

Logistics and Supply Chain Management 2008

PLM2008

Product Lifecycle Management

Manufacturing 2008

SAP PLM: A Comprehensive Introduction to SAP Product Lifecycle Management



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THE BEST-RUN BUSINESSES RUN SAP



What We'll Cover ...



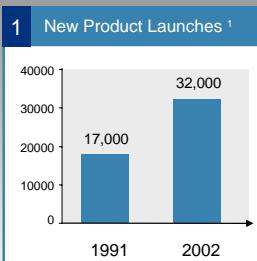
What is SAP PLM?

The SAP PLM Roadmap – The Business of Product Lifecycle Data Management (LDM) – Current and Future Project and Portfolio Management (PPM) – Current and Future The Rest of SAP PLM
SAP PLM Implementation Considerations
Wrap-up

Product Innovation Is a Key Business Value Driver



More launches of more complex products contribute more revenue



Increasing number of new product launches

Increasing investments in product development

Increasing proportion of revenues come from new products

¹ Accenture

² Deloitte Research, Global Benchmarking Study, 2003

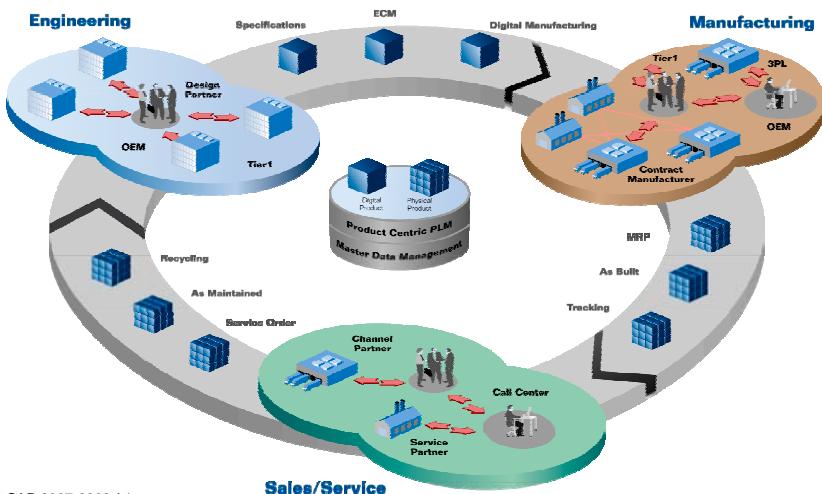
³ "Mastering Innovation – Exploiting Ideas for Profitable Growth," Deloitte Research 2004

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Product Lifecycle Complexity Increasing



Managing lifecycle complexity requires a broad base of applications

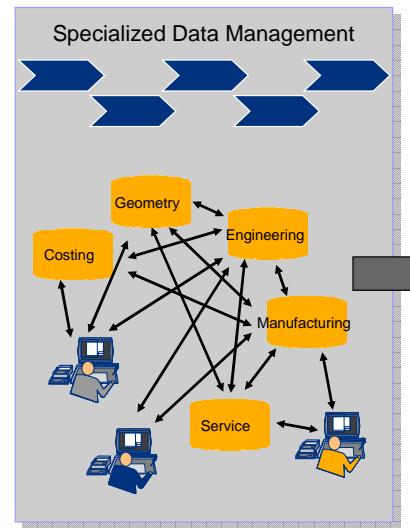


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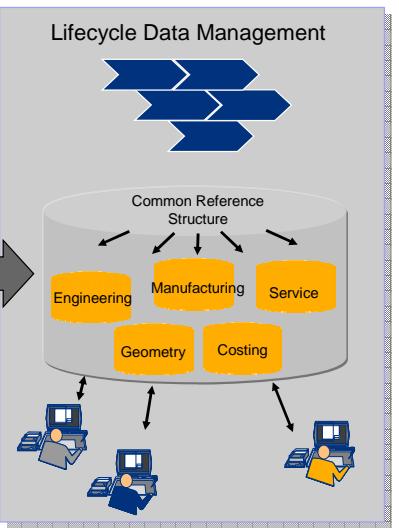
Specialized Data Management Is Ineffective



Specialized Data Management



Lifecycle Data Management



A Full Suite Approach Is Needed to Support PLM Business Processes



Business Process	PLM	ERP	SCM	SRM	CRM	BW
Portfolio Management	●	●				●
Plan and Manage	●	●			●	
Idea to Product (discrete/process)	●	●	●	●		●
Service the Product	●	●	●		●	●
Market Launch	●		●		●	●
Engineering Change Management	●	●	●			
Compliance	●	●	●	●	●	●
...						

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What Is SAP PLM? – PLM Solution Map

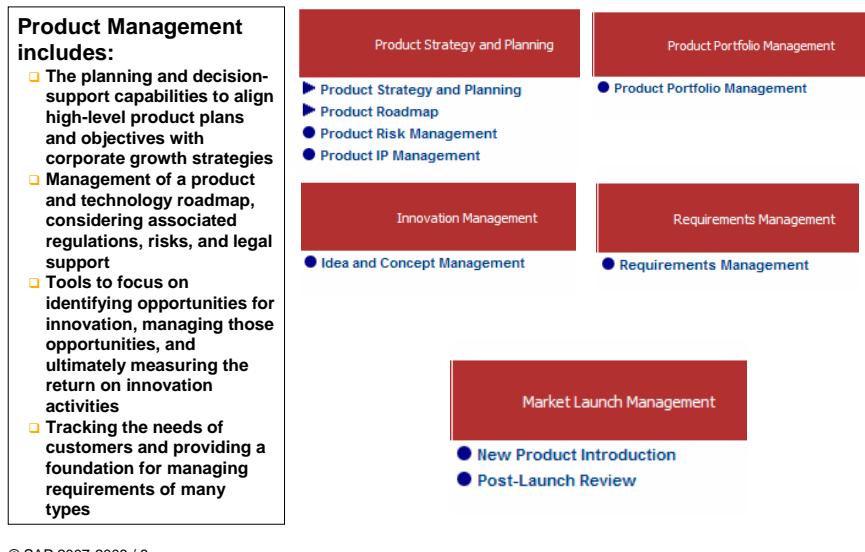


Product Management	Product Strategy and Planning	Product Portfolio Management	Innovation Management	Requirements Management	Market Launch Management
Product Development and Collaboration	Engineering, R&D Collaboration	Supplier Collaboration	Manufacturing Collaboration	Service and Maintenance Collaboration	Quality Management
Product Data Management	Product Master and Structure Management	Specification and Recipe Management	Service and Maintenance Structure Management	Visualization and Publications	Configuration Management
PLM Foundation	Product Compliance	Product Intelligence	Product Costing	Tool and Workgroup Integration	Project and Resource Management

A collection of integrated applications to manage your organization's product lifecycle processes

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Product Management



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Product Development and Collaboration



Product Development and Collaboration includes:

- ❑ Capabilities to engage multiple roles across the business to drive:
 - ❑ Continuous Product Innovation
 - ❑ Continued performance improvements
 - ❑ Maintenance and improvement of product and process quality



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Product Data Management



Product Data Management Includes:

- ❑ Tools to manage data across the entire product lifecycle
- ❑ Including:
 - ❑ Development and Planning
 - ❑ Technical Document Management
 - ❑ Part Management
 - ❑ Product and Process Structure Management



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PLM Foundation



Product Foundation Includes:

- ❑ Infrastructure-level applications to manage the connectivity of your product development and product management processes
- ❑ Including:
 - ❑ Compliance
 - ❑ Reporting
 - ❑ Costing
 - ❑ Document Management
 - ❑ Workflow and Integration



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What We'll Cover ...



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The SAP PLM Roadmap – The Business of Product

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Business Challenges ... For Innovative Companies



Globalization and design outsourcing

... it's about building a NETWORK OF TALENT ...



Product and process innovation

... PRODUCT DESIGN drives BRANDING and vice versa ...

Digital product

... Comprehensive, PRODUCT-CENTRIC INFORMATION is the key to business success ...

Risk management and compliance

... especially the GREEN WORLD ... is of the highest importance ...

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Business Challenges ... For Innovative Companies (cont.)



Globalization and design outsourcing

... it's about building a NETWORK OF TALENT ...

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... PRODUCT DESIGN drives BRANDING and vice versa ...

Digital product

... Comprehensive, PRODUCT-CENTRIC INFORMATION is the key to business success ...

The Business of Products

- ... Marketing affects product strategy
- ... Manufacturing can drive product innovation
- ... The supply chain has an impact on brand perception
- ... Engineering designs green world products
- ... Everybody needs product-centric info

Risk management and compliance

... especially the GREEN WORLD ... is of the highest importance ...

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The Business of Products

Business Acceleration

- Integration of PLM, ERP, SCM, SRM, and CRM

Process Synchronization

- Product and Process Synchronization
- Product Compliance

Product Innovation

- Product and Portfolio Planning
- Product Development and Manufacturing Planning
- Product and Operation Service

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Product-Centered Processes and Enablers: Processes and Enablers Supported by SAP PLM

Processes

DEVELOP

Idea to development and launch

MANUFACTURE

Configure, produce, and optimize

SERVICE

Maintain until disposal

Product and portfolio planning

Product development and manufacturing definition

Product and operation service

Enable

Product and Process Synchronization

- Project Management
- Document Management
- Collaboration
- Business Process Integration
- Analytics
- Compliance

SAP PLM: Development Priorities

SAP PLM Development Priorities

Simplicity, Usability – Adaptability

Product and Portfolio Planning

Product Development and Manufacturing Definition

Product and Process Synchronization

Product Intelligence

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Simplicity



Definition

SAP's simplicity project provides an easy-to-deploy and easy-to-use user interface. Information is provided in an intelligent way to foster efficiency and productivity for power and occasional users. The user interface is based on the standard of SAP NetWeaver® Business Client and includes an enhanced PLM dashboard and analytics.

Development scope

- User interface
- Easy to deploy
- Powerful and easy-to-use search

Business value

- Easy to learn and easy to use
- Increase productivity and system acceptance
- Flexibility and adaptability for user demands
- Data quality and motivation
- Easy to deploy and easy to change for faster ROI
- Reduces software maintenance costs

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Product and Portfolio Planning



Definition

SAP's offering to support innovation management includes leading practices like idea and requirements management, portfolio management, strategic and operational resource management, and project management

Development scope

- Decision flow management
- Simplicity and integration
- Process enhancements
- Change management
- Service enablement
- Risk management

Business value

- Fact-based decision making with the pervasive use of business and product knowledge
- Bring more innovative products to market
- Real-time information with investment and cost tracking
- Reduced failure rate with risk analyses

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Product Development and Manufacturing Definition



Definition

The new SAP PLM application will support the complete product development process, including integration into innovation and service processes. It strongly supports the design and engineering phase and the hand-over to follow-on processes. It is built to facilitate various strategies, such as make to stock or engineer to order.

Development scope

- Product structure management
- Change process support
- Product standardization concepts
- Enhanced variant configuration
- Lifecycle management
- Manufacturing integration
- Digital manufacturing support
- Innovate to realize
- Product services

Business value

- Optimized product data handling with less time and effort and increased product data quality
- Flexible and fast adoption of product definitions to the needs of different manufacturing facilities and market and customer requirements
- Streamlined product cost based on platform and standardization concepts

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Product and Process Synchronization

SAP

Definition

Synchronization includes the product infrastructure and all cross-enabler capabilities that provide the foundation for all PLM business processes. A broad set of new and improved cross-capabilities will put our customers in a position to master their integrated PLM processes from first idea to retirement.

