Managing PLM Deployments with Teamcenter Systems Engineering

PLM World 2006 Conference, May 8-12, 2006

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Project Manager/ System Architect
Systems Engineering Consulting Services

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Agenda

- Overview of the UGS deployment process
- Capabilities of a Systems Engineering tool
- Mapping of UGS Delivery Process to Teamcenter Systems Engineering.
- Benefits to the Customer
UGS PLM Deployment Process
Combining the Power of PMI and SDLC

System Development Lifecycle

- Problem Definition
- Requirements Analysis
- System Design
- Construct
- Test
- Implement

Pre-Aligning
Aligning
Planning
Executing & Controlling
Solution Acceptance
Closing

Initiating
Planning
Execution
Monitoring & Controlling
Closing

Project Management Lifecycle
# UGS PLM Deployment Process - Project Management Documents

## Implementation Process Methodology Documents

<table>
<thead>
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- **Proposal**
  - Boundaries of Scope
  - Assumptions & Constraints
  - Estimated Timing
  - Estimated Cost

- **Statement of Work** (sign-off, built-in change control)

- **Solution Guide**
  - Business goals and strategy
  - Affected processes
  - Estimated solution architecture

- **Alignment Plan**

- **Use Cases** (Sign-off document, supersedes proposal and solution guide, change control and traceability built into document)
  - To-be process definitions
  - Acceptance Criteria

- **Requirements** (Sign-off document, supersedes proposal and solution guide, further refined during the Planning phase)
  - Scope (defined as the exact set of requirements that will be fulfilled by the project)
  - High-level solution options with effort estimates, and the option selected for each requirement
  - Requirements change control and traceability
  - References the Use Cases document

- **Gap Analysis**
  - Solution options / effort estimates

- **Key Decision Questionnaire**

- **Solution Spec**
  - Requirements, high-level solution, gaps, risks, references use case doc

- **Project Plan** (Sign-off document, supersedes proposal)
  - Roles and responsibilities matrix
  - Task schedule (task name, start and end dates, assigned resources, milestone dates)
    - Planning tasks
    - Configuration and customization tasks
    - System Installation and Admin tasks (sandbox, test system, production system)
    - Testing tasks
    - Data migration tasks
    - User cutover tasks (create training materials, conduct training, identify process leads)
    - Communication tasks

- **Issues List**
  - Issues
  - Action items
  - Lessons learned

- **Status Report** (updated weekly, presented at scheduled meeting, and to e-mail distribution list)
  - Project cost and budget information
  - Actual progress vs. plan
  - Risks, mitigation tasks, triggers
  - Summary of changes and major issues

- **Test Cases**
  - Acceptance sign-off

- **Specification** (Sign-off, expanded version of Use Case document, change control built in)
  - Configuration of OOTB functionality (data model, security model, etc.)
  - Solution architecture
  - Custom code development
  - Reference the requirements document for details on requirements

**Project Retrospective**
Why use TcSE for Managing a PLM Deployment?

Multi-User Collaboration

TcSE Database

LAN

WAN

TcSE Application

TcSE Clients

Change History

Revisions

Documentation Production
Why use TcSE for Managing a PLM Deployment?

- Excel User Interface
- Multiple Window Support
- Security Profiles
- Process Oriented Configurations

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Why use TcSE for Managing a PLM Deployment?

Features of TcSE

Tracing requirements through the Delivery Process

Ending a Link

Starting a Link

Showing Traceability
Pre-Aligning Phase – Defining the Problem
## Solution Guide

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Solution Guide

- A tool for transitioning from Sales mode to Implementation mode
- It states the target for what the project is to accomplish

**Example: Tier-1 Parts Supplier**

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Solution Guide

Pre-Aligning

Alignment

Planning

Execution / Control

Closure

Pre-Alignment

Business Problem

Strategy

Process

Solution

Link

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**Gap Analysis**

- Solution options with effort estimates

**Key Decision Matrix**

- Solution Spec (requirements, high-level solution, gaps, risks, references use case doc)

**Project Plan** (Signoff document, supersedes proposal)

- Roles and responsibilities matrix
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- Project cost and budget information
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Proposal Generation

5 Solution Guide

Table 1 Solution Guide

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The Strategy is allocated to Scope Elements

Pre-Alining

Strategy

Scope Element

Notebook: Single database for eng data and product structure

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Aligning Phase – Defining the Requirements
## Use Case Development

