Product Lifecycle Management - welche Prozesse sind wichtig und wie werden sie unterstützt

Stefan Sack - Director Agile PLM, Oracle EMEA
Frankfurt - Sep 2008
Agenda

- Why & What is PLM
- Enterprise PLM & Agile PLM Solutions
- Customers Case Studies & Examples
Why Product Lifecycle Management

Accelerate Innovation & Maximize Profitability across the Lifecycle

• Innovation is a top business imperative
  • New products, new markets, new technologies are top drivers
  • *Profitable Growth & Right-To-Market* is the only option

• Key challenges driving PLM adoption
  • Global product development
  • Outsourcing & acquisition integration
  • IP management and security
  • Increasing product variance & complexity
  • Accelerating product launches and time to market/volume
  • Increasing regulatory compliance & product quality requirements
Are your Current Processes & Systems Competitive?

Will they **Scale** to the new cycle times & NPI load?

Can you **Securely Collaborate** IP with global sites & partners?

Do you have Decision Support to **Handle Complexity**?

- **Data scatter across legacy systems**
- 20-30% designer time is looking for data
- Can’t find and reuse parts
- Every duplicate part cost $10-50k – 10-20% are dups

- **Disconnected or Sequential**
  - Program, quality, compliance, cost & release processes disconnected / sequential
  - Slow change processes
  - Scrap, rework & inventory

- **Not sure what I should be working on**
- Current tools don’t support collaborative design
- Limited supplier collaboration
- No visibility to off schedule projects

- **Lost Productivity**
- **Increased Time, Cost & Risks**
- **Slow Innovation**
From: Disparate Data, Processes and Systems
…Causing Profit Leaks…

Leads to poor decisions, late visibility, sequential processes…
To: Integrated Enterprise Product Record
After PLM

...through the management and coordination of the information, processes and decisions about their products...
Companies invested $Billions in over the past 10+ years in CAD and concurrent engineering/PDM efforts to address the product innovation cycle by promoting reuse & management of technical product information (form, fit, function) within Engineering.
Oracle Enterprise PLM Focus

Product innovation & engineering excellence today, complicated by growing outsourcing, globalization, and compliance requirements, requires early lifecycle focus on the business requirements of new products as well as the technical requirements.
Product Lifecycle Management Mission

Accelerate Innovation & Maximize Profitability across the Lifecycle

- Product Launch
  - Hit Target Costs
  - Shorter time to market
  - Hit Target Costs
  - More rapid innovation cycles
  - Reduced development costs
  - Regulatory Compliance
  - Higher sales and margins from new products

Cash flow

Time
<table>
<thead>
<tr>
<th>Challenge</th>
<th>Drivers</th>
<th>PLM Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerating Time To Market</td>
<td>Faster innovation cycles, NPI explosion</td>
<td>Reduce cycle time -- 10-20% Improve productivity -- 20-40%</td>
</tr>
<tr>
<td>Reducing Costs &amp; Increasing Profits</td>
<td>Intense pressure to reduce costs and supply risk, improve profit margins</td>
<td>Reduce material costs -- 2-5% Reduce new part adds -- 10-30% Reduce Waste / Rework by 30-40%</td>
</tr>
<tr>
<td>Enable Globalization &amp; Outsourcing</td>
<td>Low Cost Design Centers, Outsourced Design &amp; Mfg, Acquisitions</td>
<td>Reduce costs and increase efficiencies thru global engineering and outsourced design &amp; mfging collaboration</td>
</tr>
<tr>
<td>Managing Risk &amp; Ensuring Compliance</td>
<td>Increased Quality and Regulations</td>
<td>Managing risk across financial, regulatory and international complexity</td>
</tr>
</tbody>
</table>
Agenda

• Why & What is PLM

• Enterprise PLM & Agile PLM Solutions

• Customers Case Studies & Examples
It’s all about Collaboration & Product Innovation
2008

1978

Cell Phone
Agenda

• Why & What is PLM
• Enterprise PLM & Agile PLM Solutions
• Customers Case Studies & Examples
Agile PLM Framework

**Better Portfolio Strategy**
- Portfolio Management
- Tracking, Reporting and Analytics

**Better Process Execution**
- Repeatable & Predictable Stage Gate Process
- Resource Management
- Workflow Driven Change Processes
- Online Collaborative Design reviews

