PLM Leadership

PLM's Expanding Footprint:
Enabling Innovation
CIMdata PLM Leadership Webinar Series
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#cimdatawebinar

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Our Mission...
Strategic management consulting for competitive advantage in global markets

CIMdata is the leading independent global strategic management consulting and research authority focused exclusively on the PLM market.

We are dedicated to maximizing our clients' ability to design and deliver innovative products and services through the application of PLM.

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Presenters' Profile
Your presenters' professional background

- Jim McKinney, PLM Leadership Practice Manager
  - 30 years of experience in almost all areas of PLM
  - Has held positions in MCAD support, PDM implementations, product marketing, training, competitive intelligence, and consulting to companies large and small around the globe
  - Holds a B.S. in Design Engineering Technology from BYU

Topics to Discuss

- Key PLM Areas of Expansion that Support Innovation
- Essential Issues for Each Area
- Priorities & Steps for PLM Expansion & Support for Innovation
- New Technologies Impacting PLM Innovation
- Concluding Remarks

CIMdata's Definition of PLM...

PLM – integrating people, processes, information, and business systems

- Strategic business approach
  - *NOT* just technologies
  - Consistent set of business solutions

- Collaborative creation, use, management & dissemination of product related *intellectual assets*
  - All product/plant definition information – the virtual product
    - MCAD, AEC, EDA, CASE, analysis, formulas, specifications, portfolio, docs, …
  - All product/plant process definitions – the virtual processes
    - Processes that plan, design, produce, operate, support, decommission, recycle, …

- Supports the extended enterprise

- Spans full product/plant lifecycle, from concept to end of life

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PLM Supports the Complete Lifecycle

Every part of the product lifecycle provides PLM innovation opportunities

Portfolio Management · Planning · Conceptual Design · Product Engineering · Manufacturing Engineering · Requirements · Simulation & Validation · Re-purpose, Re-use, Re-store, Re-tool, etc… · Disposal & Recycling · Maintenance & Repair · In-service Operation · Sales & Distribution · Test & Quality · Build and Produce

PLM Solutions—Information Management across Media, Process, Time, Geography, & Enterprise

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How to Enable Innovation?
What is needed to enable innovation? Look for opportunities.

- Create and capture the organization's knowledge in a proactive manner
- Provide easy, fast access to knowledge, expertise and information among individuals and across organizations
- Enable more people to participate throughout the extended enterprise
- Reduce barriers to interaction
- Leverage new technology
- Work collaboratively

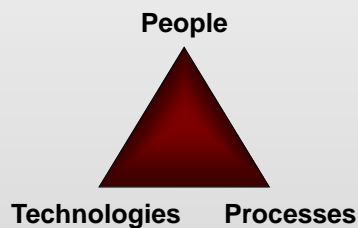CIMdata®   Copyright © 2014 by CIMdata, Inc.   7

3 Key Factors
People, technologies, and processes support PLM innovation

- You cannot maximize benefits by improving one of these 3 in isolation
- Applying new technologies in out-of-date ways just allows you to create errors & take bad decisions more quickly
- People are adept at using tools incorrectly—they have to be trained in the tools & the processes

People

Technologies   **Processes**

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Some Key Expansion Areas for PLM
As PLM expands, innovation opportunities increase

- Systems Engineering & Mechatronics
- Simulation Data & Process Management (SDPM)
- Digital Manufacturing
- PLM Automation
- Strategic Product Planning
- Enterprise Content Management & Content Publishing
- Green, Compliancy, Sustainability
- Customer Facing & Social Tools
- Maintenance, Repair, and Operations (MRO)
- Others: Enterprise BOM Management, SCM and Collaboration, Strategic Sourcing, Product Costing, and more…

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Systems Engineering & Mechatronics
PLM solutions are driven to address the total product

- Increasing recognition of the need to manage the "total product," not just pieces of it
- Recognition drives companies to implement full systems engineering processes
- Systems engineering and mechatronics are increasingly seen as fundamental components of PLM strategies to support innovation
- New revenue opportunities – software on demand, media, music, video, etc.
- Enhanced product performance
- Revolutionized product support

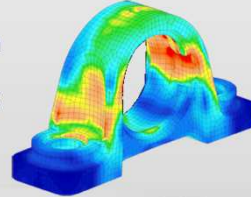CIMdata   Copyright © 2014 by CIMdata, Inc.   10

