



PRODUCT MANAGEMENT

Managing Items & Products throughout the Enterprise

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Introduction

Product management, identified as the creation, lifecycle, attribution, & ongoing stewardships of product families, product lines, part numbers, drawings, item numbers, bills of materials, tooling, fixturing, documents, as well as all synonymous terms, is viewed as a critical element of many business strategies. However, it is often managed, at best, at a tactical level and, at worst, as an afterthought. The elevation of product management to a true business process with workflow, controls, reviews, and audits is required to meet business strategy needs.

This white paper intends to explore the concept of product management within the paradigm of product lifecycle management (PLM). Specifically, it will provide a working definition of PLM, highlight business examples, and demonstrate a product management process using the Oracle Applications 11i/R12 PLM software. It intends to provide:

- A process for product classification and attribution
- Working concept for product and item lifecycle process
- Examples of setup and creation of product & item management workflows

Finally, the discussion concludes with a review of the Oracle R12 features, the introduction of the AGILE PLM application with statement of direction, and a course of action for organizations in need of product management.

What is PLM?

Product Lifecycle Management, or PLM, has been around for a long time but it has experienced resurgence as a key element of the enterprise business strategy. The difference now is the technical capability to infuse a structured business process, supported by leading edge technologies, to manage and control the strategy. Systems integration between very different technologies i.e. CAD, CAM, PDM, Workflow, ERP, web collaboration, document management, etc. have come together to provide the degree of process and control need to effect the business strategy.

Product Lifecycle Management is often seen as a very wide ranging technology or process capability. It is akin to ERP in terms of breadth, depth, & complexity. A working definition of PLM includes the following process & technology components:

- **Product Data Management (PDM)** – PDM is, at its simplest, product, part number, item number, & bill of material data attribution and related metadata. For example, the Oracle Item Master is considered to be part number operational attributes. Related metadata may include descriptive flexfields, user defined attributes, attachments, and documents.

It is important to note that PDM is not merely restricted to database fields – it is comprehensive and includes documents, URL's, drawings, CAD/CAM programs, wireframe models, etc. This is what makes the PDM data definition so challenging. It spans many technologies, standards, & applications.

Two important characteristics of a sound PDM process include data normalization and validation. Data and metadata needs to be analyzed and incorporated into a robust data model such that information is defined and controlled to create a “single source of truth.” It is common for enterprises to have multiple product data sources but a single “system of record” needs to be determined as part of product management policy.

Data validation confirms that information is true – this may as simple as creating value sets or as complex as business validation rules. Again, with multiple product data sources, it is very challenging to assure data validation, as each system, hypothetically, needs to be validated against each other.

- **Change Management** – change management sounds esoteric but it what is commonly referred to as workflow. Change management within the PLM paradigm describes the information request, review, investigation, approval, actions, notification, & implementation workflow elements. A strong Change Management process needs to automate this process as well as provide “exits” from the proscribed flow to address ad-hoc requirements.

Due to the generative and iterative nature of product design, standardized workflows embedded into business applications may be at odds with reality. Enterprises will be taxed to stick with a standardized business process but accommodate expectations without going “off-line” with the process. The outcomes of a good Change Management Business process include a record of transactions, audit trail of approvals, identification & confirmation of actions, & notification of implementation. Enterprises should not focus on the “cutting edge” regarding workflow technology; rather, focus on the outcomes needed to manage the business and assure compliance to policy and regulation.

- **Document Management (DM)** - DM has evolved tremendously as a technology. Web collaboration products are now available to enterprises of all sizes to share information. Features once considered advanced, such as check-in/check-out, version control, & alerts, are standard. Most DM applications possess workflow capabilities in support of authoring, review, approval, & revision.

The convergence of PDM and DM applications provides a seamless data record. Documents are considered attributes of products and vies-versa. Again, the enterprise is challenged to describe and control content to prohibit data denormalization. A solid PDM-DM process allows for the recognition of documents as attributes while preserving the authoring, review, & publishing workflow process.