### Pre-Alignment
- Implementation Process Methodology Documents (for reference by the project team at any time)

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  - Assumptions & Constraints
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- Alignment Plan

### Planning
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### Execution / Control
- Test Cases
  - Acceptance signoff

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### Project Retrospective
- Project Retrospective
Use Cases

1. Process

Use Case

**Use Case**: This addresses the process of building a Multi-Generational Program Plan in TUR. Multi-Generational Product Plans (MGPP’s) are a dynamic set of plans identifying technical and program scope to be accomplished at a specific time. MGPP’s define the releases for the product and what capabilities/controls will be available in each release. These capabilities/controls will change and evolve as each generation is more carefully analyzed. Capabilities may shift to other generations or may be revised so they may be accomplished with existing technology/designs. Traceability between VOC/OV, OCR/CER, and PFRs and the MGPP statements are required. MGPPs are created at a high level from the strategy phase. MGPPs are base level at the launch review and changes to it are controlled requiring review and decision log. A common design needs to be developed so that the MGPP can track along with the NPI process, evolve with the changes and decisions of requirements gathering, concept selection and technical specification definition. The MGPP will be the collector of these decisions so there needs to be the ability to link decisions to elements of the MGPP. There needs to be a report capability so that the user can view and print the MGPP and status it. MGPP’s are management level objects that will be reviewed on a regular basis to help determine the progress of the development project.

**Primary Stakeholders**: NPI Team

**Primary Actors**: NPI Team, TUR

**Trigger Event**: Opening the MGPP object

**Preconditions**:

- The MGPP_Env object needs to have two links connected to it from two objects. One object will be of type MGPP_Env_Folder, and the other will be of type MGPP_Plans_Folder. The MGPP_Plans_Folder object shall have members that reflect capability/feature/etc. They may be of any type. The Generation hierarchy shall contain building blocks of type MGPP_Generation. Links made from items in the MGPP_Plans_Folder to Generations shall reflect a plan to implement that capability/feature as that generation.

**Goal (post conditions)**: The desired information is presented to the user, in the form of a table that is updated within the MGPP object.

**Basic Flow**:

1. User opens the MGPP_Env object and builds a table that shows the plans as rows and generations as columns.
2. The table shall be populated with the header and the contents of the text body as an HTML object (This would allow graphics).
3. Plans can link to other plans at lower levels.

**Extensions (alternate flows)**:

1a) An error will be generated if links are not present on the MGPP object.

**Variations**:

Since the MGPP requires both a Plan Folder and the Generation Hierarchy it is possible that one hierarchy could support many MGPP’s. The
Use Cases
# Key Decisions Development

## Implementation Process Methodology Documents
- For reference by the project team at any time.

<table>
<thead>
<tr>
<th>Pre-Alignment</th>
<th>Alignment</th>
<th>Planning</th>
<th>Execution / Control</th>
<th>Closure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Boundaries of Scope, Assumptions &amp; Constraints</td>
<td>- Estimated Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Statement of Work</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Signoff, built-in change control)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Solution Guide</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Business goals and strategy</td>
<td>- Estimated solution architecture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alignment Plan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Project Plan
- Roles and responsibilities matrix
- Task schedule (Task name, start and end dates, assigned resource, milestone dates)
  - Planning tasks
  - Configuration and customization tasks
  - System installation and Admin tasks (sandbox, test system, production system)
  - Testing tasks
  - Data migration tasks
  - User cutover tasks (create training materials, conduct training, identify process leads)
  - Communication tasks

## Issues List
- Issues
- Action Items
- Lessons learned

## Status Report
- Updated weekly, presented at scheduled meeting, and to e-mail distribution list
  - Project cost and budget information
  - Actual progress vs plan
  - Risks, mitigation tasks, triggers
  - Summary of changes and major issues

## Key Decisions Development

- Gap Analysis
  - Solution options with effort estimates
- Key Decision Matrix
- Solution Spec
  - Requirements, high-level solution, gaps, risks, references use case doc
- Use Cases
  - To-be process definitions
  - Acceptance Criteria
- Specification
  - Configuration of OOTB functionality (data model, security model, etc.)
  - Solution architecture
  - Custom code development
  - Reference the requirements document for details on requirements
- Test Cases
  - Acceptance signoff
- Proposal
  - Boundaries of Scope, Assumptions & Constraints
  - Estimated Cost
- Requirements
  - Scope (defined as the exact set of requirements that will be fulfilled by the project)
  - High-level solution options with effort estimates, and the option selected for each requirement
  - Requirements change control and traceability
  - Reference the Use Cases document
- Use Cases
  - Signoff document, supersedes proposal and solution guide, change control and traceability built into document

