Integrated Product Development
for Process and Discrete Industries: an Overview and Outlook

Product Management PLM
October 2011
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Agenda

1. Value Drivers in PLM generating Value along the Product Life Cycle
2. SAP PLM in a Nutshell
3. Innovations for Product Development
4. Why Product Development Executives Choose Innovations from SAP - Customer Examples
Global Trends and the Impact on Product Development

Critical business priorities

The number ONE goal for Manufacturing companies around the world is to reduce “Time to Profit” for new and enhanced products.

Consumer-Driven, Sustainable Innovation

Fact: Roughly 80% of all new products are failing to achieve their expected results.

Global Price and Time Pressure

Fact: About 70% of product costs are locked down during the design phase.

Product Compliance & Regulations

Fact: Companies are accountable for the environmental and safety performance of their products.
What are the Reasons for Failure?
The Challenge of Disconnected Processes and Tools

1. Misaligned innovation
Disconnected business processes and information

2. Growing effort and costs
Missing a single source of truth

3. Point solutions for compliance
Insufficient sustainability approach
SAP’s End to End Process Centric Strategy
Flexibility and integration to achieve Product Leadership

- Head of Marketing
- Head of Engineering
- Head of Procurement
- Head of Manufacturing
- Head of Service

Continuous Product Innovation
Integrated Product Development
Embedded Product Compliance
Agenda

1. Value Drivers in PLM generating Value along the Product Life Cycle
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4. Why Product Development Executives Choose Innovations from SAP - Customer Examples
SAP Solutions and Strategy for LoB Product Development
Deliver innovative products with high quality, precision, and speed in a world of accelerating change

Visual Communication

Portfolio and Project Management

Embedded Analytics, and Collaboration

Embedded Engineering Change Management

Embedded Quality and Compliance Management

Product Data & Structure and Process Mgmt.

CAD Integration
Tool integration

CAD

Layout, Schema, Code

Bill of Results

Simulation Data

CAD

EDA

CAE

Digital M.
Key SAP PLM Components to Support Your Product’s Life Cycle

SAP Product and Portfolio Management

SAP cFolders

SAP PLM CAD Integrations

Product Visualization with Right Hemisphere

SAP Environment Health and Safety

SAP Easy Document Management

Continuous Product Innovation

Integrated Product Development

Embedded Product Compliance

SAP ERP

Product Structures

Engineering Change

Collaboration

Product Structure Synchronization

Recipes & Formulas

Material Master

Variant Configuration

Asset Lifecycle Management

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Agenda

1. Value Drivers in PLM generating Value along the Product Life Cycle
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Integrated Product Development
Innovative and efficient product development in both Discrete and Process Industries

Enables innovative product development, envisioned from market insights and active involvement of key stakeholders in order to achieve faster time-to-profit

**Product Design**
- Single source of product data, comprehensive collaboration and change management, to maximize development efficiency

**Strategic Sourcing**
- Optimize component costs by maximizing the sourcing window and reduce part redundancy

**Ramp-up to Production**
- Seamless hand over from engineering to manufacturing

**Solution highlights**

**Key benefits**
- Design collaboratively for optimized producibility, logistics, best priced components, component re-use and reduced time and effort
- Component standardization and saving due to better volume leverage
- Lower supply risk due to global supply base assessment
- Less change cycles through seamless data transition
- Continuous quality assurance and tracking

**Customer examples**

- Reduced lead times for information and document distribution into development projects by 50%
- Lowered costs of new-product introduction process with SAP PLM by 30%
- Achieved better data and process quality with integration of project manufacturing, costing and design; reduced time to market and increased product quality
## Integrated Product Development

Product Lifecycle Management for Discrete Industries

### Marketing
Head of Marketing
- **Product Portfolio Planning**
- **Product Initiative Management (DFM)**

### Service
Head of Service
- **Complaints and Returns Analyses**
- **Service Portfolio Planning**
- **Spare Parts Management**
- **Service Ramp-up**

### Manufacturing
Head of Manufacturing
- **Manufacturing Setup Planning**
- **Quality and SLA Requirements Specification**
- **Prototyping and Production Ramp-up**
- **Quality Engineering and Improvement**