Simulation Data & Process Management (SDPM)
Highly intensive data management set of activities

- SDPM is transforming product-related simulation into a visible & accessible component of the product development process

- Goal is to support full systems simulation

- Forward-thinking firms are leveraging SDPM to link performance simulations with product design and with requirements to create more efficient and innovative product development environments

- Simulation data and process management is an essential component of any full PLM initiative

- SDPM is a critical enabler for up-front design

- SDPM requires careful planning and requires cultural change

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Digital Manufacturing
Solutions supporting collaborative manufacturing process planning

- Strategic business approach

- Collaborative manufacturing process planning

- Digital manufacturing should be considered as part of any full PLM initiative

- CIMdata research shows solid value and acceptance by companies that have invested

- A real enabler to support innovative manufacturing processes

- Clarifies relationships between product definition & production lifecycles
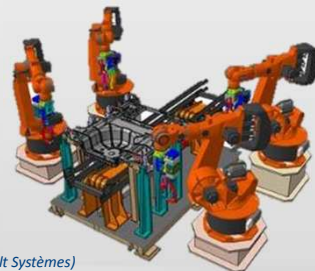
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Strategic Product Planning
Strategic Product Planning links the lifecycle front end into PLM

- Strategic Product Planning is a relatively untouched opportunity for PLM programs

- Available solutions are very diverse

- Will take some time to become recognized as an essential component of full PLM initiatives

- Critical to being able to truly manage the entire product lifecycle

- Increased innovation can result from very early planning

Enterprise Content Management
Product & process innovation are critical for business success

- Enterprise Content Management is an important PLM capability to support innovation

- Critical opportunity that requires serious attention from PLM solution providers

- Integration between PLM & ECM solutions is critical to support more innovative product development

- Despite relatively large amounts of investment, most companies still don't understand the relationship between ECM managed data and PLM managed data

- PLM-enabled information publishing solutions link real-time engineering data directly to technical information throughout a product's information lifecycle

Compliance, Green, Sustainability...

Product & process innovation are critical for business success

- Compliance makes the difference of being in-business or not

- Integration between PLM and CRM, and other business solutions often required

- Innovative companies are creating unique solutions that support greater levels of compliance

- Opportunity for PLM solution providers to provide templates for compliance protocols that make compliance easy for their customers in specific industries

- Today, needs to be a component of PLM initiatives

- Remains immature

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Social Media – Fact or Fad?

Capturing the "Voice of the Customer"

- Few PLM vendors have seen success with their "social" tools

- Engineers often fail to see the benefits

- Innovation can be enhanced when people can collaborate with more social tools

- Younger Engineers/employees are using these tools and will expect simple, integrated, collaborative solutions

- Critical opportunity that requires serious attention from PLM solution providers

- Integration between PLM and CRM and other business solutions often required

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Maintenance, Repair, and Operations (MRO)
Sometimes also referred to as overhaul

- New solutions from PLM vendors support serviceability and maintenance

- Having access to accurate, up-to-date product definition information is a key factor in improving lifecycle performance

- Historical information is used for planning and product improvement, and to track reliability and maintainability

- Documentation and change requests initiated or completed by service personnel may be captured and managed

- Integration with other systems is the key to strong innovation once the product is sold

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Other Expanding PLM Opportunities
There are many other areas that can enhance innovation

- Strategic Sourcing
  - Management of proposal and quotation processes with suppliers
  - Including requirements, schedules, and deliverables

- Enterprise BOM Management
  - Single source of structured product and process information
  - Enabling every user to derive correct BOM information for their needs
  - Maintain the accuracy of the product's BOM information, manage engineering changes across multiple configurations, synchronize downstream BOMs and manage BOM changes across product variants

- SCM and Collaboration
  - Support of data and process management throughout the design supply chain
  - Solutions are usually integrated with key data authoring tools

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New Technologies Impacting PLM

Keep an eye on new technologies to spot opportunities for innovation

- The Cloud
- Big Data & Analytics
- Direct Modeling & MBD
- The Rise of Social Tools
- Internet of Things
- Mobile Devices
- 3D Printing
- Software as a part of product design

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Setting Priorities: It's All About ROI!

