



**LMS Company Presentation
CoreGRID IAB Meeting 1
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noesis

 **LMS**[®]
ENGINEERING INNOVATION

LMS, 25 years of engineering innovation



A future built on strong fundamentals

- Driven by a compelling vision
- The industry largest R&D commitment to Engineering Innovation
- Talented people, 650 professionals committed to customers' success
- More than 3000 manufacturing companies actively use LMS products and services
- Strong financial track record of double digit profitable growth

Defining the transformation agenda: The overall engineering process challenges



The engineering process challenges

- Optimize designs for
 - Cost & weight
 - Multiple interrelated product performance attributes
- Shorten design cycle
- Develop more variants of fewer platforms
- Increase productivity of product development
 - less prototype cycles
 - leaner resources
 - better exploitation of infrastructure
 - better access & reuse of data and knowledge
- Realize consistency throughout a layered “organization” of OEM and suppliers

LMS, delivering a next generation portfolio for functional performance engineering



LMS Tec.Manager

Test and Simulation
Data Management

LMS Engineering

Process Integration &
Engineering Services



LMS Test.Lab

Market Leader Physical Test



LMS Virtual.Lab

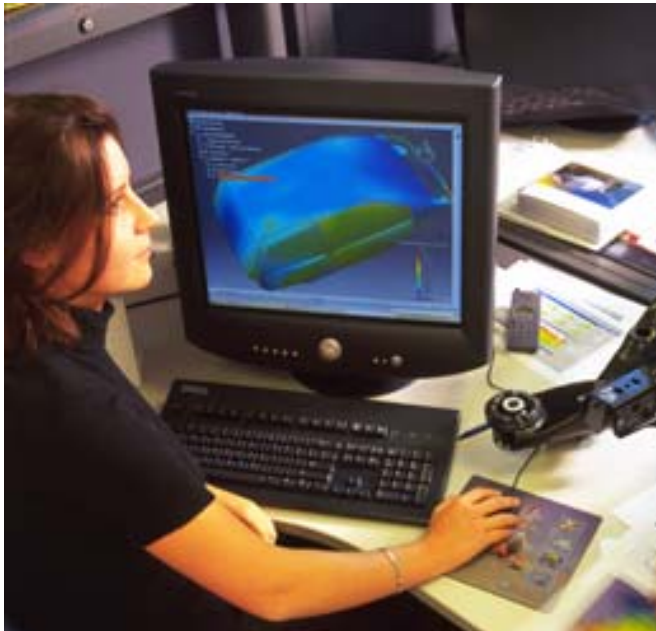
Technology Leader Virtual Simulation

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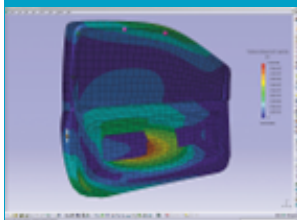
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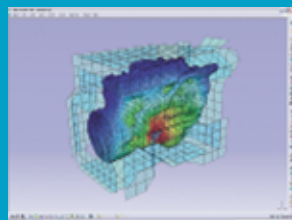
LMS Virtual.Lab, the award-winning solution for “Design-Right-First-Time” performance simulation



- A unified framework for multidisciplinary virtual simulation
System Level Simulation
 - CAE/TEST Integration
Hybrid Engineering
 - Engineering-intuitive User Interface
Powerful Graphics, Task/Process Automation
- Leveraging the Dassault Systèmes CAA V5**



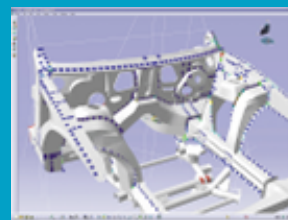
Structures



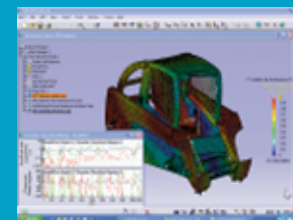
Vibro-acoustics



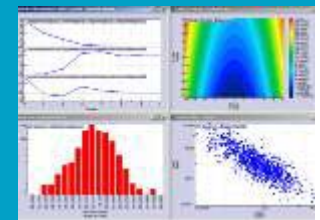
Motion



Durability



Hybrid Simulation



Optimization

LMS Tec.Manager, leveraging the value of engineering data

Efficient organization, retrieval and reporting of engineering data ...