### Development
Head of R&D
- **Concept Management**
- **Product Development Including Configuration Management**
- **Project Management**
- **Product Costing**
- **Design Release**
- **Handover to Manufacturing and Service**
- **Change and Configuration Management**

### Procurement
Head of Procurement
- **Development Collaboration and Strategic Sourcing**
- **Supplier Identification and On-boarding**
- **Supplier Qualification**
- **Contract Management**
- **Supplier-Managed Inventory**
- **Contract Monitoring**

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### Integrated Product Development

**Product Lifecycle Management for Process and CP Industries**

<table>
<thead>
<tr>
<th>Marketing</th>
<th>Development</th>
<th>Manufacturing</th>
<th>Procurement</th>
<th>Service</th>
<th>Sales</th>
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<tbody>
<tr>
<td>Head of Marketing</td>
<td>Head of R&amp;D</td>
<td>Head of Manufacturing and Process Planning</td>
<td>Head of Procurement</td>
<td>Head of Service</td>
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<td><strong>Ramp-up to Production</strong></td>
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<td>Material Master Management</td>
<td>Quality Improvement</td>
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<td>Handover to Production</td>
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<td>Recipe Development</td>
<td>Stability Studies</td>
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<td>Substance Management</td>
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<td>Development Collaboration</td>
<td>Scale-up from Pilot Plant to Production</td>
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<td><strong>Purchase Order and Contract Management</strong></td>
<td><strong>Spare Parts Management</strong></td>
<td><strong>Service Ramp-up</strong></td>
<td><strong>Quotation Processing</strong></td>
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Integrated Product Development
Product Structure Management for Discrete Industries

Product lifecycle management, product structure and assembly management combined with variant configuration

Solution Enhancements

Maintain multilevel product structures:
- High-level product definition, like a concept BOM
- Functional structures and views with integrated variant configuration and simulation
- Support for change management with both date and parameter affectivity
- Web UI product structure management
- Web UI variant assembly management

Key Benefits

- Use product structure management to offer high flexibility for documentation – from high-level concepts to detailed product configurations
- Increase efficiency by simple and powerful maintenance of variant assembly
- Provide high data and process quality with integrations of project manufacturing, costing, and design
Integrated Product Development
Recipe Development for Process and CP Industries

New UI and features in recipe development to support the development of comprehensive management in process industries

Solution Enhancements
- New UI for recipe development
- Generate labels directly from recipe development
- Automatically create ingredient, allergen, and nutrition statements
- Calculate recommended dietary requirements automatically
- Assemble and transform formula information into a final view of your label
- Business context viewer for process industries embedded in SAP PLM
- Extended compliance checks to comply with regulations quickly and before product launch

Key Benefits
- High usability enables increased user acceptance and reduced training effort and costs for faster ROI in the process industry
- Intuitive approach improves user satisfaction
- Faster time to market and increased efficiency through the automated process of label generation out of recipes
- Compliance and reduced risk by aligning labeling with recipe development
Integrated Product Development
Guided Structure Synchronization

Guided structure synchronization enables digital manufacturing

Solution Enhancements
- Allow decoupled engineering BOM (E-BOM) and manufacturing BOM (M-BOM) management to serve manufacturing and engineering requirements
- Offer guided process for semiautomatic reconciliation between E-BOM and M-BOM
- Memorize the restructuring operations between M-BOM and E-BOM
- Synchronize and compare structure and attributes of items
- Consider change state (smallest atom) during synchronization

Key Benefits
- High flexibility for engineering and manufacturing through the support of managing complex design and manufacturing processes separately but synchronized
- Faster time to market by guided transitions of engineering product structures to manufacturing production processes
- High efficiency by less effort for change management as the transition of E-BOM to M-BOM is memorized
Embedded analytics in the context of product-related business processes, supporting better and faster decisions based on more insights

**Solution Enhancements**

- BCV provides embedded analytics in the context of product-related business processes
- Advanced product information is provided by the new side panel or individually defined dashboards
- Product information is aggregated from different sources and embedded in the user interface in a context-sensitive manner
- BCV is part of all product and service leadership scenarios

**Key Benefits**

- Providing product, processes, and market insights to support better and faster decisions
- Decisions made on up-to-date and accurate data – reducing errors and making actions more appropriate for business circumstances
- Less time and effort to search for information and increased quality of results
Enable comprehensive and transparent change management for efficient continuous product transformation