**Product Target Costs**
- Sales Forecasts

**Cost Management**

**Stage 1**
- Idea Generation

**Stage 2**
- Concept Evaluation

**Stage 3**
- Plan & Design

**Stage 4**
- Develop & Test

**Stage 5**
- Launch

**Compliance / Electronic Signatures / Audit**

**Quality Management**

**Better Process Execution**
- Market
- Customer Needs
- Competitor Activity

**Cost Management**

**External Systems**
- 3rd Party Databases
- PartMiner
- Supplier / Partner Systems

**Internal Business Systems**
- ERP
- MES
- CAD
- CRM

**Integration**

**Closed loop quality and corrective actions (CAPA)**
Agile PLM Solution

**Compliance Office**
**Agile Product Governance & Compliance**
*Product & program compliance against standards & regulatory requirements*

**Quality Professionals**
**Agile Quality Management**
*Closed-loop product quality management across the extended enterprise*

**Procurement Professionals**
**Agile Product Cost Management**
*Product sourcing and lifecycle cost & risk management*

**Executives & Program Office**
**Agile Product Portfolio Management**
*Integrated product, program, resource & portfolio management*

**Development & Engineering**
**Agile Engineering Collaboration**
*Engineering desktop integration & collaboration*

**Cross-Enterprise**
**Agile Enterprise Visualization**
*Native document collaborative visualization across the global enterprise*

**Engineering, Operations & Supply Chain**
**Agile Product Collaboration**
*Enterprise product record visibility, management & collaboration*

**Governance & Compliance**
**Agile Product Governance & Compliance**

**Collaboration**
**Agile Product Collaboration**

**Engineering**
**Agile Engineering Collaboration**

**Operations & Supply Chain**
**Agile Product Collaboration**
Product Definition
Review Product Content

Single record of truth providing a 360 degree view of the Product.
Document Management
Files and Folders

Securely manage intellectual property
Provide convenient access and distribution to company-wide information
Increase operational efficiency by clearly indicating product changes. Speeds the change review process to ensure new product is available to the supply team ASAP.
Change Management

Review Workflow Status

Visually inspect product change progress and make intelligent approval decisions.

Helps consolidate multiple product change processes into fewer, more streamlined processes.
Agile’s Approach to NPD and NPI
Deliverable-Based Enterprise Project Management

Phased, Stage-Gate Processes Enable Companies to Effectively Manage NPD&I and Mitigate Against Risk of the Unknown

- Single View of the Product
- Program
- Across the Enterprise
- and Supply Network

Portfolio of projects that can be graded for strategic alignment, for example:
- Market Success Probability
- Anticipated Revenue and Margins
- Degree of Technical Difficulty

Deliverables Uniquely Connect Program with Underlying Product Record when Deliverable is Complete

- e.g. Create Prototype
- e.g. Approve a Concept Brief
- Portfolio of Projects
- R&D Info Management
- NPI Management
- Product Transfer
Drill Down to Project Summary
Outsourcing Support

Synchronize Global Design and Manufacturing Operations

- Utilize historical supplier cost and performance data to select partners based upon proven ability to deliver

- Control intellectual property -- provide role-based partner access to product and project data securely stored within Enterprise Product Record

- Include outsourced partners in product-level business processes

- Integrate supplier expertise earlier in the development process to improve quality, lower costs, and accelerate time to market / volume
Built-In Cost and Risk Management
Proactively Engage Suppliers to Control Costs and Availability

- Gain a view of future usage information across outsourced manufactured and new products designs
- Facilitate NPI costing and sourcing cycles to minimize risk, improve time to market, and achieve desired margins
- Expose the best combined sourcing leverage of OEM vs. mfg; improve bottom line performance & profitability

Supplier Collaboration & Analysis

- Commodity Mgmt
- Design for Supply / Cost
- Co-Sourcing
- New Business Acquisition

Price Management

- Achieve visibility and change control of material price and terms
- Automate and quickly respond to customers’ new or revised product bills of materials (BOMs)

ORACLE
Product Cost Management during early Development Phase

Real life experience...

10 custom Forms... and 25+ main macros!

Don’t know how many columns per sheet...

…”It’s great because we can share it over the network as well as take a copy with us during supplier negotiation... it’s only an 8MB workbook!”