Development scope

- Collaboration support
- Analytics
- Workflow
- Digital-mock-up viewer
- Service enablement
- PLM browser and PLM object navigator
- Workbench framework

Business value

- Optimized total cost of ownership for PLM capabilities based on a unified PLM landscape
- Effective process support for fast information exchange across organizational boundaries
- Increased product development processes with seamless data flow
- Single version of the truth for product data
- Extended value chain

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Product Intelligence

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Definition

Intelligence includes the capabilities to provide easy access to comprehensive and extended product content and context – to support a variety of analytic and decision support applications and processes – enabling cross-functional innovation and performance management across all stages of product lifecycles

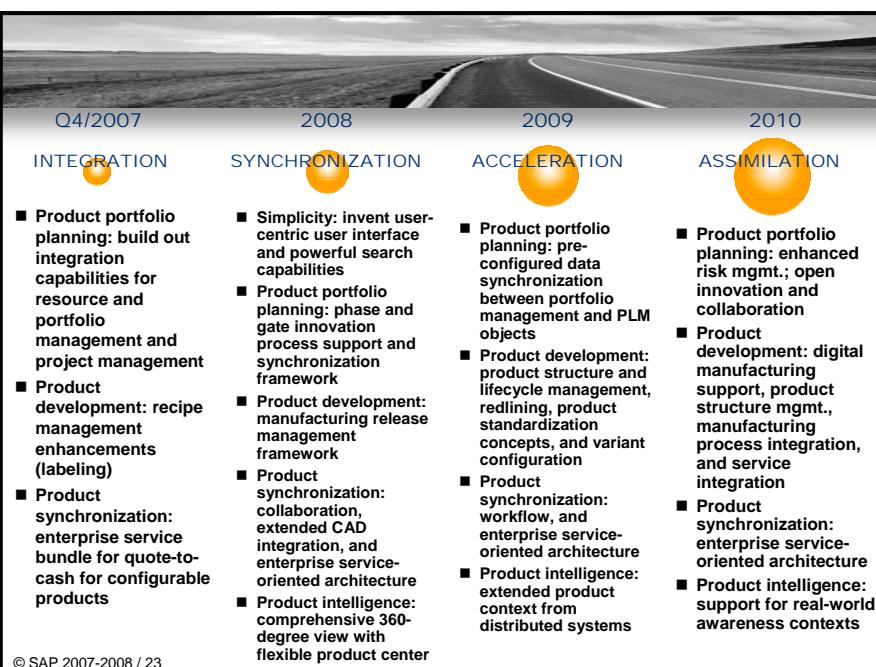
Development scope

- Flexible, extensible product taxonomies
- Multi-dimensional, product-centered definition
- Comprehensive SAP context (360 view)
- Extended product context (720 view)
- Real-world awareness context (1080 view)

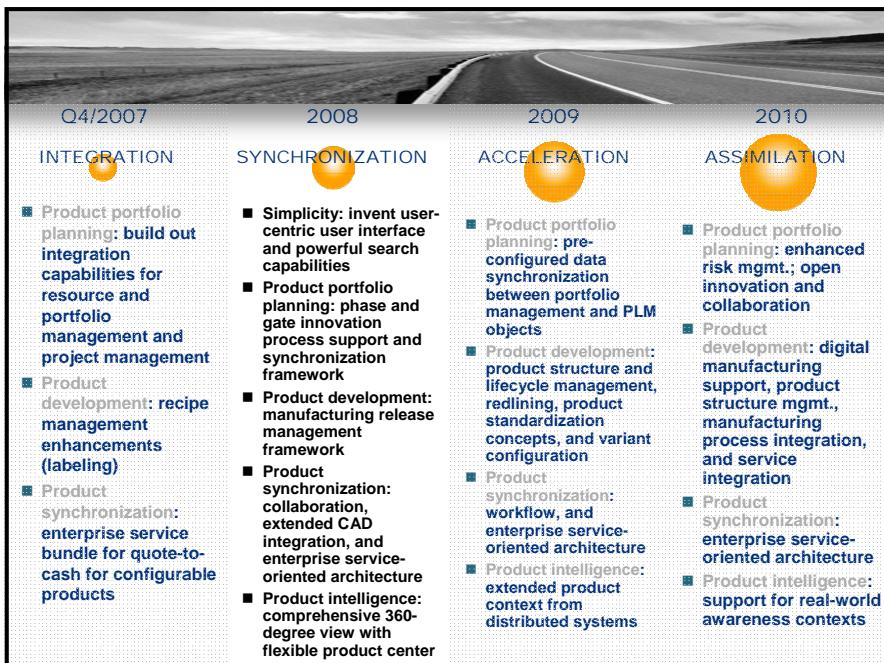
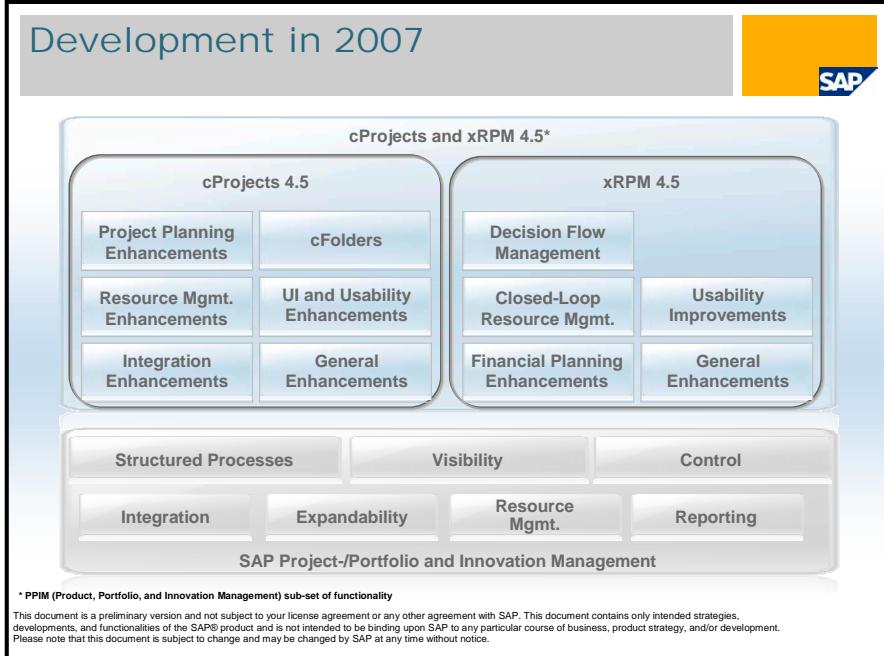
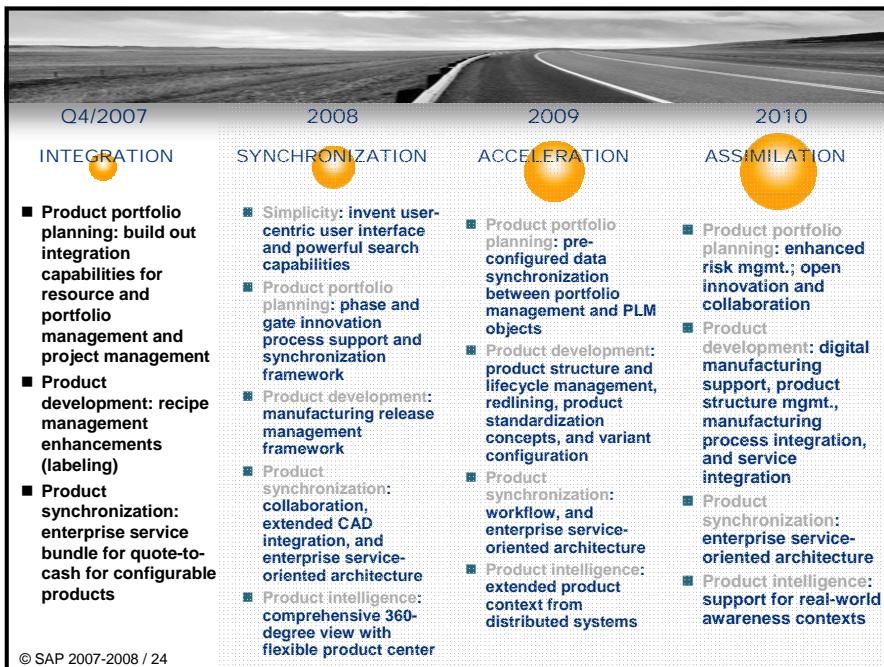
Business value

- Identify areas of improvement (cost, quality, compliance, serviceability, and so on)
- Extend product visibility and intelligence to new processes and roles
- Lifecycle assessment of direct and indirect costs: material, energy, and resources
- Design for X, Y, and Z support

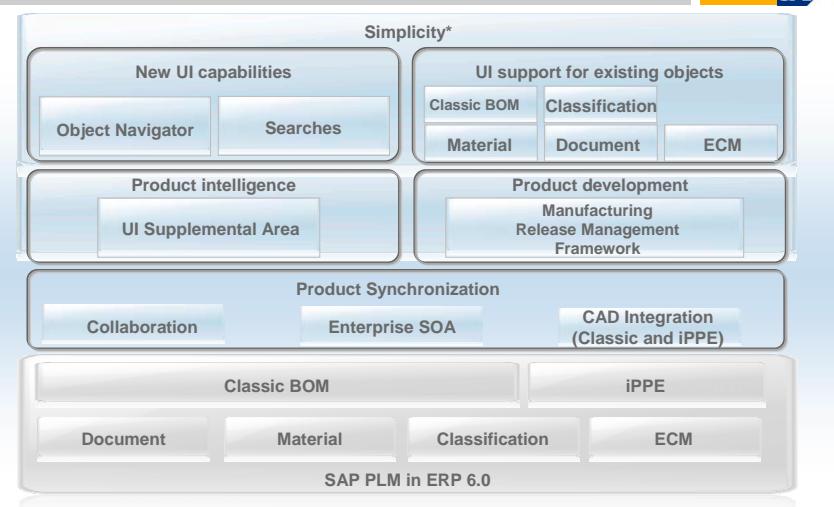
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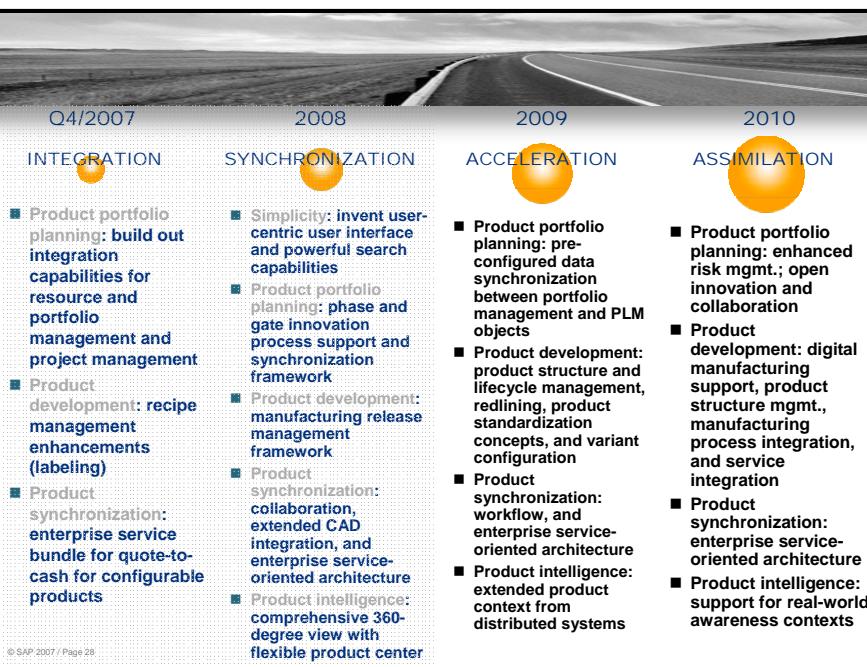


What's Planned in 2008?