Solution Enhancements

- Change record – to collect all objects and information to initiate, investigate, approve, and execute change management processes
- Predefined process routes/templates
- Change management integrated into the SAP PLM Web UI
- Ad-hoc workflow: process route for all SAP PLM objects
- Change process analytics to track and maintain workflow processes

Key Benefits

- Minimize the impact of product-related changes by providing change management–centric workflows and transparency across the product lifecycle
- Realize time savings and cost savings in managing changes faster by cross-department change management and enabling ad-hoc workflows
- Enable process efficiency through change management that works across organization that align engineering, manufacturing operations, supply chain operations, maintenance, and service operations
Planned Innovations

Solution Today

PLANNED INNOVATIONS

Next Release SAP PLM
Customer Connection
Rapid Deployment Solutions

Future Direction

Continuous Improvement with Customer Connection
Authoring Tool Integration
Embedded Product Compliance
Visual Enterprise
SAP to Acquire 3-D Visualization Software Maker Right Hemisphere

September 06, 2011 | SAP - SAP Investor Relations

Acquisition of Leading Provider of Visual Enterprise Solutions Will Enable Comprehensive Visual Communications for SAP Customers Across All Lines of Business, From Design and Manufacturing to Sales and Service;

3-D Technology Combined With SAP® Business Suite and Mobile Apps Enables the “Visual Enterprise,” Increases Business Speed, Productivity and Quality

As part of its mission to help customers innovate the way they do business, SAP AG (NYSE: SAP) will acquire Right Hemisphere, a leading provider of visual enterprise solutions based in San Ramon, California, and Auckland, New Zealand. The 3-D model-based visualization and communications technologies from Right Hemisphere will enhance SAP® software and enable visual navigation and interrogation of an entire product or asset and all its associated data in one, unified environment.

The addition of visualization capabilities to the core product offerings from SAP stands to help customers across diverse industries accelerate time to market, increase people and asset productivity and improve information quality and processes across all lines of businesses. This acquisition is consistent with SAP’s strategy to complement existing applications and solutions with innovative technologies and capabilities while maintaining its successful track record of organic growth. The companies already share numerous joint customers that are already seeing benefits of the combination of enterprise software and 3-D visualization.

“We are very excited to be part of SAP,” said Michael Lynch, CEO, Right Hemisphere. “The combination of SAP’s vast set of business information and Right Hemisphere’s visualization capabilities will change the way businesses of any size create, manage and deliver products and services across their enterprise and their supply chain.”

“Right Hemisphere technology empowers customers to visualize business processes from design to manufacturing through sales, operations and service, helping people to easily cooperate and communicate using the most powerful human sense — vision,” said Peter Maier, general manager and head of Line of Business Solutions, SAP AG. “By bringing 3-D to the enterprise and enriching it with business data, we’re setting a new standard in helping companies achieve more efficiency, accuracy and flexibility across the value chain.”
Planned for Integrated Product Development (1)

**Solution Enhancements**

**Next Release PLM**
- Routing Component Assignment to create routings together with manufacturing
- Status and Action Management
- Document browser to navigate document hierarchies in a Web User Interface
- BOM redlining to mark-up BOM changes before executing them.
- Recipe Synchronization with Manufacturing
- Enhancements for specification Database
- Enhancements in Recipe Process, e.g. Collaboration

**Key Benefits**
- Fast and intuitive creation of routings and Manufacturing BOMS with less effort for rework
- Faster navigation within document hierarchies raise user acceptance
- More interactive and collaborative change processes drive better products
- Lower non-compliance cost through higher data quality in production recipes
- Shorter transfer cycles from R&D to Manufacturing
Planned for Integrated Product Development (2)

**Solution Enhancements**

**Customer Connection CAD**
- Numerous CAD Desktop enhancements requested by and defined in close collaboration with SAP PLM customers

**Customer Connection PLM WUI/GSS**
- Enhancements planned in the area of electronic signature in Web UI

**Customer Connection PS**
- Enhancements planned for archiving, etc.

**Customer Connection PPM**
- Numerous enhancements planned for both project and portfolio management

**Key Benefits**
- Secure your investment through continuous improvements
- Ensure low TCO through driving SAP standard through user group activities
Planned for Integrated Product Development (3)