50+ Sheets in the Workbook!
Closed-Loop **Quality Management**

**Optimize Designs for Superior Product Quality**

- **Collect Enterprise-Wide Set of Problems**
  - **Centralized Quality Data**
    - Defects, NCR, Complaints, Field Incidents, Design Defects, Audit Findings, …

- **Proactively Manage Issues**
  - **Controlled Process with Analytics**
    - Corrective Actions, Failure Analysis, SCARs, Preventative Actions, …

- **Change Parts and Documents**
  - **Modified Enterprise Product Record**
    - ECOs, Stop Ships, Deviations, Parts / BOMs / AMLs, Docs, Audit Records (eg. sign-offs), …

- Drive proactive quality improvement initiatives
- Leverage quality history to improve products
- Reduce service and warranty costs
Ensuring Compliance: Meet Strict Industry and Government Regulations

Configure Parameters & Gather Info

- **Compliance Data Management**
  - Substances, Specifications, Exemptions, Threshold Values, Supplier Declarations…

Analyze, Validate, & Act

- **Component or BOM-Level Validation**
  - Weights & Substance Analysis, Designs for Environmental Fitness, Haz Mat Content, …

Audit Compliance

- **Modified Enterprise Product Record**
  - ECOs, Stop Ships, Deviations, Parts / BOMs / AMLs, Docs, Audit Records (eg. sign-offs), …

Ensure products comply with applicable standards

- Environmental & Safety: RoHS, WEEE, …
- Corporate: ISO 9000 / 14000, …
- Industry Specific: DoD, US FDA, …
Collaborative Innovation
Reduce Product Development Time and Costs

Engineering Collaboration

**Design Integration**
Capture & control engineering design data; Use workflow to conduct WIP and to release changes

**Design Collaboration**
Visualize & markup CAD designs without native CAD tool; Create virtual prototypes and validate fit

**Design Publication**
Automate creation & modification of product structures; Create as-designed, change controlled BOMs based on CAD designs

Product Collaboration

**Product Definition**
Create, share, and maintain IP / product record data across lifecycle; Publish from CAD → Agile → ERP

**Change Collaboration**
Conduct workflow-driven changes complete with history & tracking

**Manufacturer Management**
Manage AMLs, supplied parts, etc; ID duplicate internal PNs

**Distributed Manufacturing**
Release products to markets with site-specific launch dates and revisions

- Facilitate multi-party design innovation while maintaining design integrity
- Efficiently communicate product content and changes to extended community
Agile Engineering Collaboration

Agile Engineering Collaboration™ provides comprehensive product intellectual property management & design release management across **multiple authoring tools** and disciplines in a **central Product Record**, optimizing internal & external collaboration and IP reuse, and linking processes and data across functions, projects, and partners.
Agile PLM Solution for Food and Beverage

- Prototype, evaluate and optimize formulations and BOMs
- Create, manage and approve product data, from raw materials and components to finished products
- Manage packaging and labeling development process and data
- Manage supply chain entities and sourcing relationships, and collaborate with suppliers
- Synchronize product data with internal systems
- Ensure quality, safety and compliance
- Manage cross-functional innovation portfolios, projects and activities
- Create, manage and approve product data, from raw materials and components to finished products
- Manage packaging and labeling development process and data
- Ensure quality, safety and compliance
- Manage cross-functional innovation portfolios, projects and activities
Agenda

• Why & What is PLM
• Enterprise PLM & Agile PLM Solutions
• Customers Case Studies & Examples
1,300+ Enterprise PLM Customers
Some Agile PLM Customers in Europe
## Example Customer Results

<table>
<thead>
<tr>
<th>Company</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHILIPS</strong></td>
<td>• Managing NPD &amp; NPI processes with compliance and collaboration</td>
</tr>
<tr>
<td></td>
<td>• Outsourced manufacturing to sustain growth</td>
</tr>
<tr>
<td></td>
<td>• Reduced Time to Volume and material costs</td>
</tr>
<tr>
<td><strong>MAGNA</strong></td>
<td>• Manage product configurations and the engineering supplier</td>
</tr>
<tr>
<td><strong>gsk</strong></td>
<td>• Global packaging management</td>
</tr>
<tr>
<td><strong>Heinz</strong></td>
<td>• Reduced new product introductions process from 45 to 7 days</td>
</tr>
<tr>
<td></td>
<td>• Reduced Costs: Lowered development costs</td>
</tr>
<tr>
<td></td>
<td>• Increased Efficiency: Streamlined product development processes</td>
</tr>
<tr>
<td><strong>Salcomp</strong></td>
<td>• Common way of working globally on Product Data</td>
</tr>
<tr>
<td></td>
<td>• Common view to project status globally</td>
</tr>
</tbody>
</table>
COMPANY OVERVIEW

- Revenue - US $11.6 billion.

