Introduction to PLM and Model-based Definition
Where have we been on the collaboration journey?

Collaboration meant face-to-face communication.

Communications often in serial fashion.

You trusted the data because you trusted the person that generated the data.
What is PLM?

• A business approach
• Interconnected set of digital systems
• Enable collaboration and innovation
• Master authoritative digital product definition

How long have we been doing PLM?

■ For as long as we have been developing and producing products...
What is PLM?

- Business Metrics
- Communication
- Security
- Interoperability
- Behavior

Requirements
Design
Analysis
Supply Chain
Manuf.
Sustain./MRO
Recycle
Tools
Process
People
Data
Product Definition

Diagram showing the interrelation of PLM components.
The Model-Based Enterprise

- The foundation for a **model-based enterprise** is provided by a **model-based product definition**
- The product model functions as a central repository for all technical and business product definition data
- Drives all product and facility development processes and activities throughout the product lifecycle
What is a Model?

The **model** is a digital representation of the product data necessary to define a product; this digital representation is dynamically repurposeable and varies with the organizational role of the consumer of the data.
Defining the Author

The **author** is the originator of the digital product representation or any other derivation of the digital product definition.
Defining the Consumer

The **consumer** is the end user of the digital product representation or any of its derivations; the form that the consumed data takes varies with the organizational role of the consumer.
Where are we headed?

The 3D digital definition becomes the conduit in a standards-based communication process.

The model is the basis for a secure, authoritative source of product definition.

You come to trust the process that generates product data (as the person may be unknown).
Digital Product Definition – the rise of the 3D model-based definition

Requirements

Design

Simulation

Manufacturing

Assemble

Supply Chain

Service/MRO
What does MBD mean?

For many people, it is a matter of whether they are an author or a consumer.
Evolution of Product Representations

Increased sophistication in the digital representation of the product and its fidelity to the physical world.
Deploying PLM and Enabling Innovation

**Design Processes**
Reduces unnecessary work through leveraging standards

**Manufacturing Processes**
Leverages PLM, SDM, ERP, and MES to maximize value

**Collaboration Processes**
Increases information content accuracy and flow

**Sustainment Processes**
Potential for real-time data to enhance decision making
Importance of PLM

• Data control
• Collaborative environment
• Common product structures
• Enhanced profitability
• Enhanced data quality $\rightarrow$ information transparency
• Better customer support
• Product value maximized over the lifecycle
What does the future hold?

• Continued leveraging of the CAD model as the carrier of product information ➔ 3D MBD as normal

• Increased use of standard /lightweight collaborative formats derived from 3D master product definition

• The integration of PLM, ERP and SCM

• The emergence of mobile computing and ability to deliver relevant data

• Increased cycles = increased innovation ➔ leveraging of opportunity

• Mitigating risk, promoting predictability
Thank you!
Questions?