Remember to remain objective when determining priorities

- Costs are real
- Benefits must be real too
  - So benefits should, if possible, be estimated in the same method of measurement—Money
- Subjective opinions lead to:
  - Delayed decisions
  - Lack of commitment by management and users
  - Unfocused investigations, aimless PLM strategy
  - Scope creep
  - Unsuccessful investments

COSTS   BENEFITS

Do Not Rely on Subjective Opinions

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Go About It in a Systematic Manner
Use the 7 step PLM Benefits Appraisal methodology to set priorities

1. PLM Education
2. Define Business Needs
3. Identify Prime Benefits from PLM
4. Identify Scope and Systems/Suppliers
5. Plan Implementation Strategy
6. Perform a Cost/Benefit Analysis
7. Present Results for Decision

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Concluding Remarks
Expanding PLM presents many opportunities for innovation

- Understand how the expanding nature of PLM can impact product innovation
- Get a handle on your business; what do you really need?
- Do one thing at a time, don't get carried away
- Keep innovation at the front of PLM planning
- Do not innovate just because others do it
- Plan for the unknown; be flexible
- Learn more about PLM!

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Delivering strategic advice and counsel through a comprehensive, integrated set of research, education, and consulting services

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CIMdata's PLM Transformation Services
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- Strategy Development
- Solution Definition
- Solution Evaluation & Selection
- Implementation Planning
- Implementation Support
- Monitoring & Continuous Improvement

CIMdata's PLM consulting methodology— transforming your business for a competitive advantage!

A comprehensive set of services tailored to fit your specific needs...

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CIMdata's Industrial Clients…
A sampling of CIMdata's international industrial clients (1 of 2)

CIMdata's Industrial Clients…
A sampling of CIMdata's international industrial clients (2 of 2)

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CIMdata PLM Leadership
PLM Industry's most comprehensive non-biased education & training offering

This CIMdata offering is primarily comprised of a set of well defined, assessment-based PLM education and training certificate programs. These certificate programs are available to industrial companies who are considering and/or implementing PLM, and to PLM technology and service solution providers.

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PLM Certificate Program Outline
5-day, 9-session outline for PLM Leadership offering

- **Day 1:** Session 1: Introduction to PLM

- **Day 2:** Session 2: PLM Benefits & Potential Value
  Session 3: PLM Strategy & Solution Definition

- **Day 3:** Session 4: PLM Solution Evaluation & Selection
  Session 5: PLM Implementation, Monitoring & Continuous Improvement

- **Day 4:** Session 6: PLM Process Development & Testing
  Session 7: Integrating PLM within the Enterprise

- **Day 5:** Session 8: Expanding PLM Across the Value Chain
  Session 9: Configuration Management's Role in PLM

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What Others Are Saying

A sampling of feedback received from past certificate program participants

"A must attend program for anyone that is planning to participate in PLM selection or implementation activities at their organization."
—*Shinod Kumar, Edwards Lifesciences, USA*

"An excellent overview of all PLM and it's fit to companies. Good insights that can avoid many troubles in implementation."
— *Paulo C L Villaca, Embraer, Brazil*

"I wish we had done this before we started our PLM effort..."
— *Jeff Burk, Whirlpool, USA*

"Hazy about PLM? Come to CIMdata and clarify."
—*Mrs. B. Uma Prasad, Bharat Heavy Electricals Ltd., India*

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2014 PLM Certificate Class Schedule*

Join us, and get educated about PLM

● PLM Roadmap – Oct. 2 – The Inn at St. Johns, Plymouth, MI

● October 20-24 – Amsterdam, The Netherlands

● December 1-5 – Ann Arbor, MI USA

▪ Custom & on-site programs by request

Special Discount: 15% off!
Sign up and pay by September 26th 2014

SPECIAL OFFER

Some dates may be subject to change

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Questions?

Please use the GoToMeeting chat panel

- We're hoping that the anonymity of the chat window might help participants ask more questions

- If you want to ask a question on the record, we'll certainly let everyone know you're asking

- The most important thing is interaction – let us hear from you on the call
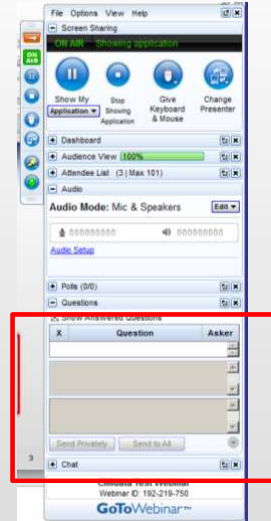
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