* PLM sub-set of functionality

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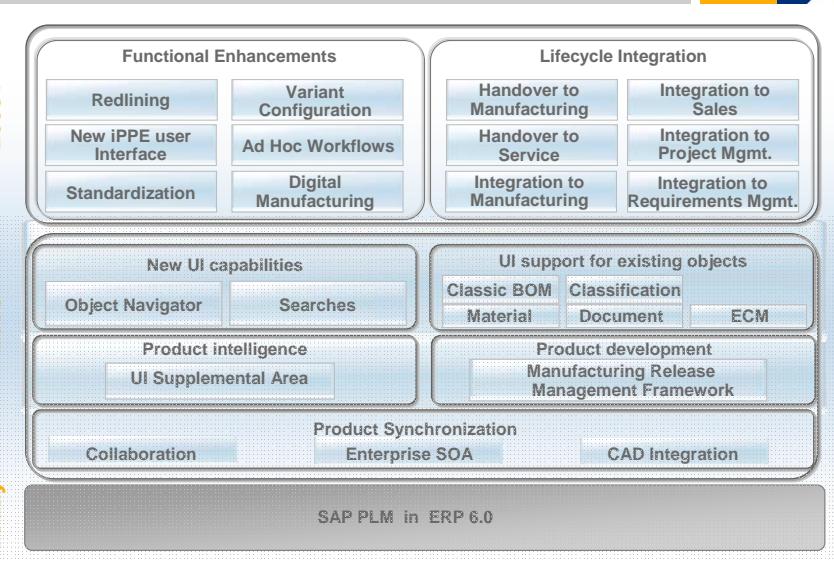
More Planned for 2009+ ... Highlights



2009+

2008

Today



Delivery Strategy



Our 2008 solution will be an add-on on top of SAP ERP 6.0

SAP ERP 6.0 is a required prerequisite



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How Do You Get There?



Step 1:

Upgrade to SAP ERP and implement the existing SAP PLM solution right away

Step 2:

Implement the new SAP PLM capabilities, which are extending the existing solution, and you've made a major leap in simplicity and created a solid basis

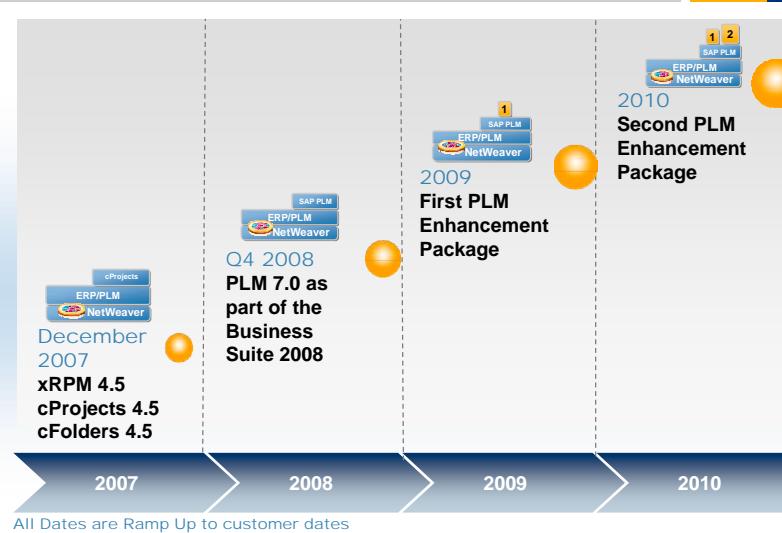
Step 3:

Implement new versions to catch up on the latest and greatest features delivered with SAP PLM



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Planned Timeline



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Lifecycle Data Management — Today and Tomorrow

SAP

Product Management	Product Strategy and Planning	Product Portfolio Management		Innovation Management	Requirements Management	Market Launch Management
Product Development and Collaboration	Engineering, R&D Collaboration	Supplier Collaboration	Manufacturing Collaboration	Service and Maintenance Collaboration	Quality Management	Change Management
Product Data Management	Product Master and Structure Management	Specification and Recipe Management	Service and Maintenance Structure Management	Visualization and Publications	Configuration Management	
PLM Foundation	Product Compliance	Product Intelligence	Product Costing	Tool and Workgroup Integration	Project and Resource Management	Document Management

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Lifecycle Data Management — Today

SAP

Document management

- Versions and structures
- Approval and change management
- Open interfaces: computer-aided design, Microsoft Office, and so on

Product master and structure management

- Product master management
- Product structure management
- Routings
- Classification and variant configuration

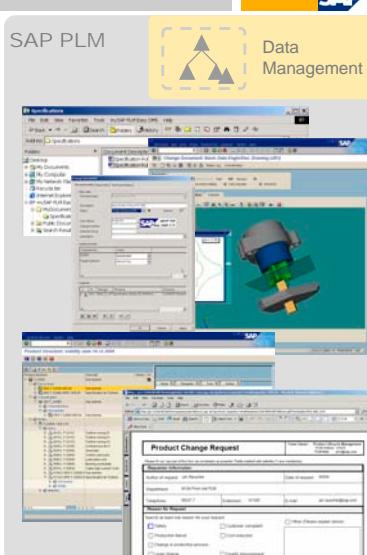
Specification and recipe management

- Specification management (e.g., ingredients, products, and packaging)
- Multilevel recipe and formula management (e.g., S88 compliance)

Service and maintenance structure management

Change and configuration management

- Engineering change request/engineering change order
- Order change management
- Configuration management
- Product data replication



Document Management – Today



UI for SAP document management:

- Standard UI in R/3
 - Very powerful
 - Training needed
 - Target group is power users
- Portal
 - Indirect and more passive access to documents via connector
 - Document consumers
- Web Documents
 - Passive access to documents directly on Web
- SAP Easy Document Management
 - Easy and active access to documents within Windows-based applications

SAP PLM Document Management – Key Differentiators



Applications (Examples)



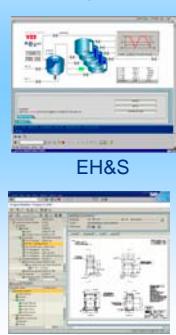
Asset Lifecycle Management



Services



Eng. Change Management



EH&S



Document Management



Workflow



Project Management

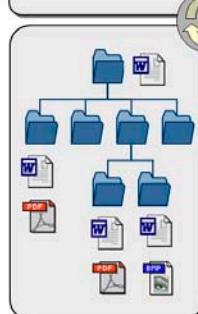


Classification

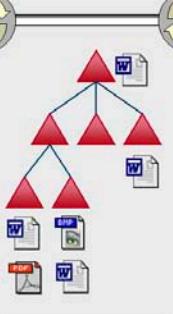
Integrated Product and Process Engineering (iPPE) – Today



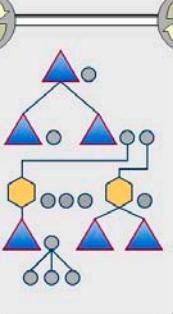
Feature and Requirement Structure



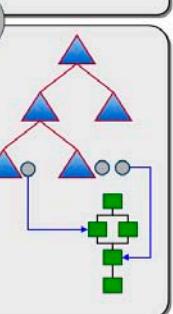
Functional Structure



Concept and Design Structure



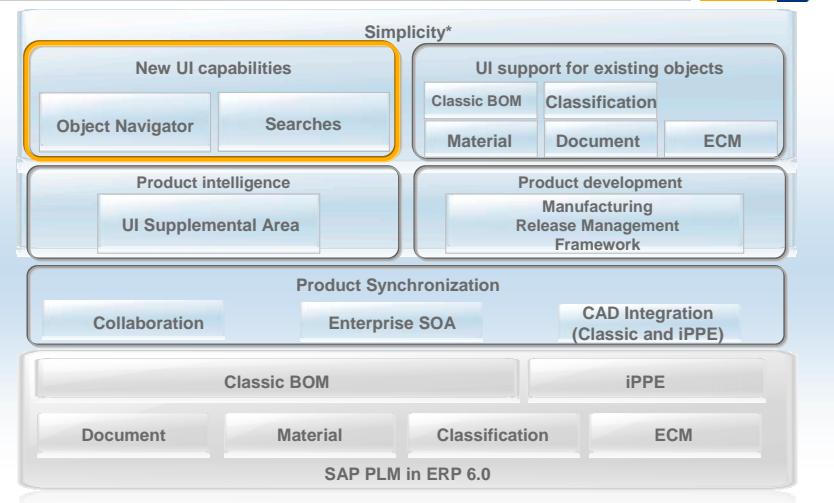
Product & Process Structure



First Product Idea

Start of Production

What's Planned in 2008?



PLM Control Center



PLM Control Center:

- Follows the usual Control Center/Work Center concept
- Entry point for the user
- Shows work list, favorites, and other important information
- Will consist of standard building blocks like search and tables like Personal Object Work Lists (POWLs)

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PLM Work Center



PLM Work Center:

- Follows the usual Control Center/Work Center concept
- Entry point for the user to work with specific object types
- Shows search, work list, last accessed objects, favorites, and other important information

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PLM Object Navigator — Improved Usability

- Central Navigation Tool of the PLM Add-On
- Common User interface and Navigation for all Objects
- Forward and backward navigation like a Web browser
- Focused to information needed for navigation
- Displaying only

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PLM Object Navigator — Improved Functionality

- Access to objects and data across system borders
- Role-based approach for objects, relations and user interface
- Easily expandable by additional objects and relations
- Supported Objects in the first release: Change Number, Document, BOM, Item, Material

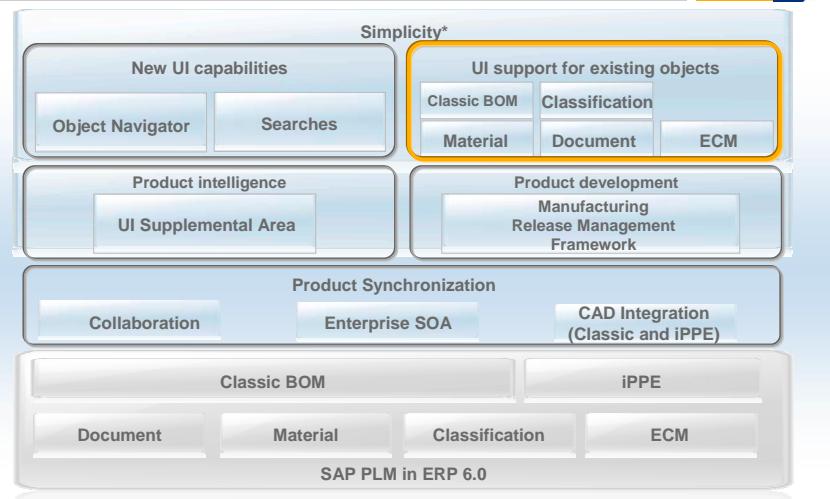
Object Navigator

Search — Improved Usability and Performance

- Simple search functionality, also for occasional users
- Search based on a full text search
- Cross object search functionality
- Same look and feel for all major PLM objects
- Significantly improved search performance
- New search possibilities, e.g., Search for change numbers, BOM Items, etc.
- Search for attributes and classification
- Flexible and extendable
- Full support of Authorization and Access control

Searches

What's Planned in 2008?