- **New Product Introduction (NPI)** – NPI refers to the item lifecycle concept. Classically, products exhibit a lifecycle, beginning with concept & design, moving through prototype, pilot, & launch, and completing with production, field service, & (eventually) obsolescence. Over this lifecycle, product support costs, such as marketing, engineering, quality, regulatory compliance, experience ramps, peaks, & plateaus. NPI integrates the item lifecycle concept with Change Management, providing business process workflows supporting concept, design, prototyping, production readiness, and production product changes.

It is important to understand that item creation is a phased activity within NPI. In other words, NPI does not start with items. It begins with ideas, sketches, wireframes, product concepts, and proceeds to an item. A NPI business process needs to accommodate data entities such as Ideas, Issues, or Concepts. The workflow process needs to track activities against these data entities in advance of item creation.

Management is interested in identifying budgeted product support costs by lifecycle phase and comparing actual costs. All too often, actual costs lag planned costs and drag across subsequent lifecycle phases. Cost management across the lifecycle relies on:

- Solid project management competencies
- Assignment of costs to product support activities
- Sound business process workflows that accurately track tasks, approvals, costs, & schedules

- **Collaboration** – the modern PLM paradigm uses collaboration across the extended enterprise (E-ERP), fusing customers, partners, and suppliers into a consolidated product platform. Web conferencing, CAD visualization, single sign-on, and DM reflect the continuing advance of technology in support of collaboration. Protocols, regarding the ownership of information, roles of participants, security of data, and administration constitute the collaboration business process.
- **Product Portfolio Management** – this is the Business Intelligence aspect of PLM. It consists of a wide range of product, product support, quality, industry, & regulatory compliance metrics and key performance indicators.

Oracle EBS Solution – 11i/R12

Oracle EBS solution set contains many components of PLM. This section provides an overview of these applications:

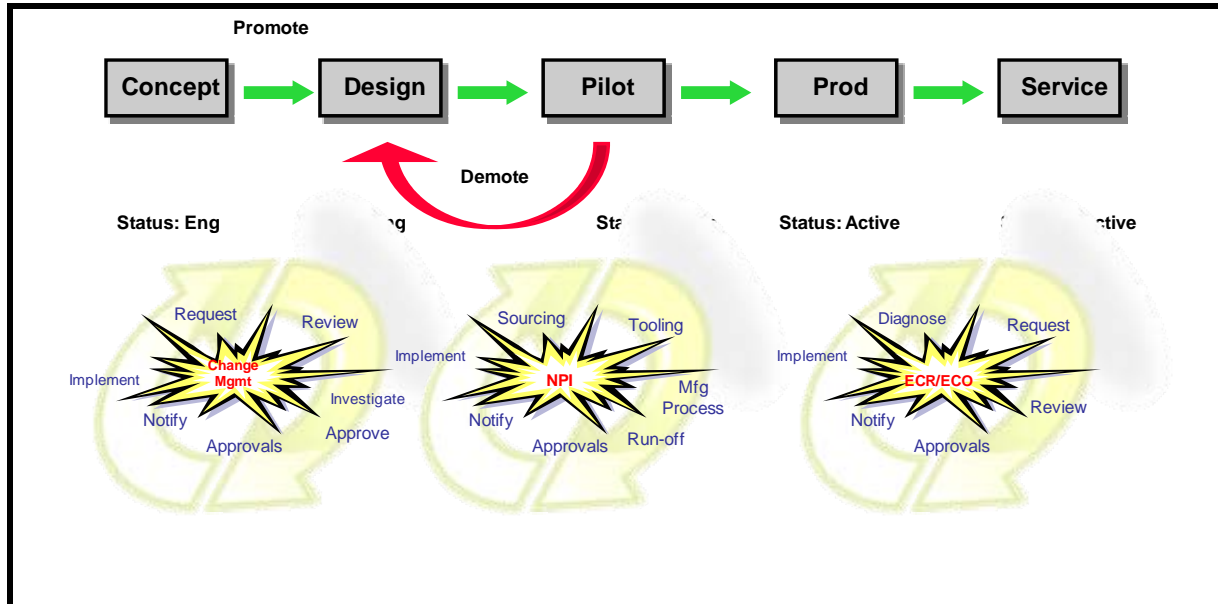
Product Lifecycle Management – The Oracle PLM solution includes the Advanced Product Catalog (APC), Structures, & Change Management applications. These can be thought of as overlay applications to Inventory, Bills of Material, & Engineering, respectively. They combine Oracle Forms and HTML screens to enrich existing functionality. Many new data entity concepts are introduced that extend the traditional discrete manufacturing applications.