## Project Retrospective

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Key Decisions Guide are used to guide the customer to:

- Out-of-the-Box
- Pre-designed and implemented solutions
- Lower Development Costs
- Lower Risk
# Key Decisions

<table>
<thead>
<tr>
<th>KD#</th>
<th>Key Decisions</th>
<th>Options</th>
<th>Considerations</th>
<th>Recommendation</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administration Considerations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Will users be allowed to create sites?</td>
<td>• Yes  • No</td>
<td>Sites have to be created as business grows/changes. Users should not be allowed to create, but rather request a site to be created by an admin process.</td>
<td>No, users should not create sites. Use a process to involve proper administration that allows users to request sites to be created.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Will users be allowed to &quot;personalize&quot; TcC sites?</td>
<td>• Yes  • No</td>
<td>Using the &quot;My Site&quot; functions of TcC this is easy.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Where are the sign-on credentials for TcComm managed?</td>
<td>• Current authentication  • Active Directory in TcComm Server</td>
<td>TcC requires AD, so set up a 1-way outgoing trust from TcC server to Exchange authentication (current authenticator)</td>
<td>Current authentication</td>
<td></td>
</tr>
<tr>
<td><strong>Data Considerations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Will TcComm be the vault for any Product data? [Central repository]</td>
<td>• Yes  • No</td>
<td>Official product data should reside in TcEng. Consider all data kept in TcC as transient data</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Will TcComm be used as the corporate issue tracking tool?</td>
<td>• Yes  • No</td>
<td>• Use of templates and sites to collaborate, track, and manage issues is recommended  • All users will need access to the issue management site.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Access Considerations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Will every employee need to have access to TcComm?</td>
<td>• Yes  • No</td>
<td>Potential for high administrative presence.</td>
<td>No, but add task to project plan to define user list</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Will external organizations be allowed access into TcComm</td>
<td>• Yes  • No</td>
<td>Eventually, suppliers will need visibility to collaborations. The infrastructure planning should help facilitate this (DMZ).</td>
<td>Initially, no. However plans should be made to allow limited access from outside the firewall.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Will TcComm need to be accessed from all facilities on the company network?</td>
<td>• Yes  • No</td>
<td>&quot;Anywhere&quot; means all facilities around the world</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
### Key Decisions

<table>
<thead>
<tr>
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<td>Yes</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Home</td>
<td>Name</td>
<td>BOM</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>014</td>
<td>How will part revisions be represented in Macola?</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>017</td>
<td>For products with options, how will BOMs be managed so that each BOM sent to the Macola has a unique part number? The engineering department would like to minimize the work involved in maintaining BOM structures.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>016</td>
<td>Can CGM files be used instead of PDF files for drawings?</td>
<td>896</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>016</td>
<td>Will the engineering system and the manufacturing system share the same numbering system?</td>
<td>200</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>017</td>
<td>How will BOMs be transferred from TCEng to Macola?</td>
<td>200</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>014</td>
<td>When BOMs are transferred to Macola, will all parts be transferred or will only the parts that do not yet exist in Macola?</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
# Key Decisions

## Example of Key Decisions regarding a deployment on TcSE

<table>
<thead>
<tr>
<th>Folders</th>
<th>RON</th>
<th>Text</th>
<th>Consider...</th>
<th>Recommend...</th>
<th>Decision</th>
<th>KC Status</th>
<th>Source_Co...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email Notification</td>
<td>0095</td>
<td>Will you be using email notification upon object creation, notification or</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Processing</td>
<td>0097</td>
<td>Will you be using TcSE change processing?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ToCommunity Integration</td>
<td>0096</td>
<td>Will you be using be integrating to ToCommunity?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ToEngineering Integration</td>
<td>0098</td>
<td>Will you be integrating to ToEngineering?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ToEnterprise Integration</td>
<td>0100</td>
<td>Will you be integrating to ToEnterprise?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom jsp Pages</td>
<td>0101</td>
<td>Will you require jsp forms or report?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom Training Materials</td>
<td>0102</td>
<td>Will you be developing custom training material to support your process?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of test</td>
<td>0103</td>
<td>Will we be required to test above and beyond typical UGS content testing?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supress headings</td>
<td>0104</td>
<td>Do you want suppress heading support?</td>
<td>Yes</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development server</td>
<td>0105</td>
<td>Will you be setting up a development server?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Webserver</td>
<td>0106</td>
<td>What type of webserver?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Hardware</td>
<td>0107</td>
<td>What is the server hardware?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>0108</td>
<td>What is the architecture for the hardware?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Users</td>
<td>0109</td>
<td>How many users do you foresee and when?</td>
<td>No</td>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Key Decisions