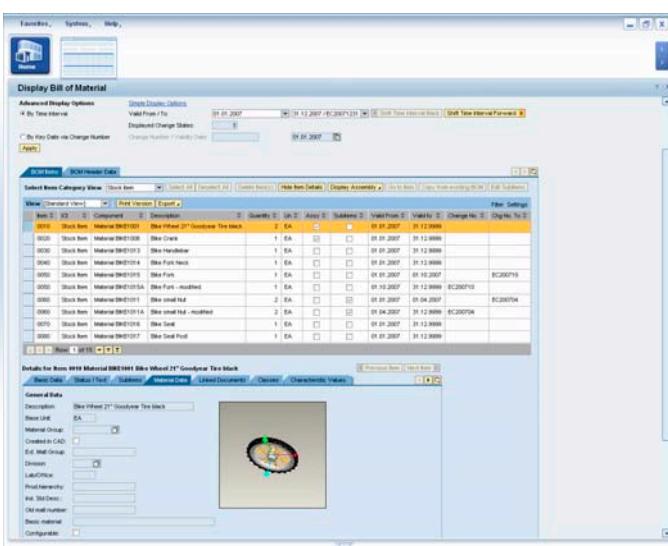
* PLM sub-set of functionality

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New UI for Bill of Materials



- Simple Web-based user interface for bill of materials
- Advanced display options
- Overview of all BOM items AND the details for one item TOGETHER on ONE Screen
- Additional information on materials, documents, and Object preview directly accessible
- Integration to PLM Object Navigator

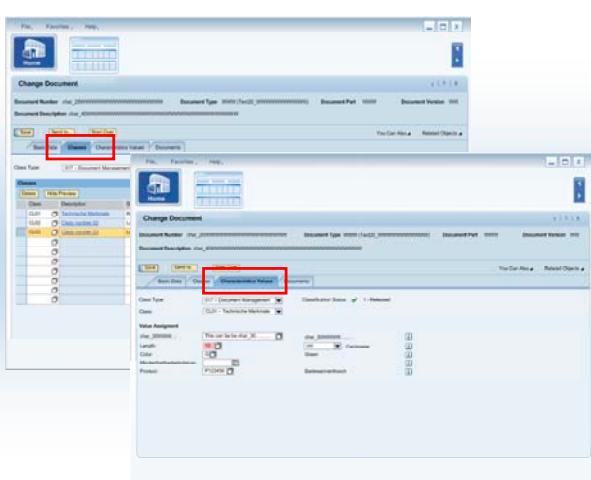


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Classification: Unified UI for PLM Objects



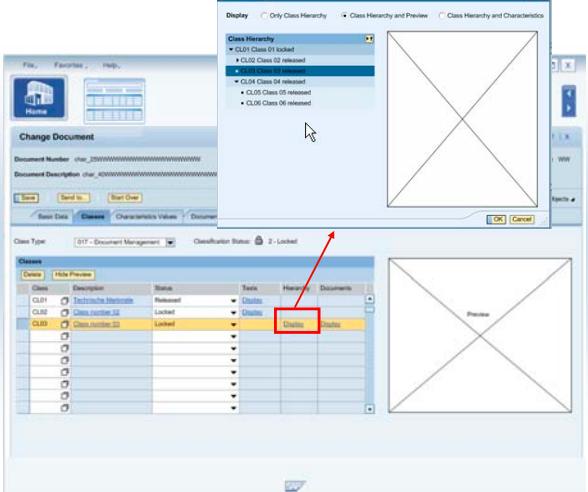
- New unified classification data UI for the objects BOM, Document, Material, and ECM
- New tabs "Classes" and "Characteristic Values" allow clearly structured access to classification data



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Classification: Classes

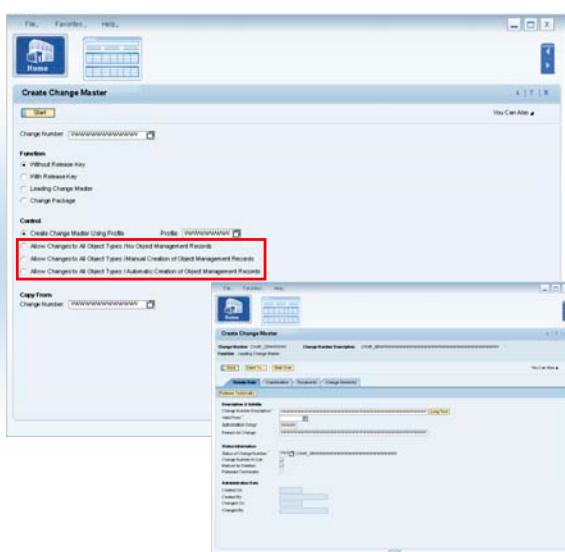
- New UI for maintaining Class Assignment for PLM objects
- Preview functionality for class document
- Comfortable display of Class hierarchy with preview functionality or class characteristics



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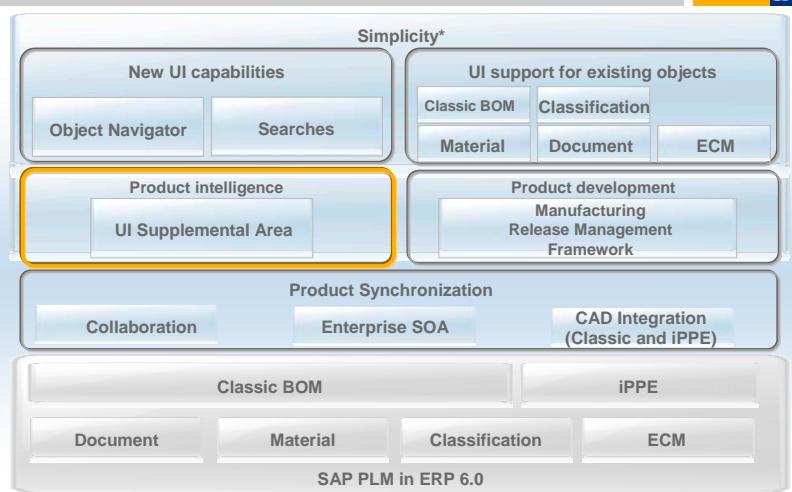
ECM: Start Screen

- New Control Options on the Start Screen for the most frequently used Change Management settings
- New Control Options allow fast creation of new Change Numbers



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What's Planned in 2008?



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Product Intelligence — Improved Functionality



- Simple creation of individual queries
- Easy adding of additional objects via enterprise SOA
- Provisioning of query data to Composite Apps

The screenshot displays several windows from the SAP Product Intelligence interface. One window shows a 'Query' editor with tabs for 'Edit Query' and 'Output Type: Chart'. Another window shows a 'Portfolio' view with a tree structure and various metrics. A third window shows a chart titled 'Deep Quality Issues' with a line graph. The sidebar on the left includes links for 'Product Intelligence', 'My Queries', 'Search', 'Product Portfolio', 'Resource Management', 'Process Flow', 'Reporting', and 'Administration'.

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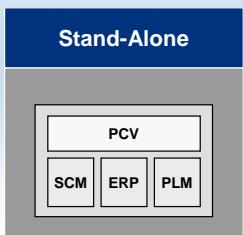
Product Intelligence — Various Deployment Options



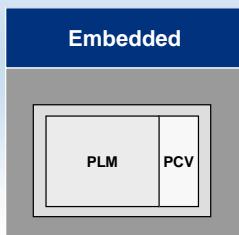
Product Intelligence
“Workset”



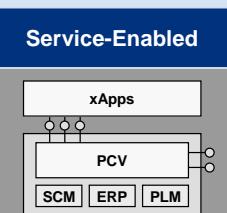
New PLM UI, Others ...



Used alongside any other business application PLM or non-PLM ... to provide product visibility and context



Built-into PLM UI screens as the “Supplemental Area.” Could also be included in other SAP apps for product-centric context e.g., PPIM.



PCV as a service for xApps and a variety of analytics applications by SAP e.g., SSM and Partners

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PLM Navigator — Primary Focus Object



The screenshot shows the SAP PLM Navigator interface. On the left, a 'Primary Focus Business Object' is displayed for a 'Children's Bicycle (Product CB_1100)'. The interface includes tabs for 'General', 'Product Structure', 'Where-Used', 'Change', and 'Documents'. A red box highlights the 'Documents' tab. On the right, an 'Information Desk' window is open, titled 'Product Intelligence Content for Focus Objects'. It shows a table for 'PCV Overview' with columns for 'Description', 'Report Type', and 'Created By'. A red box highlights this table. Below the table, there is a section for 'Secondary Focus Object' showing an image of a bicycle.

Side View

SAP

PCV provides the analytical content for the side view.
It is freely configurable which content is shown in this area.

Product Cockpit

SAP

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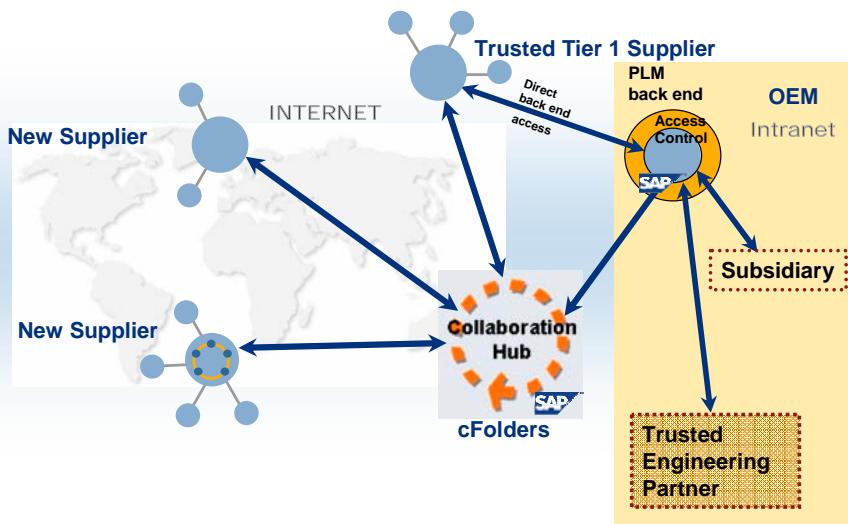
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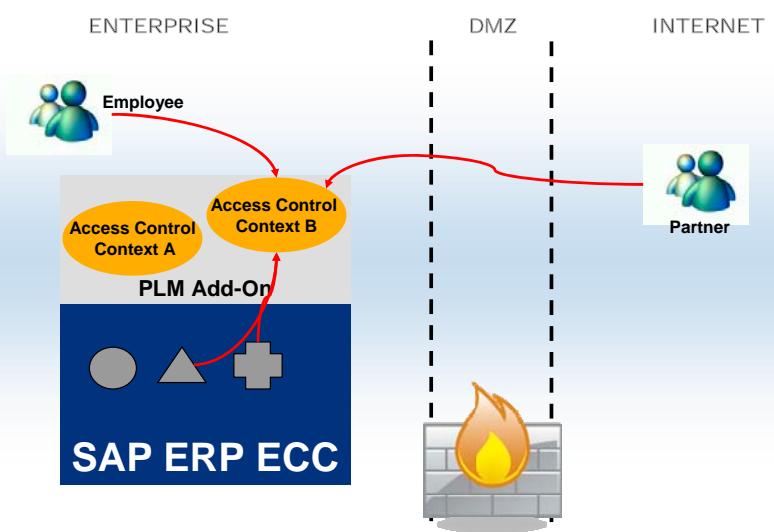
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System Access Variants in Design Collaboration Processes