CHALLENGES/OPPORTUNITY

- Allow ease of Product Record Data exchange between non-integrated, multiple sites by integrating formula, label, packages & graphics, with project management, linked to product record
- Fostering organizational process discipline to effectively maintain Bayer’s “Innovation strategy”
- Reduce operational bottlenecks and manage costs - increase number and quality of ideas from project decisions made within brand strategy to portfolio strategy
- Inadequate communication of changes to stakeholders

SOLUTIONS

- Oracle Product Lifecycle Management (PLM)
- Oracle Product Collaboration (PC)
- Oracle Product Portfolio Management (PPM)

CUSTOMER PERSPECTIVE

“Agile has helped us to achieve our goal - an integrated approach to manage all the relevant data and processes around our products - formulas, labeling information, and packaging specifications.”
Craig Morgan, Sr. Dir. –Packaging Operations, Bayer

RESULTS

- 50% reduction in Package/Label Error Rate
- 50% reduction in rework cost ($400M over 3 years)
- Cycle time reduced by 3 weeks ($3M per year)
- 20% reduction in labor effort per packaging change
- 5 Legacy systems replaced
COMPANY OVERVIEW
- Philips Oral Healthcare has become one of the most successful businesses in Royal Philips Electronics, one of the world's biggest electronics companies and Europe’s largest, with sales of US $36 billion in 2005.

CHALLENGES/OPPORTUNITY
- Increasing product diversity and supply chain complexity
  - Bill of Materials increased 350%
  - New Product Programs increased 4x
  - Number of suppliers doubled
- Inefficiencies in product development and life cycle management slowed products to market
- No formal support for marketing claims that differentiates Sonicare from competition

SOLUTIONS
- Oracle Product Collaboration

CUSTOMER PERSPECTIVE
“Our inventory performance over the last year since we really started using Agile has gone up almost 100% in terms of inventory turns.”
Mark Johnson, Vice President, Supply Chain Operations

RESULTS
- Complete product record from concept to end of life within Agile
- Manufacturing and R&D costs reduced by 30%
- Improved inventory performance - Inventory turns increased 100% in a year after implementation
- Cycle times, change control, raw material releases now accurately measured and reduced to hours
- Research documentation associated with marketing claims now within product record
COMPANY OVERVIEW
• Leading tier one supplier of aircraft systems. This Aircraft Systems Branch represents 22% of the Group turnover
• Headquartered in Paris, France Intertechnique has 990 employees and generates 218M€ in revenue

CHALLENGES / OPPORTUNITIES
• Reduce design cycle time to meet customer demand
• Reduce operational costs
• Support the move from point solution to system provider
• Improve brand image by reducing non-conformance and issue handling cycle time as well as improve the corrective action process

SOLUTIONS
• Agile Product Collaboration
• Agile Product Quality Management

RESULTS
• 65% average reduction in changes cycle time (from 14 to 5 days)
• 350K€ recurrent yearly reduction in non value add activities
• 100K€ recurrent yearly reduction in non quality at design
• Up to 60 days lead time reduction on long lead time items
• 50% time reduction in problem handling during production
• 500% reduction in non-conformance handling at first article inspection
• 23% increase in the number of registered issues
COMPANY OVERVIEW
- Numico, Netherlands is the fastest growing international food company, and the #3 global provider of baby food (Nutricia brand). Numico selected Agile PLM for Process to control the entire life cycle of their food products, across ideation, recipe management & optimization, product labeling and manufacturing instructions.

CHALLENGES / OPPORTUNITIES
- Manual process and data for specification management, formulation management, nutrition management and compliance management
- Multiple manual touchpoints between internal systems, requiring re-keying of data
- Poor supply chain visibility resulting from lack of integrated systems

SOLUTIONS
- Agile Product Lifecycle Management for Process
  - Agile Product Data Management for Process
  - Agile Formulation and Compliance
  - Agile Product Supplier Collaboration

RESULTS
- Implement one single “version of the truth” for product data
- Achieve seamless integration between systems to improve efficiency and reduce errors and food safety risks
- Align specification management with innovation, quality, regulatory and food safety requirements
COMPANY OVERVIEW
• Develops and manufactures encoders, digital readouts, and numerical controls for use in semiconductor and electronics manufacturing
• Based in Traunreut, Germany with 7000+ employees in over 130 sites worldwide

CHALLENGES / OPPORTUNITIES
Growing in a paper-based engineering environment proved unsustainable
• Latest engineering documents not easily accessible by dispersed product teams
• Long engineering change cycle times
• Costly, latent document distribution and archiving

SOLUTIONS
• Agile Product Lifecycle Management

CUSTOMER PERSPECTIVE
“Agile PLM has enabled us to significantly improve our response to customers’ unique and constantly evolving requirements. This flexibility has resulted in improved customer relationships, which ultimately leads to greater revenues for our company.”
-- Juergen Kaesberg, Chief Info Officer

