

PLM for Process-Based Products

CIMdata PLM Leadership Webinar

PLM Leadership

PLM for Process-Based Products

CIMdata PLM Leadership Webinar Series
24 March 2015
#cimdatawebinar

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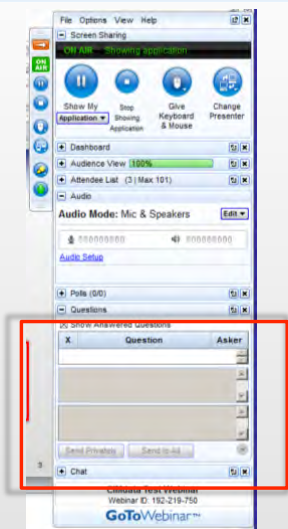
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Questions?

Please use the GoToWebinar Question panel

- Please enter questions in the GoToWebinar Question panel
- We will answer as many questions as time allows...
- Those that can't be answered live will be answered by email



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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

- John MacKrell, Vice President
 - More than 40 years of experience in the application of computer-based solutions to engineering & manufacturing; has held senior positions in product management, marketing, research & development, and consulting with companies that produce PLM solutions & services
 - B.S. in Naval Architecture & graduate-level studies in computer science



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Process Industries

Many different products—many common problems

- Chemical
- Food & Beverage
- CPG
- Pharma
- Components
- Other
- Combined



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Characteristics of Combined Products

Our customers exhibit many different scenarios

- The formulation is the product, the discrete part is the manufacturing facility & packaging
- The formulation is a consumable within the discrete product
- Combined discrete & formulation are optimized to create the product



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Process Industry PLM Issues

PLM can help ease the pain (1 of 2)

- Product configuration
- Formula modeling
- Formula and process optimization
 - Transformation of formulas into a multitude of recipes (compliant with standards such as ANSI/ISA-88 process control)
- Regulatory compliance requirements and sustainability
 - Labeling, traceability (e.g., “field-to-fork”, conflict minerals...), ingredient composition, etc.
- Sample management
- Test definition & execution
- Supplier collaboration with IP protection



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Process Industry PLM Issues

PLM can help ease the pain (2 of 2)

- Packaging & labeling design
- Artwork management
- Work & data sharing among OOs, design-build partners, project managers
- Delivery & handover to OOs
- Moving data to “production”: sharing data with MES & ERP
- Quality exception tracking & resolution
- LIMS (Laboratory Information Management System) & lab notebooks—
Design of Experiments (DOE)



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Process Business Trends

Companies seek increased market share and shareholder value

- Increase customer loyalty in an evolving global economy
 - Customer loyalty & brand recognition
 - Customer intimacy
 - Increased focus on localization for specific markets
 - Expanded and innovative mix of products and services
- Increase customer base
 - New customers in new geographies—globalization
 - New channels
- Collaboration with trading partners, suppliers, retailers, and customers



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Our 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/*plant* related *intellectual assets*
 - All product/*plant* definition information – the virtual product
 - MCAD, AEC, EDA, ALM, 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 through life