Aligning

Pre-Alignment
- Business Problem
- Strategy
- Process
- Solution

Link

Define

Link

Key Decision

Link

Link (Derived)

Requirements Fit/GAP

User Acceptance Test

Requirements

Design

Scope Element <High Level>

Child

Scope Element <Detailed>

Issues

Alignment

Planning

Execution / Control

Closure

Supporting Document

Define

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## Requirement Fit Gap

### Implementation Process Methodology Documents
- For reference by the project team at any time.

### Proposal
- Boundaries of Scope,
- Assumptions & Constraints
- Estimated Timing
- Estimated Cost

### Statement of Work (signoff, built-in change control)

### Solution Guide
- Business goals and strategy
- Affected processes
- Estimated solution architecture

### Alignment Plan

### Use Cases (Signoff document, supersedes proposal and solution guide, change control and traceability built into document)
- To-be process definitions
- Acceptance Criteria

### Test Cases
- Acceptance signoff

### Specification (Signoff, expanded version of Use Case document, change control built in)
- Configuration of OOTB functionality (data model, security model, etc.)
- Solution architecture
- Custom code development
- Reference the requirements document for details on requirements

### Requirements (Signoff document, supersedes proposal and solution guide, further refined during the Planning phase)
- Scope (defined as the exact set of requirements that will be fulfilled by the project)
- High-level solution options with effort estimates, and the option selected for each requirement
- Requirements change control and traceability
- References the Use Cases document

### Gap Analysis
- Solution options w/effort estimates

### Key Decision Matrix

### Solution Spec
- Requirements, high-level solution, gaps, risks, references use case doc

### Requirements Fit Gap

### Project Plan (Signoff document, supersedes proposal)
- Roles and responsibilities matrix
- Task schedule (Task name, start and end dates, assigned resource, milestone dates)
- Planning tasks
- Configuration and customization tasks
- System Installation and Admin tasks (Sandbox, test system, production system)
- Testing tasks
- Data migration tasks
- User cutover tasks (create training materials, conduct training, identify process leads)
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### Issues List
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- Risks, mitigation tasks, triggers
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### Project Retrospective

### Implementation Process Methodology Documents (for reference by the project team at any time)

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**Example Key Decision Matrix – TcEngineering (oversimplified example)**

<table>
<thead>
<tr>
<th>KD#</th>
<th>Key Decision</th>
<th>Options</th>
<th>Considerations</th>
<th>Recommendation</th>
<th>Decision / Requirement</th>
<th>Fit/Gap</th>
<th>Alternatives</th>
<th>Effort</th>
<th>Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>Will every facility around the world store their data in the same database?</td>
<td>• Yes</td>
<td>High-latency WAN will produce a very slow response for users.</td>
<td>No, use multiple databases.</td>
<td>Gap</td>
<td>1</td>
<td>Upgrade the WAN, Use Multi-site and multiple databases.</td>
<td>$$$</td>
<td>Multi-site</td>
</tr>
</tbody>
</table>
Key Decision

M

Use Case

1

Fit/Gap Requirement

1

Requirement Fit Gap – Capture Recommendation and Costs associated with filling a Gap

[0300] Generate a 3D viewable data and relate to the part.

Responsibility: State:
Fit/Gap: Gap
Comments: 4104
Alternatives:
Effort:
Source:
Solution Accepted:
JT files will be generated from NX when saving CAD data into TeEng.
Requirement Fit Gap – Defined by a Key Decision.

