21st Century Challenges for the Digital Enterprise

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People Working Together as a Global Enterprise for Aerospace Leadership

- **Strategy**
- **Values**
- **Core Competencies**
  - *Detailed customer knowledge and focus*
  - *Large-scale systems integration*
  - *Lean enterprise*

**Goals**
- Reduce Time to Market
- Reduce Life Cycle Cost
- Reduce Weight
- Improve System Effectiveness
- Extend Service Life
- Enhance Safety & Regulatory Compliance

160,000+ Employees
- Commercial
- Defense
- Space

Multi-skilled Workforce

Model-Based Integration & Analysis

Common Systems, Processes & Technology
Product Lifecycle Management

The ability to:

Define, optimize, manage, and integrate...

Products, Processes, and Resources...

Throughout the entire product lifecycle...

Across the extended global enterprise.
Presentation

- **Product, Process and Resource Structures**
  - Authoritative single source of data
  - Process Structure overview

- **Basic Product Lifecycle Management Scenario**
  - Concurrent, collaborative business process

- **Digital Enterprise Technology**
  - Contribution
  - Benefit
  - Opportunities
Product, Process and Resource Management

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3D **Product** Design and Integration

- Functional
- Logical
- Physical
- Specifications
- Bill of Material
- Product Context
- Product Analysis
- Visualization

3D **Process** Design and Integration

- Assembly Sequence Design
- Sequence Visualization
- Manufacturing Context
- Bill of Material
- Producibility Analysis
- Optimization
- Pre-release, production, support

Facilitates knowledge capture and sharing throughout the entire product lifecycle across the extended enterprise.
Process Structure Overview – Process hierarchy

• Control Station: *Global Network*

![Control Station Diagram]

• Process Plan: *Local Network*

![Process Plan Diagram]

• Process Operation: *Detail Instructions*

![Process Operation Diagram]

Key to PROCESS DESIGN and complete Product Lifecycle Management
Contributions, Benefits, and Opportunities
Digital Manufacturing Contribution

- Cost of Change
- Time to Market
- Enhance Quality

Product Life Cycle – Concept to Customer

Validate in Virtual World

Validation in Physical World

Cost of Change

Ability to Change
Digital Manufacturing Benefit

We Can Achieve Greater Reductions!

Reduction in Learning Curve via Improved Information

Reduction via “Producible” Design and Optimized Processes

Product Manufacturing Cost ($$$)

Virtual Build

Traditional Cost Curve per Unit

Production Units
Thank you