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Working In-House with Integrated Design Teams — Direct Access



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PLM Authorization and Access Control



Context hierarchy

- Line organization, project organization
- Administered in department or project

Context

- Object assignment
- Member and role assigned

Access control

- Access control on individual objects (optional and additional)



ACL
Access control on individual objects (optional and additional)

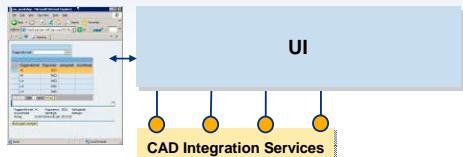
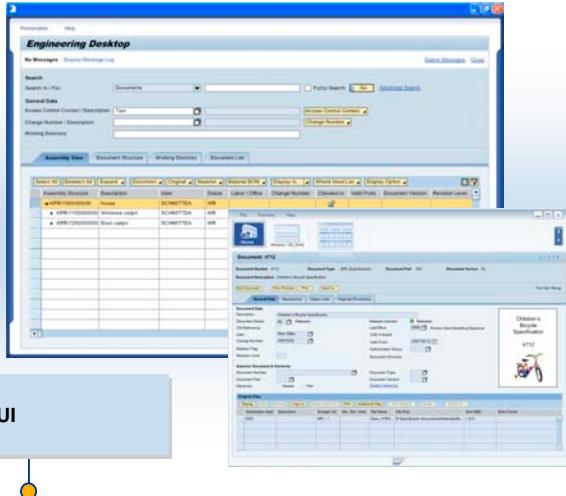
Context member (User working in context)

New Web-Based User Interface

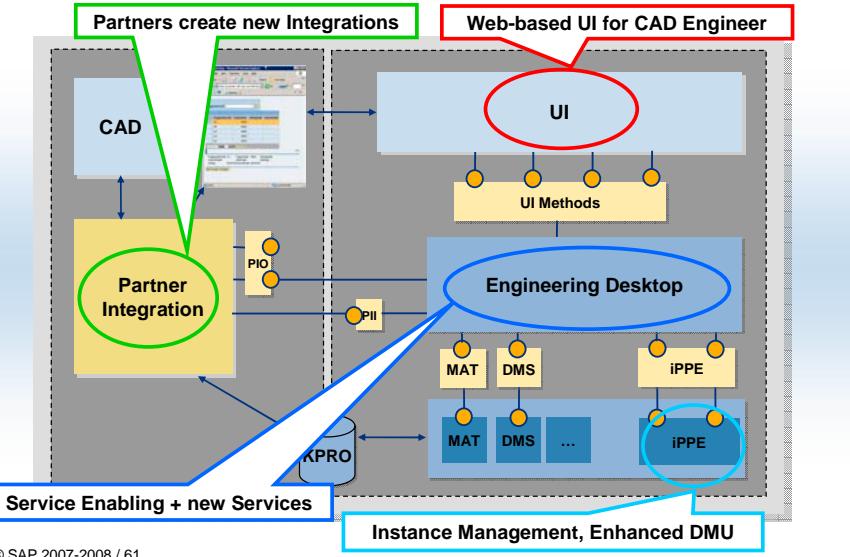


Web-based UI

- Modern look and feel
- Generic Web Dynpro features like hiding fields, user-defined look-and-feel, or enhancing
- Providing functionality for the CAD Engineer (Create/Display Documents, Creating new Versions, Version overview, Update Assemblies, Create/Display Materials, ...)

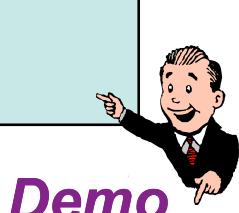


Engineering Desktop – Architecture



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Demo — Lifecycle Data Management (LDM) and the New PLM User Interface



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Project and Portfolio Management (PPM) — Today and Tomorrow

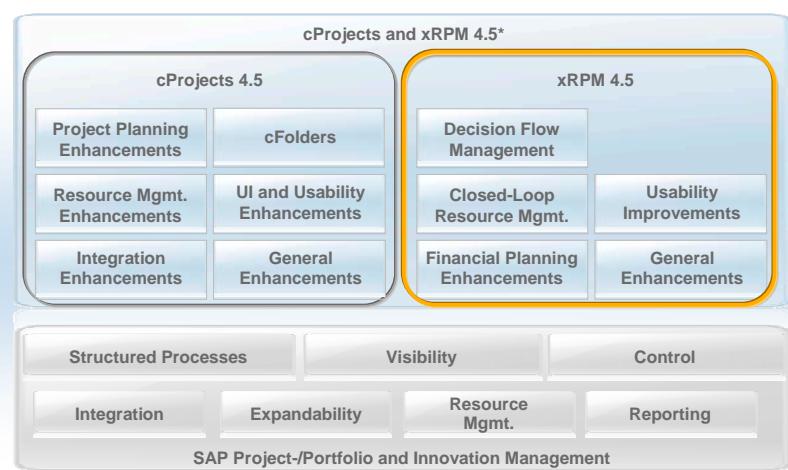
SAP

Product Management	Product Strategy and Planning	Product Portfolio Management	Innovation Management	Requirements Management	Market Launch Management	
Product Development and Collaboration	Engineering, R&D Collaboration	Supplier Collaboration	Manufacturing Collaboration	Service and Maintenance Collaboration	Quality Management	Change Management
Product Data Management	Product Master and Structure Management	Specification and Recipe Management	Service and Maintenance Structure Management	Visualization and Publications	Configuration Management	
PLM Foundation	Product Compliance	Product Intelligence	Product Costing	Tool and Workgroup Integration	Project and Resource Management	Document Management

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Development in 2007

SAP



* PPIM sub-set of functionality

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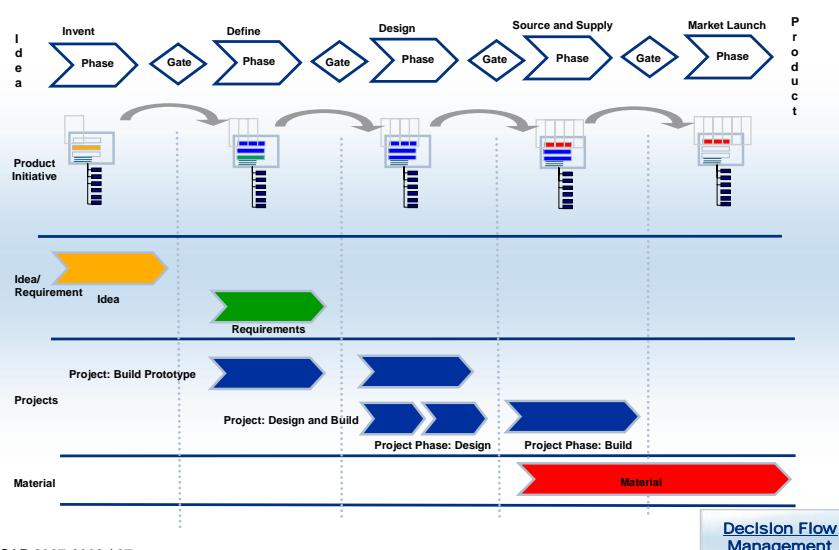
Key Capabilities SAP xRPM 4.5



Decision Flow Management	Closed-Loop Resource Mgmt.	Financial Plan Enhancements	Usability Improvements	General Enhancements
<ul style="list-style-type: none"> ▪ Phase and Gate Process Management ▪ Key Figure Monitor ▪ Financial Roll-up ▪ Date and Role synchronization ▪ Phase and Decision Point Dashboard ▪ Initiative Dashboard ▪ Checklist Items ▪ Product Profitability Analysis 	<ul style="list-style-type: none"> ▪ Derivation of labor cost plans ▪ Project demand generation ▪ Staffing via fast-entry resource management ▪ Improved Personalization and Distribution Functions ▪ Extended Resource Search/Staffing 	<ul style="list-style-type: none"> ▪ Loading rates ▪ Financial Reporting Cockpit ▪ Different Periodic Breakdowns of units 	<ul style="list-style-type: none"> ▪ Field Configuration for Item Overviews ▪ Dependencies between Items ▪ New and improved dashboards ▪ Summary Line in Fast Entry Screens 	<ul style="list-style-type: none"> ▪ Fact Sheet for Portfolio Items ▪ Dependencies between Items ▪ Versioning ▪ Change Documents ▪ Item Templates

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Scenario: Product Initiative Lifecycle



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Initiative Overview



The screenshot shows the SAP xRPM Initiative Overview screen. The interface includes a navigation bar with links like Home, Project Management, Portfolio Management, etc. A tree view on the left shows 'Object Info' for 'MICU_Portfolio_01'. The main area has tabs for 'Initiative Overview', 'Financial Planning', 'Capacity Planning', 'Questionnaires', 'Reviews', 'Printing Fact Sheet', 'Phase Dashboard', 'Checklist Dashboard', 'Item Dashboard', 'Metrics', 'Stakeholders', 'Documents', 'Collaborations', and 'Actions'. A yellow box highlights the 'Process Indicator Phase - Decision Point' button. Another yellow box highlights the 'Flexible Grouping' feature. A black arrow points to the 'Start/End Dates' field in the bottom left. The bottom right contains a 'Decision Flow Management' label.