Key Decision

Scope Elements
All requirement including Fit Gap Requirements are mapped to Scope Elements.
**Scope Elements – Defined by the set of Fit/Gap Requirements Assigned to them.**

**Fit/Gap Requirement**

**Scope Elements**

<table>
<thead>
<tr>
<th>Folders</th>
<th>Number</th>
<th>Defining Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBS</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1.1) Manage CAD Data</td>
<td>1.7</td>
<td>[0039]Single database for engr data and product structure [0224]Store UG NX CAD file(s) for part [0229]....</td>
</tr>
<tr>
<td>1.2) Manage Engineering Docs</td>
<td>1.8</td>
<td>[0039]Single database for engr data and product structure [0233]Manage MS Word document [0243]Users must be able to...</td>
</tr>
<tr>
<td>1.3) Data exchange</td>
<td>1.12</td>
<td>[0039]Single database for engr data and product structure [0243]Users must be able to...</td>
</tr>
<tr>
<td>1.4) Migrate data into TcEng</td>
<td>1.10</td>
<td>[0039]Single database for engr data and product structure [0252]Solidworks data needed [0258]Create a query for...</td>
</tr>
<tr>
<td>1.5) BOM management</td>
<td>1.14</td>
<td>[0039]Single database for engr data and product structure [0254]Each variant must have...</td>
</tr>
<tr>
<td>1.6) Queries</td>
<td>1.1</td>
<td>[0039]Single database for engr data and product structure [0258]Create a query for...</td>
</tr>
<tr>
<td>2.1) Engineering process manage</td>
<td>1.6</td>
<td>[0040]Enable a consistent release process [0260]Route the part or assembly to be...</td>
</tr>
<tr>
<td>2.2) Engineering change process</td>
<td>1.11</td>
<td>[0040]Enable a consistent release process [0274]Use an electronic change form [0275]....</td>
</tr>
</tbody>
</table>

**Notebook - 1.1) Manage CAD Data**

<table>
<thead>
<tr>
<th>Defining Trace</th>
<th>Create...</th>
<th>Complying Trace</th>
<th>Create...</th>
<th>Create...</th>
<th>Test...</th>
</tr>
</thead>
<tbody>
<tr>
<td>By default, load latest released r0227</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
</tr>
<tr>
<td>Must be able to save and retrieve r0228</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
</tr>
<tr>
<td>Provide check-in and check-out r0226</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
</tr>
<tr>
<td>Provide the ability to create and s0225</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
</tr>
<tr>
<td>Single database for engr data and r0039</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
</tr>
<tr>
<td>Store SolidWorks data files, but r0229</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
</tr>
<tr>
<td>Store UG NX CAD files for part, r0224</td>
<td>tkorner 2A</td>
<td>1.1) Manage CAD Data</td>
<td>0412</td>
<td>tkorner 2A</td>
<td>2/9/06 3:43</td>
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# Solution Specification

## Pre-Alignment

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<td>- Assumptions &amp; Constraints</td>
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<tr>
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</tr>
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</tr>
<tr>
<td>- Business goals and strategy</td>
</tr>
<tr>
<td>- Affected processes</td>
</tr>
<tr>
<td>- Estimated solution architecture</td>
</tr>
<tr>
<td>Alignment Plan</td>
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</tbody>
</table>

## Planning

<table>
<thead>
<tr>
<th>Test Cases</th>
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<tbody>
<tr>
<td>- Acceptance signoff</td>
</tr>
<tr>
<td>Specification</td>
</tr>
<tr>
<td>- Signoff, expanded version of Use Case document</td>
</tr>
<tr>
<td>- Change control built in</td>
</tr>
<tr>
<td>- Configuration of OOTB functionality (data model,</td>
</tr>
<tr>
<td>security model, etc.)</td>
</tr>
<tr>
<td>- Solution architecture</td>
</tr>
<tr>
<td>- Custom code development</td>
</tr>
<tr>
<td>- Reference the requirements document for details</td>
</tr>
<tr>
<td>on requirements</td>
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</tbody>
</table>

## Execution / Control

<table>
<thead>
<tr>
<th>Requirements</th>
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</thead>
<tbody>
<tr>
<td>- Signoff document, supersedes proposal and solution</td>
</tr>
<tr>
<td>guide, change control and traceability built into</td>
</tr>
<tr>
<td>document</td>
</tr>
<tr>
<td>- To-be process definitions</td>
</tr>
<tr>
<td>- Acceptance Criteria</td>
</tr>
<tr>
<td>Use Cases</td>
</tr>
<tr>
<td>- Signoff document, supersedes proposal and solution</td>
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<tr>
<td>guide, change control and traceability built into</td>
</tr>
<tr>
<td>document</td>
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</table>