RESULTS
• Cut ECO cycle time from 4 weeks to 1 day
• Reduced paper plotting costs by $230K
• Improved responsiveness to customer requests on available product configurations
• Accelerated time for product development teams to find & view needed project data
• Standardized engineering change and product release processes
• Eliminated all physical production and distribution of engineering documentation
ERBE: JD Edwards – Agile PLM - SolidWorks

- Agile PLM mit JD Edwards
  - SolidWorks-Integration
  - CAE-Integration (Protel)
  - Office-Integration
  - ERP-Integration (JD Edwards)

- 60 Anwender

- Standort: Tübingen
- Projektleiter: Herr Siegfried Klein
  Tel: +49 7071 755 259
  Mail: s.klein@erbe-med.de
Produktstruktur und Dokumente

Dokumentenstruktur

Produktstruktur

Mechanical Design

Electrical Design

Software Design

Docs

Product Record
Hauptobjekte Agile PLM

JD Edwards

Artikel Stücklisten

Werkzeuge Betriebsmittel

Klassifikation

Projekt

Änderungen

Workflow

Autodesk Inventor

SolidWorks

EXCEL WORD PWRPNT Acrobat
ERBE: Funktionalität PLM -> JDE

PLM
- Projekte
- Produkte
- Artikelstamm
  - Stammdaten
  - Stücklisten
- Dokumente
  - Dokumentklassen
  - Dateien
- Änderungen
  - Antrag
  - Auftrag
  - Mitteilung

Freigabe einer Artikelversion
Entwicklungsstückliste
Statusänderung eines Artikels
Versionierung eines Artikels
Abfrage JDE-Artikelstamm
Abfrage JDE-Stückliste

JDE
- Artikelstamm
  - Stammdaten
  - Dokumentreferenzen
  - Lagerdaten
  - Losdaten
- Stücklisten
  - E-Stückliste
  - M-Stückliste
- Arbeitspläne
- Fertigungsaufträge
- etc.
ERBE: Funktionalität JDE -> PLM

PLM

- Projekte
-Produkte
-Artikelstamm
  - Stammdaten
  - Stücklisten
-Dokumente
  - Dokumentklassen
  - Dateien
- Änderungen
  - Antrag
  - Auftrag
  - Mitteilung

JDE

- Artikelstamm
  - Stammdaten
  - Dokumentreferenzen
  - Lagerdaten
  - Losdaten
-Stücklisten
  - E-Stückliste
  - M-Stückliste
- Arbeitspläne
- Work Orders
- etc.

(1) Ansicht/Druck aktuelle Dokumentversion zum Artikel

(2) Ansicht/Druck verwendete Dokumentversion im Work Order
It’s all about Collaboration & Product Innovation
Just 30 Years

2008

Blackberry

1978
Summary

• PLM is strategic to Oracle and our customers
  • Product Innovation is a top business imperative, PLM is the key enabler
  • Speeding innovation while delivering ‘right-to-market’ (right timing, volumes, quality, margins & compliant with regulations) is critical

• Oracle’s Agile PLM provides best-in-class PLM
  • Strong, highly referenceable install base of 1,300+ global customers
  • Broad suite of out-of-the-box applications deploy quickly

• Oracle delivers Open, Integrated, Enterprise PLM
  • Leverages CAD, ERP and other existing enterprise investments
  • PLM is evolving into an enterprise-wide, cross-functional discipline across all lines of business
More Info on Agile PLM – for Partners, Customers, ...

• Agile PLM (generic):
  • http://launch.oracle.com/?yes2agile
• Agile PLM for the High Tech Industry:
  • http://launch.oracle.com/?yes2agilehightech
• Agile PLM for the Medical Devices Industry:
  • http://launch.oracle.com/?yes2agileMD
• Agile PLM for Process (Food & Beverage):
  • http://launch.oracle.com/?yes2agileFandB
More Info on Agile PLM – for Partners, Customers, ...

- Agile PLM (generic): http://launch.oracle.com/?yes2agile
- Agile PLM for the Medical Devices Industry: http://launch.oracle.com/?yes2agileMD
- Agile PLM for Process (Food & Beverage): http://launch.oracle.com/?yes2agileFandB
Product Lifecycle Management - welche Prozesse sind wichtig und wie werden sie unterstützt

Stefan Sack - Director Agile PLM, Oracle EMEA
Frankfurt - Sep 2008