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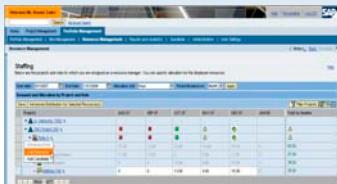
Closed-Loop Resource Management



- Derive labor cost-plans from capacity plans via cost rates
- Automatic generation of project demands from high-level portfolio capacity plans
- Efficient staffing of candidates/resource on projects via fast-entry resource management
- Improved personalization and advanced distribution functions

Transfer Demand
from Portfolio to Project

Derive Labor Cost Plans
From Capacity Plans



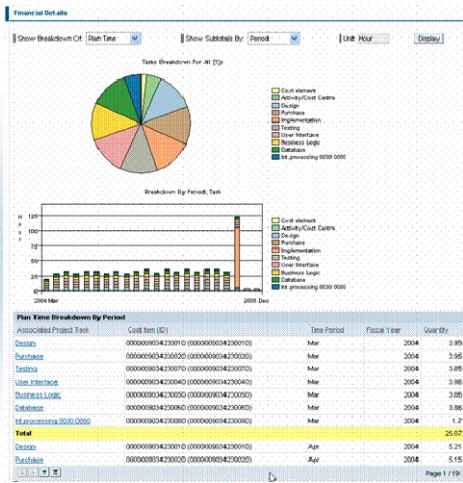
- Search and assign resources to project role directly in Fast Entry Screens
- Assign candidates
- Get overview of soft-booked vs. hard-booked Resource Demands

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Financial Planning Enhancements



- Rates Calculation
- Financial Reporting Cockpit for financial details
- Enablement of different periodic breakdowns of units for financial and capacity planning



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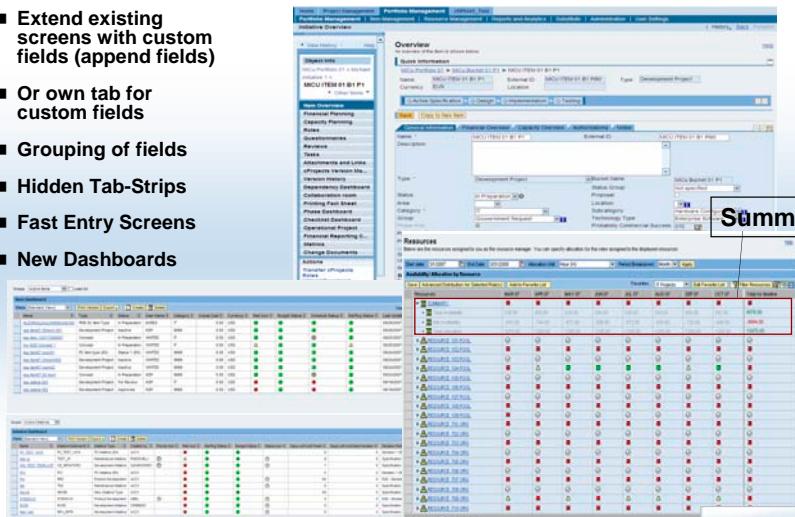
Usability Improvements



- Extend existing screens with custom fields (append fields)
- Or own tab for custom fields
- Grouping of fields
- Hidden Tab-Strips
- Fast Entry Screens
- New Dashboards

Summary

Usability
Improvements



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General Enhancements



- Preconfigured Adobe form containing all item attributes
- Customers can design their own forms, e.g., for executive summary reports
- Also includes custom fields
- Printing through Adobe Forms

Versioning

- Linking of the item version to the cProjects version

Change Documents

- Automatic tracking of changes within the portfolio objects

Item Templates

- Possibility to create items through item templates

The screenshot shows two SAP application windows. The top window is titled 'Item Details Fact Sheet' and displays a form with fields for Name, Description, Bucket Name, Status, External ID, Item Type, and Proposal. The bottom window is titled 'Change Document' and shows a grid of change documents with columns for Date, Description, Status, and Version.

General Enhancements

Development in 2007



cProjects and xRPM 4.5*

cProjects 4.5

Project Planning Enhancements	cFolders
Resource Mgmt. Enhancements	UI and Usability Enhancements
Integration Enhancements	General Enhancements

xRPM 4.5

Decision Flow Management	Usability Improvements
Closed-Loop Resource Mgmt.	General Enhancements
Financial Planning Enhancements	

Structured Processes

Visibility

Control

Integration

Expandability

Resource Mgmt.

Reporting

SAP Project-/Portfolio and Innovation Management

* PPIM sub-set of functionality

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Key Capabilities SAP cProjects 4.5



Project Planning Enhancements

- Multi-Project Monitor
- Role Charts
- Vacant Role Search
- Six Sigma Support
- Distributed Cost and Revenue Calculation
- Task-Based Role Demand Planning
- Availability Sensitive Staffing
- Business Partner Replace
- Project Member Substitution
- Customization Enhancements
- Usability Improvements

Resource Mgmt Enhancements

- CATS Integration
- xRPM Integration
- MS Project Integration
- Controlling Integration

Integration Enhancements

- New Gantt Design
- Subtree Expansion
- Web Dynpro Evaluations
- Top-Level Tab Hiding
- List View of Project Table
- Save Project Filter
- Easy Project Name Maintenance
- General Usability Improvements

UI and Usability Enhancements

- Project Type Deactivation
- Object Link Framework Enhancements
- Control Plan BAPIs
- Technology Alignments
- Note Printing
- PDF Print Forms

General Enhancements

Multi-Project Monitor



- All multi-project dependencies are displayed:

- Programs
- Mirror tasks
- Subprojects
- Printing, Zooming, Filtering

- All selected objects shown in one graphic
- Read-only
- Navigation to individual projects for editing provided

Start Page | User Settings | Help | Exit
Expand Subtree | Remove | Open | Refresh | Navigate | Print | Print preview
Projects

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Project Planning Enhancements

Staffing Chart



- Staffing distribution visualized in two charts
- Required capacity vs. reservations and bookings
- Free capacity of resource vs. remaining open capacity from role

Month	SEP	OCT	NOV	DEC	JAN	FEB
Available Capacity	3,67	7,67	7,33	6,00	7,33	0,33
Remaining Req. Cap. of Proj Role	2,33	2,33	1,67	0,00	1,67	2,67
Required Capacity	3,67	7,67	7,33	5,00	7,33	0,33
Other Booked Capacity	0,00	0,00	0,00	0,00	0,00	0,00
Other Reserved Capacity	0,00	0,00	0,00	0,00	0,00	0,00
Free Capacity	0,00	0,00	0,00	5,00	0,00	0,00

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Project Planning Enhancements

Resource Management Enhancements



- Distributed Cost/Revenue Calculation
- Activity-Based Role Demand Planning
- Availability-Sensitive Staffing
- Role Object Links
- Business Partner Replace
- Project Member Substitution
- Customization Enhancements
- Usability Improvements
- Staff by Name

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CATS Integration



- Task (or role) attributes can be confirmed via CATS
- Complements the time confirmation from cProjects 4.0
- New attributes on CATS* side:
 - Actual start
 - Actual finish
 - Percentage of completion
 - Comments
 - Remaining work (if activated for cProject element)

* Requires ERP 6.0, Enhancement Pack 3 supported CATS Web and SAPGUI user interface

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Integration Enhancements

The screenshot shows a SAP GUI interface. At the top, there's a calendar for June 2007. Below it is a 'Details on' screen for a project with ID 140000000000000003542007. The project has an actual start date of 8/25/2007 and an actual end date of 10/20/2007. A 'Degree of Processing in Percent' is listed as 80%. Below this is a 'Comments' dialog box with the message: 'Comment: Because of additional customer feedback this task will take longer than expected.' A 'Save' button is highlighted in yellow. At the bottom of the main screen, there's a table titled 'Working Times Recorded from Monday, September' with several rows of data. Buttons at the bottom include 'Delete Row', 'Save as Template', 'Refresh', and 'Previous Step/Review'.

Microsoft Project Client Integration



- Plan dates imported via duration, dependencies, and constraints
- Smart export of duration and work
- Smart “Schedule from”
- Export and import of constraints
- Export of Actuals
- Import of new tasks
- Scheduling not affected by checklists
- Standard mapping extended

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Integration Enhancements

The screenshot shows a Microsoft Project window titled 'Microsoft Project - 1000 DVD Drive.mpp'. On the left, there's a 'Tasks' pane with a list of tasks numbered 16 to 44. Tasks 16 through 20 are grouped under 'Market Evaluation', while others are under 'Development Stage'. On the right, a Gantt chart shows the timeline for these tasks. The chart includes resource assignments for 'Steve Masters', 'Scott Bishop', and 'Bradley Beck'. The tasks are color-coded in red, blue, and purple.

cFolders: Engineering Change Number (ECN)



- ECN Object in cFolders, can be used as ECR or ECO
 - Includes ability to assign BOMs, materials, documents, and Manufacturer Part Numbers (MPNs) as affected items, as well as to keep a “redline” version of those in cFolders in ECR phase
- ECN publishing from/to cFolders, to/from ERP using new powerful APIs, with option to include affected objects or just links to them
- Overview of pending engineering changes per collaboration
- Download of a single ECR/ECO as PDX XML file, including affected objects
- Upload of a single ECR/ECO in PDX XML format to cFolders
- Upload of a BOM in PDX XML to cFolders
- Capability to assign status profiles to and set the status of an ECN Object, manually or per API

The screenshot shows a SAP interface for managing engineering change numbers. At the top, it says 'Engineering Change Number ECR01 (Version 1)'. Below that is a navigation bar with 'Navigation: Version Overview' and 'Current Path: Home > Mobile Phone > Product Data > ECR01 > Version 1'. A 'Pending Work Items' section is shown. The main area is titled 'Engineering Change Number Version 1'. It contains a 'Change Request' dialog with fields for 'Change Number' (set to 'Murata MFG# ECR'), 'Change Description' (describing a new R010 part), 'Change Owner' (set to 'Murata MFG# ECR'), 'Change Type' (set to 'Change'), 'Change Category' (set to 'Change Category'), 'Priority' (set to 'Priority 1'), and 'Attachments' (with a link to 'New Murata MFG# Revise Assignment'). Below this is a table for 'BOMs (1)', 'Documents (0)', 'Materials (0)', and 'Manufacturer Part Numbers (0)'. The 'BOMs (1)' table has columns for 'Name', 'Current Version', 'Changed by', and 'Changed on'. One row is shown: 'FBA-BM-A-1000001 Mobile Phone FBA BOM' with Version 4, changed by 'Contract Manufacturer' on 02/10/2007 09:14:40.

You can create, maintain, and delete ECNs to control the processing of engineering change requests and the implementation of engineering change orders. As with other objects, you can use status profiles to control and track the status of an ECN.

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UI and Usability Enhancements



Show more columns and drag and drop persistent custom layout

New Dayline

Drag and Drop Duration, Constraints, and Relations

New color codes: yellow = constrained, red = critical path, blue = other tasks

Task Summary Mouse-Over

Edit description and other data in-place

Project: ROBOT 100 Robot Upgrade

2008
Q3/2007 Q4/2007 Q1/2008

Task Name: Collateral
Number: 21000000000000715832007
Start: 14.12.2007 Duration: 15 Finish: 10.01.2008

Date: 29 Dec. 2007 Size: 2345x500

Ready

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UI and Usability Enhancements (cont.)



Project table now also available as flat list with all ALV features:

- Personalize column layout and save views
- Sorting and filtering (in-place or advanced)
- PDF printing and Microsoft™ Excel export

A project element that has been copied into the clipboard can be pasted several times

1 **Copy**

Project Element: Robot 300 (New Product)

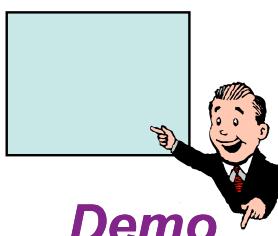
2 **Paste**

3 **Paste Again**

Project Element: Robot 100 Upgrade

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Demo – PPM 4.5



What We'll Cover ...



SAP

What is SAP PLM?