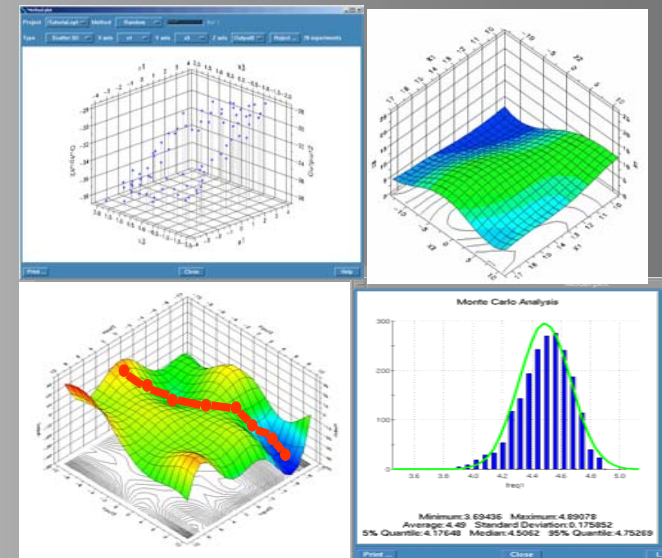


- Organize data effortlessly
- Manage context information of test data
- Supporting ASAM-ODS
- Search data accross networks
- Access data without native applications
- Display and report efficiently

... Using a standard web browser

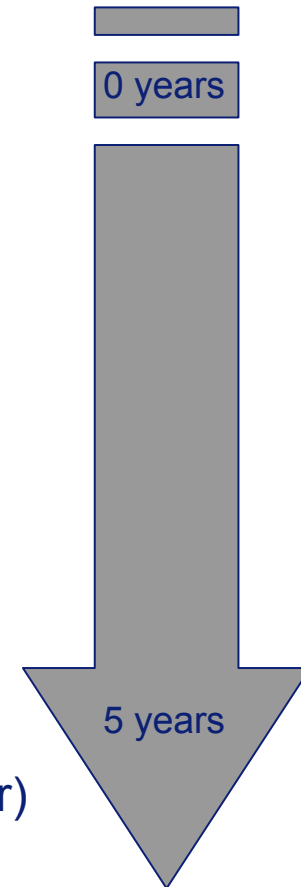
Beyond Single Point Designs Based on Single Attribute Simulation...

- **OPTIMUS**
 - **General Purpose Process Integration and Design Optimization**
 - Design space exploration & analysis
 - ✓ Design of Experiments and Response Surface Methodology
 - Balancing and Optimizing competing objectives
 - ✓ Numerical optimization
 - Examining and Reducing the effects of Design Parameter Variability
 - ✓ Robust design techniques & Six σ Simulation
 - Making it possible
 - ✓ Process Management



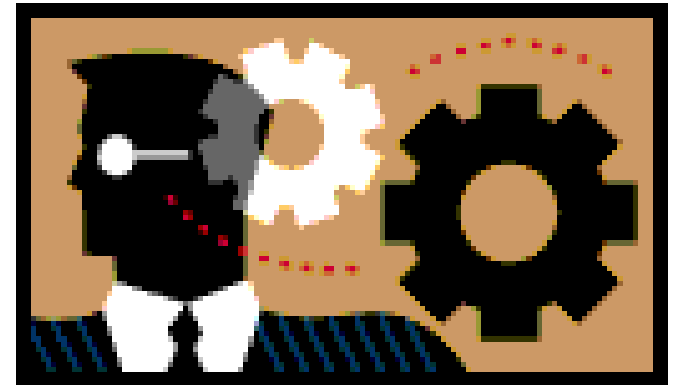
Identified Industry Needs relating to GRID Computing in Engineering Applications

- Short Term
 - Easier access to computational software
 - Faster computation times
 - Inconsequent computational infrastructure
- Medium Term
 - Employing outsourced computational capacity
 - Increasing computational needs
 - Collaborative engineering (OEM, Supplier, Services)
- Long(er) Term
 - Utility computing
 - Utilization of compute services (unknown software vendor)
 - Utilization of “unknown” computational resources



GRID Concerns

- End-User View:
 - Security and authentication and trust
 - Licensing of commercial software
 - Quality of Service (failure rates, accuracy)
 - Data transfers (throughput, frequency)
- Software Provider View
 - Standards
 - Programming Environments
 - Business Model (licensing)
 - Carrier
 - Quality of Service



LMS in GRID Technologies

- Active partner in the SIMDAT-IP
- GRID and WebService enabling of several LMS applications
 - Virtual.Lab WebServices
 - OPTIMUS utilizing WebServices for Workflow Definition and Process Automation and Optimization
 - Tec.Manager in utilizing WebServices in Data Management



LMS within the CoreGRID IAB

- Provide the view of an early GRID technologies adopter in the Engineering Software area
- Potentially provide CoreGRID with GRID Validation cases
- Provide market-data and market-needs related to GRIDification and industry uptake of software products in the Engineering field
- Actively participate in the IAB meetings

Objectives :

The IAB has four primary objectives, namely,

1. To communicate to the *Network* European Industry's long-term GRID-related technology needs and challenges,
2. To provide the *Network* with grid validation cases,
3. To help identify the market sector(s) to be addressed within the GRID User Community, in order to ensure a quick adoption of next generation GRID technologies within European industry,
4. To report to the *Scientific Advisory Board* its recommendation with respect to future strategic GRID-related research objectives.

CoreGRID



Thank you

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