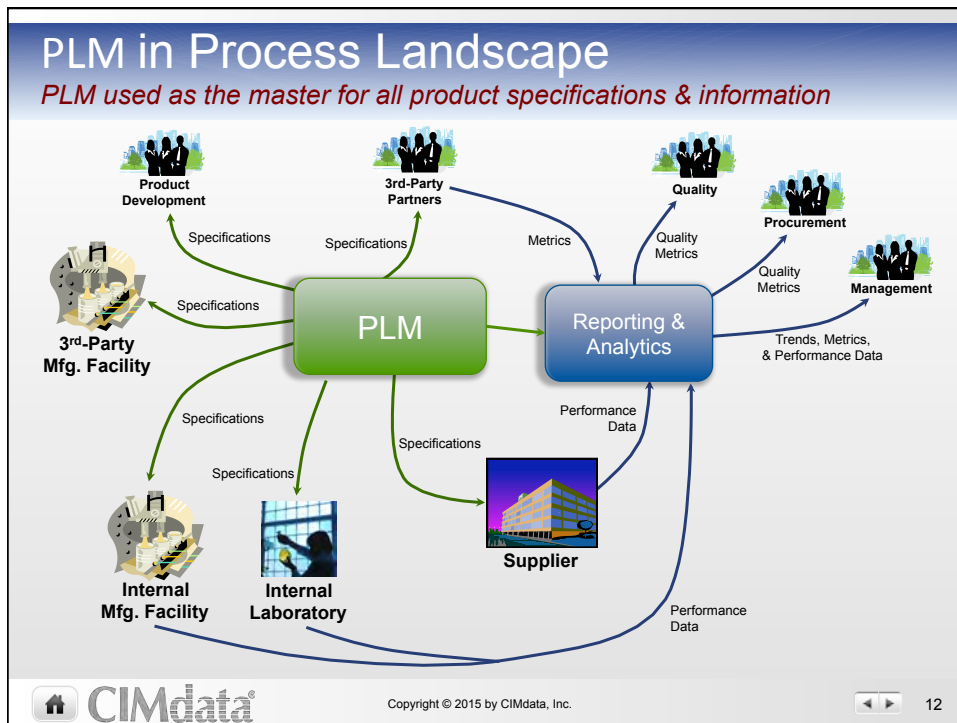
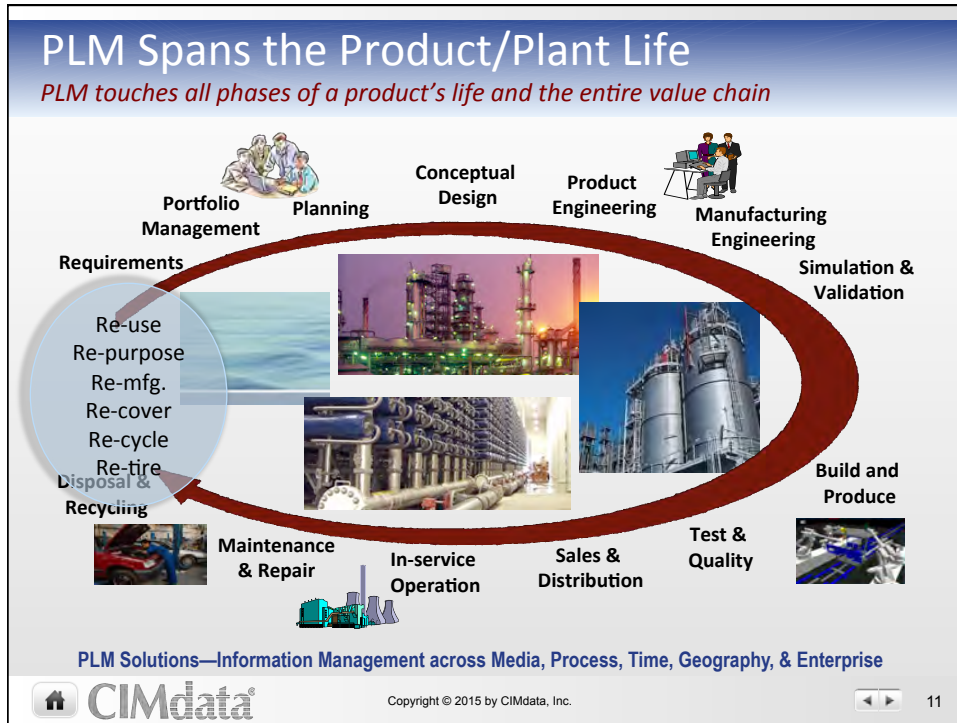
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PLM for Process

Supporting a holistic approach to specifications & formulation management

- An extended enterprise lifecycle approach
- Specification & recipe management
 - Structured, linked data approach, not just document management!
- Lab notebook management
 - Links to LIMS systems
- Project & portfolio management
 - Project management drives the development process
- Workflow and collaborative mechanisms
 - Environment enabled with workflow and collaborative mechanisms that support the extended enterprise (this includes supplier management)
- Standardized process frameworks across the enterprise



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Best-in-Class Process Requirements

Characteristics of a best-in-class food & beverage company (1 of 2)

- Balance responsive customer service and product demand with efficient growth in the right global markets
- Track & manage rapidly changing regulations
- Control purchasing of material, overhead, and capital
- Determine where to source product within the supply chain (both internal & external) to maximize potential revenue, and customer service, while minimizing inventory
- Acquire and rapidly incorporate new organizations
- Identify and manage core competencies while outsourcing non-core activities



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Best-in-Class Process Requirements

Characteristics of a best-in-class food & beverage company (2 of 2)

- Manage product/project risks throughout the development/commercialization process
- Control changes against product definition information
- Treat regulatory compliance as an integral component of product development
- View regulatory agencies as customers of product information and related development processes
- Drive intelligent specifications
- Support process agility



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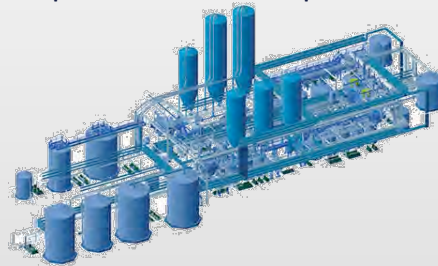


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Specifications Management

Critical to process & discrete product development (1 of 2)

- Single, secure, “system of record” for all product related data and content including BOMs, document management, components, drawings, packaging requirements, formulas— in short, **specifications**
- Change management
- Available to all people in the enterprise and outside partners based on security and roles



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Specifications Management

Critical to process & discrete product development (2 of 2)

- Specification documents and data attached to specification object
- Multiple specification types with hundreds of attributes
 - Where each specification can have unique attributes
 - Specifications may relate to multiple items—keeping them synchronized is usually difficult
- Workflow based specification creation, change management, and lifecycle management
- Search, history, and tracking



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What to Look For ...