The SAP PLM Roadmap – The Business of Product

Lifecycle Data Management (LDM) – Current and Future

Project and Portfolio Management (PPM) – Current and Future

The Rest of SAP PLM

SAP PLM Implementation Considerations

Wrap-up

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The Rest of SAP PLM — Today and Tomorrow

SAP

Product Management	Product Strategy and Planning	Product Portfolio Management	Innovation Management	Requirements Management	Market Launch Management
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PLM Foundation	Product Compliance	Product Intelligence	Product Costing	Tool and Workgroup Integration	Project and Resource Management

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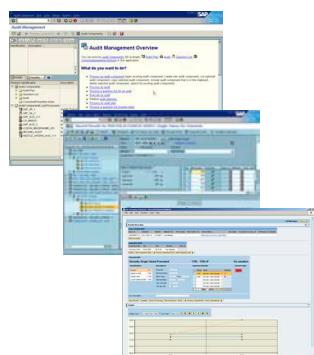
SAP Quality Management

SAP



Audit Management

- Supplier, Product, Process, System, and Environmental Audits



Quality Engineering

- Specifications and Sampling Plans
- Document Management
- Stability Studies/Shelf Life Studies
- Advanced Product Quality Planning

Quality Control and Assurance

- Sample and Batch Management
- Quality Inspections at all stages
- Statistical Process Control (SPC)
- Certificate of Analyses (CoA)

Quality Improvement

- Corrective and Preventive Action (CAPA)
- Customer Complaint Management
- Quality Analytics

SAP Quality Management is a comprehensive and integrated solution for all industries!

Audit Management — Key Capabilities

SAP

Key Functionality

- Audit planning
- Different audit types
- Business partner management
- Audit scheduling and execution
- Audit valuation
- Corrective and Preventive Actions (CAPA)
- Documentation of audit results
- Evaluation of audit data, also graphical
- Mobile application and access via intranet

The SAP Audit Management software interface includes:

- Audit Management Overview:** Shows audit components like Audit Plan, Audit Components, and Audit Requests.
- Audit Components:** A list of audit components with details such as Name, Description, Status, and Last Update.
- Graphical Audit Report:** A bar chart showing audit component status across various dimensions.

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Quality Engineering — Key Capabilities

SAP

Key Functionality

- Inspection Planning/Specifications
- Sampling Procedures (ISO 2859, ISO 3951)
- Recipe and Trial Management
- Stability/Shelf Life Study
- Document Management
- Master Data and Change Management
- Supplier Management
- Quality Manual (ISO 9000)
- Control plan according to QS-9000

The SAP Quality Engineering software interface includes:

- 3D Model View:** A 3D rendering of a Formula 1 race car.
- Control Plan:** A table showing inspection details for various parts.
- Inspection Plan:** A detailed view of an inspection plan with specific steps and requirements.

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Quality Assurance and Control — Key Capabilities

SAP

Key Functionality

- Quality Inspections
 - Goods receipt inspection
 - In-process control
 - Post-process control
 - Inspections at goods issue
 - Recurring inspections
- Laboratory Integration
- Test Equipment Interfacing
- Usage Decision/Release
- Certificate of Analysis
- Statistical Process Control (SPC)
- Problem Management
- Test Equipment Calibration
- Quality Information System

The SAP Quality Assurance and Control software interface includes:

- Events:** Icons for Goods movements, Orders, and Deadline Monitoring.
- Inspection Lot:** Icons for Quality inspection stock, Samples, Skip lot, and Shop papers.
- Inspection:** A magnifying glass icon with the question "What are the inspection results?"
- Decision:** A decision-making icon with the question "Usage decision What happens with the product?"

A large arrow labeled "Supply Chain" points from left to right. Below it is a screenshot of a software interface showing a SPC chart with data points and a certificate of analysis table.

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Quality Improvement — Key Capabilities



Quality Improvement

Enables identification of problem areas (both internal and external), root cause analysis, and appropriate corrective actions to eliminate them for continuous quality improvement of products and processes

Key Benefits

- Comprehensive problem processing through integration into SAP ERP, which handles all types of complaints or requests within one system
- Efficient processing of quality issues using workflows
- Supports collaboration with internal and external partners
- Higher quality performance from the timely detection, analysis, and resolution of quality issues while lowering cost-of-quality delivery
- Quality documentation and audit trails enable rapid root-cause analysis to minimize cost of compliance and recalls

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eSOA: ES Bundle "Integration of QM Systems (IQM)"



 IQM provides a comprehensive set of enterprise services, which enable SAP customers to integrate their quality inspection data and manage compliance-related issues across their entire enterprise. In detail, IQM:

- Enables the creation of an easy-to-use Web-based user interface, e.g., in SAP xMII, for operators to record inspections results or defects on the shop floor
- Can be leveraged to expand the usage of SAP QM data to non-SAP users (work in their context)
- Supports easy integration to other QM systems (point of use, LIMS, etc.)
- Covers planned and unplanned inspections
- Is targeted toward all manufacturing industries!
- Enhances SAP ERP Quality Management capabilities, e.g., adds new functions and enables users to log in and track deviations, i.e.:
 - Create a quality notification
 - Search and find relevant notifications
 - Update notification with specific data, e.g., tasks

Outlook: ES Bundle for Easy Inspection Planning



- Facilitates the maintenance of quality management master data in SAP ERP
- Covers new business objects such as inspection characteristic and inspection plan
 - Supports quality planning within the product development process
 - Addresses all manufacturing industries



Business Value

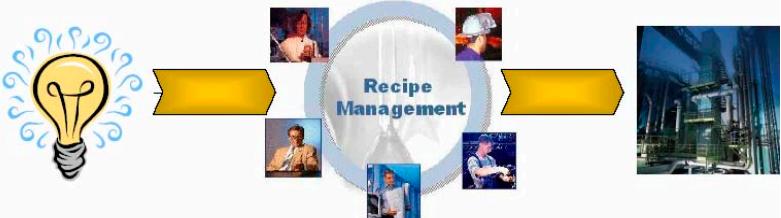
- Enables flexible and easy inspection planning, e.g., by using new user interfaces for plan maintenance
- Delivers new functionality, e.g., enables the external update of QM inspection plans and specifications or the creation of inspection plans from CAD drawings
- Allows closed-loop inspection planning
- Supports industry standards such as ISO TS 16949 (Advanced Product Quality Planning)

Use Cases

- Creation and update of "Critical-to-Quality" (CTQ) characteristics, e.g., triggered from a Failure Mode and Effect Analysis (FMEA)
- Creation and update of inspection plans with inspection characteristics and other data
- Download inspection master data to external systems (e.g., Manufacturing Execution Systems or QM Systems)
- Distribute inspection master data across system borders

Recipe Management – Today

SAP



Recipe Management (RM) is a functionality for the product development in the R&D departments of the process industry.

RM supports the development from the first idea to the final product by structured product specifications and adoption of the company wide recipes definition down to the line specific level.

Take the product idea, develop the product
... for any country
... for any production
... for any customer

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Recipe Management – Today (cont.)

SAP

Key capabilities

- Product specification and recipe management
- Product properties calculations based on ingredients
- Information system for effective knowledge management
- Multilevel Recipe Management
- Integrated product lifecycle process



Benefits

- Integrates all product related information
- Reduce data redundancy and inconsistency
- Integrates information and product knowledge between the departments
- Integrates into the Supply Chain
- Reduce development cycle time

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Recipe Management – Today (cont.)

SAP

Specification management

- Flexible and adaptable to specific customer requirements
- Material master independent product/raw material definition
- Can be used in combination with SAP PLM EH&S

Multilevel recipe management

- At enterprise, site/area and plant level
- ISA S88 Standard compliant



Flexible management of dependent information

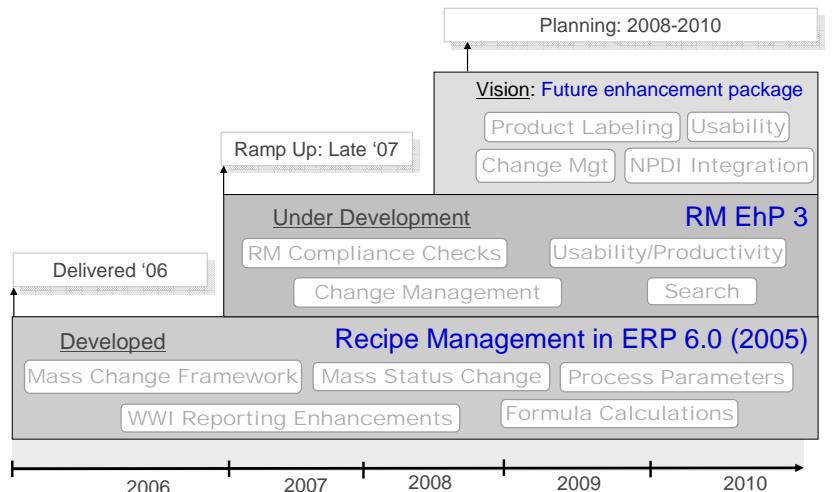
- Composition, Nutrition, Material list, and so on

Part of the product lifecycle process and linked to other processes / functions

- Project Management, Document Management
- Vendor/customer collaboration, Quality Management
- Purchasing, Planning, Manufacturing and Process control

Flexible reporting and label generation functions

Recipe Management – Tomorrow



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Recipe Management – The Future



SAP's Priorities for Future Development of RM

- Product labeling — nutrition, ingredient statement, diets labeling
- Further advance the technical architecture (service-enabling)
- Usability/productivity
 - Modern, flexible, and simplified screens (minimum of information)
 - Adaptable business processes (UI/screen flow)
- Continuous improvements
 - Further support for regulatory compliance
 - Extensions to engineering change management
 - Enhanced product development support (such as formula optimization)
- Enhanced integration to support end-to-end NPDI

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Recipe Management – The Future: Labeling



Product and Nutrition Labeling

- Nutrition labeling ("Facts Panel")
- Ingredient statement manipulation and generation
- Diet labeling (kosher, allergens, i.e., "May contain ... ")

Ingredient Label

Dough (Flour, Water, Apples, Sugar, Soy Oil, Baking Soda, Salt), Spray Coat (Sugar, Flax (Lemon, Cinnamon), Vitamin

Statements

contains nuts, is free of milk protein, not kosher

Nutrition Label

Nutrition Facts	
Sample label for Macaroni & Cheese	
Serving Size 1 cup (226g)	Calories from Fat 110
Serving Per Container 2	% Daily Value*
Amount Per Serving	
Calories 250	
Total Fat 12g	18%
Saturated Fat 3g	15%
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	
Calories	2,000 2,500
Total Fat	Less than 65g 80g
Sat. Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	30g 37g
Dietary Fiber	25g 30g

Recipe Management – The Future: UI Vision



Flexibility

- Enable an integrated UI framework, integrating SAP or External Systems
- Easily adaptable to dynamic needs of product development — changing roles, change of external access, new processes, changing external applications, ...
- Enable flexible access by external parties

Performance!

Simplicity

- Display relevant information only, based on context
- Hide the complexity — relationships and calculations in the background
- Easy access to deeper, sophisticated functions
- Easy-to-read visual information like thumbnails, charts, and graphics
- Consistent look and feel for all PLM objects – formulas, bills of materials, specifications, documents, etc.