Solution Enhancements

Rapid Deployment Solution
- Rapid Deployment Solution for PLM 7 Foundation
- Rapid Deployment Solution for Product Structure Synchronization

Key Benefits
- Instant value at low and predictable cost
- Proven solutions – what you need, when you need it

Recipe Development
Visual Assembly – Supporting the Production Planner

Engineering

Manufacturing Planning

Routing

Component Assignment

Engineering Bill Of Material

Routing Bill Of Material

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Component Assignment
Typical Process Today

- Engineering BOM
- Manufacturing BOM
- Routing
New Process with Routing Component Assignment

**Engineering**

**Manufacturing Planning**

**Design Engineering Structure**

**Setup Routing**

**Generate Manufacturing BOM**

**Reduce Cycle Time**

- Start Routing Design as early as possible in parallel to Development
- No Material Masters required to start the Routing Design

- **Engineering BOM**
- **Routing**
- **Manufacturing BOM**
Demo: Routing Component Assignment
Document Browser in PLM Web UI

- Streamlined User Interface for managing folders and documents
  - Navigation Area for managing multi level folder tree
  - Content Area for visualizing immediate documents of selected folder in table
  - Details Area for visualizing document OIF
- Integration with Search, Access Control, Classification, Engineering Record, BCV, Navigation
Lab Preview: Ideas for Status and Release Management

**Status Management**
- Harmonized status management for key PLM objects
- Integration with Status and Action Management

**Release Management**
- Enhance Change Record to support release process
- Manage status transition, preconditions, system actions, etc.
- Integration with Search, Work Center / Control Center, Access Control Context, …
BOM Redlining

- Enable design and manufacturing partners to propose changes on Bill of materials
- Visualization of changes
- Integration with Engineering record
- Support approval process

Integration aspects:
- Access Control management, Material BOM, Engineering Record, Release Management
Recipe Development – Planned for next release

Solution Highlights

- Full Product and Process definition for formulations
- Integrated Specification development and management
- Fully integrated component of SAP ERP
- Full change management including sophisticated alternate and version management
- Multi-level formulation management
- Formulation Capabilities include:
  - Compliance verification
  - Formula Optimization
  - Formula aggregation, modeling, and comparison
  - Product Labeling
  - Property calculations

Key Business Benefits

- All product development (product and process) information is centrally located (single source of the truth)
- Integrated product compliance verification within development activities
- Reduction of redundant data management and improvement of data inconsistencies
- Direct integration to downstream usage of formulation and process development information
- Increases exposure of data across organization for better visibility and consumption
- Powerful analytics provide users information to make accurate and timely decisions
Recipe Development – Summary of Key Developments Planned for Next Release

Labeling
- Increased flexibility of ingredient list development
- Target locations for labels
- Streamline UI design

Formulation
- Explosion Simulations – Determine specific explosion path
- Multi-Formula Editor – Edit/Compare several formulas simultaneously
- Flexible Recipe Comparison – Export key figures to XLS format for quick comparison
- Fully integrated compliance check
- Mass Change

Specification
- Functional Enhancements to Specifications – ECM, copy in one step, ACM enablement
- Fast data entry screens for specifications
- Quick create of specs while maintaining recipes

Process
- Equipment requirements defined within processes/recipes
- Improvements in usability to maintain streams

General
- WWI Reporting for Specification and Recipes
- Migration tool for data loading and current RM customers
- Enhancements to Recipe to BOM handover
- Additional BCV content
**Agenda**

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2. SAP PLM in a Nutshell
3. Innovations for Product Development
4. **Why Product Development Executives Choose Innovations from SAP - Customer Examples**
Why Product Development Executives Choose SAP

1. SAP solutions support integrated end-to-end processes with strong industry-specific functionalities

2. Connect product portfolio strategy and development across time horizons in one unified product lifecycle solution

3. Low risk and proven functionalities broadly adopted by product development leaders across all industries

4. Delivering deep insight with comprehensive performance management, benchmarking, and dashboards

5. Packaged services to leverage the value potential of product development improvements with fast deployment
You are invited to join us...

SAP Web Site
www.sap.com/plm/index.epx

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