PLM supporting process

- The ability to find, create, manage and optimize structured formulas, specifications, recipes, etc.
- The ability to securely share specifications with appropriate supply chain participants
- The ability to proactively manage specification changes
- The ability to define specification templates
- The ability to define and manage bills of specifications (hierarchical structure of interrelated specifications, including rules-based specifications)
- Integrated project management capabilities
- Built-in workflow and collaboration tools



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Key PLM Support Domains

Key process areas PLM can support in process industries

- Requirements management
- Portfolio management
- Specification management
- Formula development/ optimization
- Recipe management
- Packaging design management
- Quality management
- Supplier management
- Claims management
- New product development & introduction process management
- Regulatory compliance
- Manufacturing process development



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Key PLM Support Domains

Key process areas (1 of 4)

- Requirements management
 - The process of working with a defined set of product requirements throughout the product's development process and its operational life
 - Includes tracking requirements status, managing changes to requirements and versions of requirements specifications, and tracing individual requirements to other project phases and work products
- Portfolio management
 - A business process by which a business unit decides on the mix of active projects, staffing and expense budget allocated to each project/product
- Specification management
 - The process by which a detailed, exact statement of particulars, especially a statement prescribing materials, dimensions, and quality of work for something to be built, installed, or manufactured is defined and managed



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Key PLM Support Domains

Key process areas (2 of 4)

- **Formula development & optimization**
 - The development process that defines the set of ingredients that comprise a final commercial product
- **Recipe management**
 - The development process that defines a set of directions with a list of ingredients for making or preparing an ingredient-based product
- **Packaging design management**
 - The development process that defines the manner in which product is presented to the public. This process usually includes the definition of the art work and labeling placed on the packages



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Key PLM Support Domains

Key process areas (3 of 4)

- **Quality management**
 - That aspect of the overall corporate management function that determines and implements the quality policy
 - Usually including product, process, and supplier elements, at a minimum
- **Supplier management**
 - Management functions that oversee corporate relationships with those outside organizations that provide products and/or services to the enterprise
- **Claims management**
 - Assure that content claims are represented properly & tracked for each country & type of product
- **New product development & introduction process mgt.**
 - The business process that starts with the identification of an opportunity in the market and ends with the successful launch of a product



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Key PLM Support Domains

Key process areas (4 of 4)

- Data synchronization
 - The ability for data in different databases to be kept up-to-date so that each repository contains the same information
- Manufacturing process development
 - The development process by which a product's production equipment, process, and other resources are defined and managed
- Regulatory compliance
 - The business processes associated with understanding, managing, and satisfying governmental and other regulations required to be met in order to legally sell a product in the market



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Compliance, Green, Sustainability...

Critical for business success

- Compliance can make the difference of being in or out of business
- Integration of PLM, CRM, and other business solutions often required
- Innovative companies are creating unique solutions in PLM that support greater levels of compliance
- Templates for compliance protocols can help make compliance easier for specific industries
- Solutions remain immature, but improving



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Setting Priorities: It's All About ROI!

Remember to remain objective when determining priorities

- Costs & benefits must be real
 - Allow ROI to drive PLM towards high potential benefits for YOUR business
- Subjective opinions lead to:
 - Delayed decisions
 - Lack of commitment by management and users
 - Unfocused investigations, aimless PLM strategy
 - Scope creep
 - Unsuccessful investments

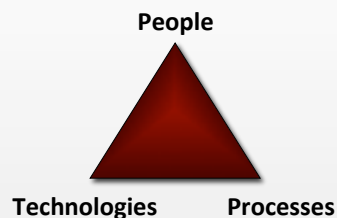


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Key Factors Impact PLM Benefits

People, technologies, and processes interrelate



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



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Concluding Remarks

Expanding PLM presents many opportunities to improve process operations

- Plan
- Understand what your organization/business needs (what is your process industry type)
- Learn about PLM—understand how it can support your business
- Develop requirements for what you need—not for some other company's needs
- Map your requirements to PLM support domains



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Our Services...

Creating, disseminating, and applying our intellectual capital



Research

- Market research & analysis
- Technology research & analysis
- Reports & publications
- Market news
- Member services...



Education

- Executive seminars
- PLM Certificate Programs
- Technology seminars
- Int'l conferences & workshops
- Best practices training...



Consulting

- Strategy & vision
- Needs assessment
- Solution evaluation
- Best practices
- Quality assurance
- Program management
- Market planning...

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



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Our PLM Transformation Clients...

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

CPG/F&B/Process	Medical/Pharma	Fab & Assembly	High-Tech

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Our PLM Transformation Clients...

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

A&D	Auto	Emerging Ind.	Other

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CIMdata PLM Leadership

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

CIMdata's certificate program is primarily comprised of a set of well defined, assessment-based PLM education and training classes.

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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2015 PLM Certificate Class Schedule*

Join us, and get educated about PLM

- March 16-20 – Amsterdam, The Netherlands (*completed*)
- May 4-8 – Ann Arbor, MI USA
- September 21-25 – Boston, MA USA
- December 7-11 – Cypress, CA USA

15% Discount for any scheduled class:

Sign up and pay by April 10th 2015



- *Custom & on-site programs by request*



** Dates are subject to change*



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