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Recipe Management – Services-Based UI Vision



The screenshot shows a SAP web-based application interface. At the top, there's a navigation bar with links for File, Edit, View, Favorites, Tools, Help, Back, Search, and Favorites. Below the navigation is a toolbar with icons for Home, Products, Documents, ECM, and CAD Structure. A breadcrumb trail indicates the user is at Home > CB_1100. On the left, there's a sidebar with sections for Workflow, Last Access, Last Accessed Objects, Views, CAD Structure, Working Directory, Document Structure, and Config. View. Under Workflow, 'Product CB_1100' is highlighted. The main content area has tabs for Environment, Processes, and My Data. The Environment tab is active and displays a 'Formula Search' dialog box. The search criteria include 'with all the words' (Vendor: 1459, Name: Centauro), 'with the exact phrase' (Vendor: 6829, Name: CIGNA), and 'without the words' (Crimson Yellow). Other search parameters shown are Date (12-04-06), User Role (Chem), Similar to (CB_1340), and Linked to (Form Group: Brand 22345). To the right of the search dialog, a list titled 'Approved Vendors' is displayed with two entries: Vendor 1459 (Centauro) and Vendor 6829 (CIGNA). Below this is a section titled 'Engineering Changes' with two entries: Change No 50000005825 (Fix Quality Issue 30000373) and Change No 50000005825 (Reduce Weight).

Enterprise SOA and SAP PLM



Enterprise SOA builds on top of standard SOA by enriching it with business content to ensure integrity



- Manually built
 - Low reusability
 - No governance
- Leads to chaos



Productized services
Business semantics
Unified repository
Ensures integrity

A Business Process Platform delivers on the new requirements to develop and run an agile business



- Coded process integration
 - Multiple closed applications
 - Database, line coding, messaging
 - Static application UIs
- Inflexibility and Complexity



Composition on services
End-to-end process views and modeling
Model-driven development
Decoupled UIs
Flexibility and lower TCO

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Introducing Enterprise Service Bundles – Make the Value of Enterprise SOA “Consumption Ready”

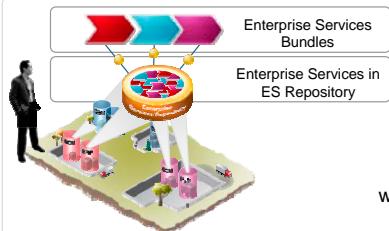


Definition

- Set of enterprise services addressing specific business topic
- Available for cross-industry and industry-specific business processes
- Increase flexibility in connecting business partners and third-party applications (system integration)

Benefits

- Provide “quick wins” for the business
 - Easy to implement
 - Targets real business problem
- Enables new business functionality via flexible composition on top of a stable back-end
- Lower cost of ownership enabled by reusability and shared governance costs



Enterprise services and bundles can be explored and tested in the SAP Community Network’s (SDN) Enterprise Services Workplace and Enterprise Services Wiki

www.sdn.sap.com/irj/sdn/explore-es

What We'll Cover ...



What is SAP PLM?

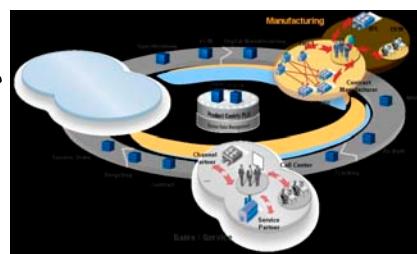
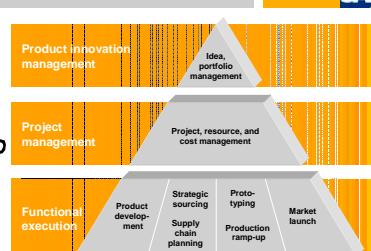
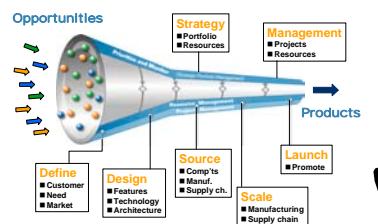
The SAP PLM Roadmap – The Business of Product Lifecycle Data Management (LDM) – Current and Future Project and Portfolio Management (PPM) – Current and Future The Rest of SAP PLM

SAP PLM Implementation Considerations

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Where to Start?



New products – number one growth factor

Rank	All manufacturing	Automotive	Consumer Products	Discrete Manufacturing	High Tech/Equipment	Life Sciences	Process/Chemicals
1	New product and services launch	New product and services launch	New product and services launch	Economic turnaround	New product and services launch	Economic turnaround	New product and services launch
2	Economic turnaround	New channels	Economic turnaround	Economic turnaround	Industry growth	Industry growth	Economic turnaround
3	Industry growth	Industry growth	New market entry	New market entry	New channels	New channels	New channels
4	New market entry	New market entry	Industry growth	New market entry	New channels	New market entry	New channels
5	New market entry	New market entry	New market entry	New market entry	JV/Alliances	JV/Alliances	JV/Alliances
6	JV/Alliances	New channels	JV/Alliances	JV/Alliances	JV/Alliances	JV/Alliances	JV/Alliances
7	M&A	M&A	M&A	M&A	M&A	JV/Alliances	M&A

Source: Deloitte Research: Mastering Innovation, 2004

"Driving" Factors

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Before you can establish a PLM adoption plan, you need to understand what "drives" PLM needs

- Business factors
 - Business "Personality"
 - Market Position and Opportunity Capture
 - Compliance and Regulatory Needs
 - Globalization and Asset Utilization with Standardization of Practice
 - Offshore and Outsourcing of NPD Work
- IT factors
 - TCO
 - Data and/or System Normalization



These factors will influence your decisions on what to implement and when

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What Are the Basics of a Successful PLM Implementation?

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Consider the following 5 areas:

1. Business Strategy – Business drivers that are driving the need for NPD!
2. Process Redesign – Needed changes
3. PLM Roadmap – Where do you want to be next year, in 5 years, 10 years?
4. Change Management – Facilitating the change
5. Communication – What are you doing, why, how does it effect me?



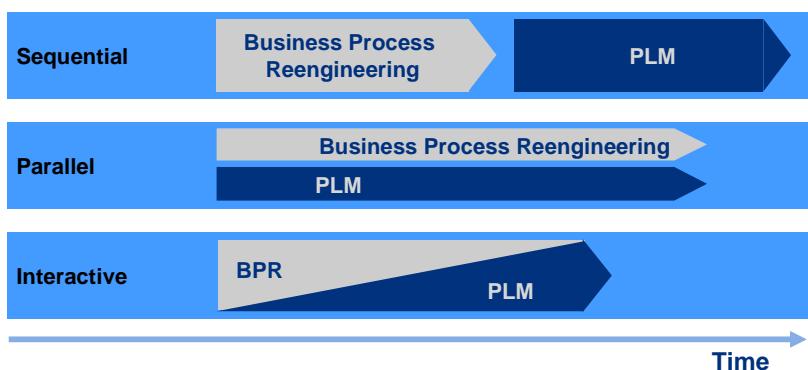
Source: AMR – Deploying PLM, the Insiders Experience; Nov 2005

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Business Process Reengineering vs. PLM Tools

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Integrated Product Lifecycle Management



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Develop an Implementation Plan

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Keys to developing a solid implementation plan ...

- What are the “drivers” of this project?
- Think “crawl,” “walk,” and then “run.” Where do they need be and when?
- Be realistic
 - What level of change can the organization absorb?
 - What level of regionalization is required?
 - What business drivers are critical to success or failure?
 - Define “must-haves” vs. “nice-to-haves”
- Encourage “expert” participation
 - Been there, done that
 - Pitfalls
 - Approach and system strengths and limitations

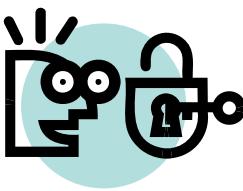


Common Success Factors

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Key to successful implementations

- Keep it simple (80/20 rule)
- Vanilla (where you can)
- Consider using some of the best areas along with some of the worst
- Involve “experts”
- Customer must bring the best people to the table
- Understand product direction and capability
- Follow “Best Practices”
- Mitigate risk
- Preach “Big Picture”
- Manage scope
- Don’t underestimate Organization Change Management (OCM) needs



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Organizational Change Management

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Organizational Change Management (OCM)

- Understand the regional/cultural differences in approach and execution
- Work closely with regional product development groups to understand their current process and why they do things this way
- Recognize that structuring product development will be seen as restrictive. Work to understand these needs.
- Communicate effectively!
- Don’t treat this as a typical system implementation!

When we asked end users what could have been done better, most stated that they wished more time was spent on facilitating change ... As goals and processes change, the culture of an organization can change as well. Even if the technology matches processes, and processes support the business strategy, **users need to use the system.**

AMR 2005: Deploying PLM
November, 2005

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Gain Engineering Acceptance

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Gaining acceptance of engineering can be a daunting task in any culture ...

Engineering groups

- "They can be difficult, unyielding, and arrogant"
- "They have separate processes and challenges that do not adhere to corporate standards"

How to make engineering happy

- Build the internal deployment team with powerful influencers
- Become deeply involved in understanding the creative groups' pain points
- Top down edicts don't work
- Use the SAP references for engineer-to-engineer dialog

Source: PLM Deployments, How to Gain Engineering Acceptance, AMR Research, February, 2006

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Common Mistakes

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- Failure to recognize regional/cultural needs
- Ignoring the process for the product
- Top down orders to use PLM
- "Toy-creep"
- Failure to communicate
- Too much, too fast
- Use tool for something beyond standard
- Lack of resources
- Lack of understanding
- Over-engineer
- Ignore "Best Practice"/Vanilla approach
- Failure to manage scope



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Define Your PLM Roadmap!

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Use your understanding of your business needs, with your understanding of the product offering to develop your PLM Roadmap ...

- Leverage experts
- Start with a big picture
- Define a realistic timeline
- Consider global needs
- Think foundational
- Define carefully the implementation for first roll-out
- Define the basics for the next phases



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Typical Project Costs



The average project budget for an NPDI project is \$2.5M

The typical breakdown is as follows:

- Applications/SW – 28%
- Infrastructure – 37%
- Consulting – 35%



The point being ... **PLM can be expensive, taking the time to develop a proper roadmap will mitigate the risks associated with your efforts!**

Source: PLM Deployments, How to Gain Engineering Acceptance, AMR Research, February, 2006

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What We'll Cover ...



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Resources



SAP Service Marketplace

- <http://service.sap.com/plm> *
- Other common areas within this section
 - /kpro – Knowledge Provider
 - /contentserver – SAP Content Server information
 - /qm – Section on quality management
 - /xapps – Section on xApps
 - /cfolders – cFolder information
 - /cprojects – cProjects information

* Requires login credentials to the SAP Service Marketplace

7 Key Points to Take Home

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- SAP PLM is a comprehensive set of applications to support your organization's diverse product development and maintenance needs
- SAP PLM applications are powered by SAP NetWeaver, enabling these applications to be an integral and integrated element of your organization's product management needs
- SAP PLM is developing its solutions on the theme of "Business of Product" in which SAP will focus on delivering solutions that best support your products throughout their lifecycles
- SAP PLM connects marketing, sales, finance, operations, sourcing, and logistics users to the NPDI process

7 Key Points to Take Home (cont.)

SAP



- SAP PLM leverages the SAP Enterprise SOA concepts that facilitate the adoption and enhancement of SAP PLM solutions
- SAP PLM can be implemented quickly and efficiently with a high degree of acceptance and success (low risk/high reward)
- SAP PLM is part of your organization's SAP ERP environment; therefore, integration is widespread and consistent across a product development/management business process

Question and Answer

SAP



Thank you!

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