cost Targets – Time to production, time to market
- Less Changes, Less Errors
- Lower Total Product Cost

Better utilization of existing assets

- Faster Production Ramp-Up
- Higher efficiency and productivity of equipment and resources

Increase of top line revenues

- Shorter Time to Market - capture higher market share
- Better Product Quality
- Drive Early Innovation



Dassault Aviation - Profile

- Dassault Aviation is a world leader in the executive aircraft market with business jets from its Falcon series, and in the military aircraft market with its fighter jets such as the Mirage and Rafale.
- The Falcon division represents more than half of Dassault Aviation's €3.4 billion business.



Business Challenges

- Maintain its lead in the aggressive executive jet market
- Revolutionise the product development process.
- Collaborate more closely with its global partners.

- The company must constantly innovate and optimise its business processes and operations to remain flexible in the face of economic variations.

- Since the life of an aircraft can span more than 30 years, Dassault Aviation must make ongoing aircraft maintenance and support a priority.

- Dassault Aviation has to develop its aircraft in concert with a geographically dispersed team of global partners.



Dassault Aviation - Results

- Dassault Aviation linked its partners through a single, virtual collaborative workspace in which they shared a common, fully configured, constantly updated digital mock up of the Falcon 7X.
- Reduction in assembly time of over 50 percent, from 16 to 7 months
- Reduction in tooling costs of 66 percent
- Total elimination of assembly problems through collaborative part design
- Elimination of the need for physical aircraft prototype

Lets hear their story.....



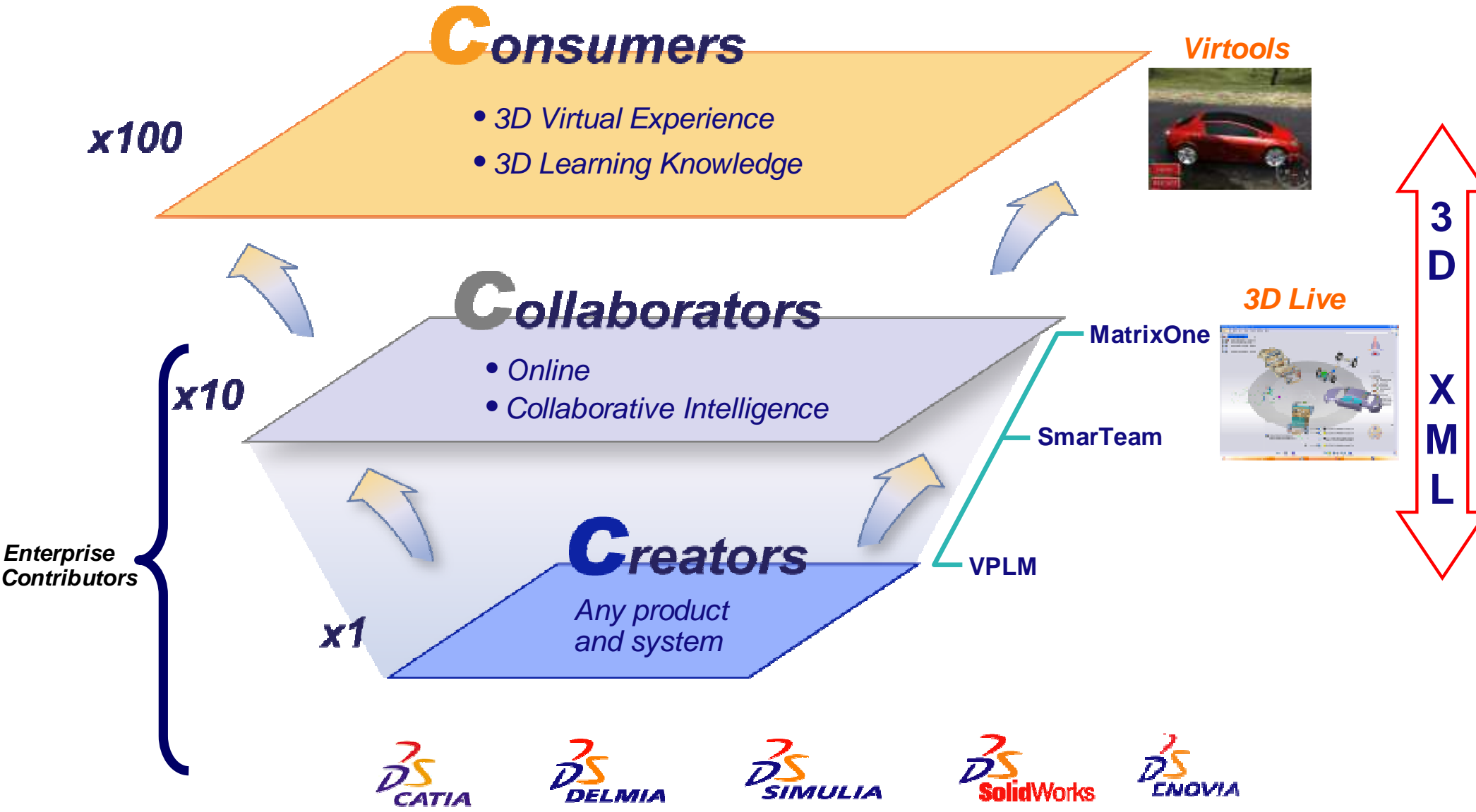


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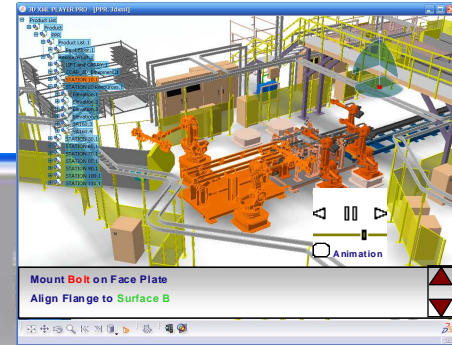


Share 3D: Reach New Types of Users



3D Live

Live Shopfloor Review



Live FTA Review



Live Collaborative Review



*Online Collaborative
Intelligence for Enterprise
Social Innovation*

3D Live



Demonstration