## Closure

<table>
<thead>
<tr>
<th>Issues List</th>
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</thead>
<tbody>
<tr>
<td>- Issues</td>
</tr>
<tr>
<td>- Action items</td>
</tr>
<tr>
<td>- Lessons learned</td>
</tr>
<tr>
<td>Status Report</td>
</tr>
<tr>
<td>- Updated weekly, presented at scheduled meeting, and</td>
</tr>
<tr>
<td>to e-mail distribution list</td>
</tr>
<tr>
<td>- Project cost and budget information</td>
</tr>
<tr>
<td>- Actual progress vs plan</td>
</tr>
<tr>
<td>- Risks, mitigation tasks, triggers</td>
</tr>
<tr>
<td>- Summary of changes and major issues</td>
</tr>
</tbody>
</table>

## Implementation Process Methodology Documents

- Boundaries of Scope.
- Assumptions & Constraints.
- Estimated Timing.
- Estimated Cost.

## Statement of Work (Signoff, built-in change control)

- Business goals and strategy.
- Affected processes.
- Estimated solution architecture.

## Solution Guide

- Solution architecture.
- Custom code development.
- Reference the requirements document for details on requirements.

## Use Cases (Signoff document, supersedes proposal and solution guide, change control and traceability built into document)

- To-be process definitions.
- Acceptance Criteria.

## Gap Analysis

- Solution options w/effort estimates.

## Key Decision Matrix

- Solution Spec (requirements, high-level solution, gaps, risks, references use case doc).

## Project Plan

- Roles and responsibilities matrix.
- Task schedule (Task name, start and end dates, assigned resource, milestone dates).
  - Planning tasks.
  - Configuration and customization tasks.
  - System Installation and Admin tasks (Sandbox, test system, production system).
  - Testing tasks.
  - Data migration tasks.
  - User cutover tasks (create training materials, conduct training, identify process leads).
  - Communication tasks.

## Issues List

- Issues.
- Action items.
- Lessons learned.

## Status Report

- Updated weekly, presented at scheduled meeting, and to e-mail distribution list.
- Project cost and budget information.
- Actual progress vs plan.
- Risks, mitigation tasks, triggers.
- Summary of changes and major issues.

## Project Retrospective

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Solution Specification – Are a Result of the Fit Gap Requirement Process.

Solution Specification populated as part of the Requirement process.

Notebook - The Macola part number will be a concatenation of the item ID and the Revision ID. For example, for item revision 1234567890/A the Macola part number will be 1234567890A.

Part numbers will be manually entered into Macola.

Manage each BOM as a separate structure under different items.
Manage each BOM as a separate structure.

Key Decision
Scope Elements
### The Solution Specification

<table>
<thead>
<tr>
<th>Folders</th>
<th>Number</th>
<th>Defining Objects</th>
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</thead>
<tbody>
<tr>
<td>Project Plan Approval</td>
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<td>Project Summary</td>
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<td>Project Scope</td>
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<td>WBS</td>
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Planning Phase – Developing the System Design

System Development Lifecycle

- Problem Definition
- Requirements Analysis
- System Design
- Construct
- Test
- Implement

Project Management Lifecycle

- Pre-Aligning
- Aligning
- Planning
- Executing & Controlling
- Solution Acceptance
- Closing
System design begins the process of mapping requirements to the system design and requirements to system tests.

- Example: Visualization requirements will be mapped to Visualization tools being configured and installed.
Executing & Controlling – Constructing, Testing and Implementing
System design continues, as tests becomes more complete.

Issue tracking and resolution becomes a part of the project.
Closing

System Development Lifecycle

- Problem Definition
- Requirements Analysis
- System Design
- Construct
- Test
- Implement

Purchase Order

Accepted SOW

Baselined Project Plan

Solution Acceptance

Pre-Aligning

Aligning

Planning

Executing & Controlling

Closing

Project Management Lifecycle

Initiating

Planning

Execution

Monitoring & Controlling

Closing

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Deployment of a PLM System deserves the same care as the development of your products.

Using a established process supported by a robust tool such Teamcenter Systems Engineering (TcSE) will ensure success.