CADView – 3D – this is a specific web visualization application used to present CAD data objects over the internet. The viewer renders wireframe and solid models in a 2-D projection using streaming technology. Collaboration and red-lining are conspicuous features.

Product Information Management (PIM) Hub – this is a technology driven toolset used to merge disparate product data sources. Applications may include legacy & third party systems, data from mergers and acquisitions, denormalized data, or CAD integration. The PIM is intended to merge & blend information to form a “single source of truth.” A key feature is the ability to creating matching rules.

Global Data Synchronization Network (GDSN) – This is a technology that allows products identified within the PLM application to be uniquely assigned to a global trade identification number (GTIN). This GTIN is an industry standard stored in a global repository.

Lifecycle Management



Lifecycle management is characterized by stages (or gates) that represent the product progression. Early stages contain business flows that are identified as iterative or generative in nature. For example, initial product concept often reflects visionary ideas or brainstorming efforts - there is no set pattern or flow to activities. Later stages/gates are more structured, with set business processes defining workflows, such as ECR and ECO activities. The challenge is creating a cohesive business process that identifies, monitors, & controls the process through all stages.

Concept and Design – the concept and design phase is dominated by the generative process, whereby ideas, suggestions, customer specifications, market opportunities, regulatory constraints, etc. are brought together. Initial concepts are rendered as CAD models, drawings, specifications, policies, spreadsheets, and presentations. They are traded back and forth between customers, suppliers, sales, marketing, engineering, & management, with each group adding contributions. The ability to manage and control the process, let alone associated development costs, is daunting.

During this phase, items usually do not exist. The product is represented by a collection of data entities. The work product is typically tracked in unstructured documents, such as spreadsheets, specification documents, or CAD wireframe models. Through out this phase, product information is accumulated. Theses phase rely heavily on workflow technology and document management to manage, capture, edit, review, and approve concepts and designs.

The Oracle Change Management application is used to construct Idea or Suggestion workflows. These workflows consist of change headers and change lines. Since items may not exist, attribute groups are associated with change headers and lines. They are used to capture accumulated product information, classify product hierarchies, document product development costs, or provide standardize metrics for reporting.

The workflows consist of request, review, & approval steps with task list associated at each step. Although they must be somewhat structured in their flow, they must accommodate “detours” from the

standard flow to support iterative design efforts. The workflow entity itself drives activity, tracks attributes, provides a record of approvals, and can be linked to other change management workflows in subsequent stages. Finally, the workflow can act as the repository, via change management workflow attributes, for unstructured document information.

Prototype, Pilot, & Launch – once concepts and designs received the “go ahead”, production readiness begins. These phases are iterative but follow a more structured business process than previous phases. CAD designs are completed and data accumulated during the concept and design phases are formalized in the PDM repository. Sales and marketing involvement diminishes while design engineering, drafting, and process engineering swing into full gear. Items, preliminary bills of materials, & routings are produced in support of product cost analysis.

The Oracle APC application is used to determine components available for re-use. This is accomplished through the search, reporting, & analysis of existing product attributes. The APC item import utilities are used to create new items, applying item templates to establish rudimentary operational and user defined attributes. NPI workflows are used to define, route, and approve new items.

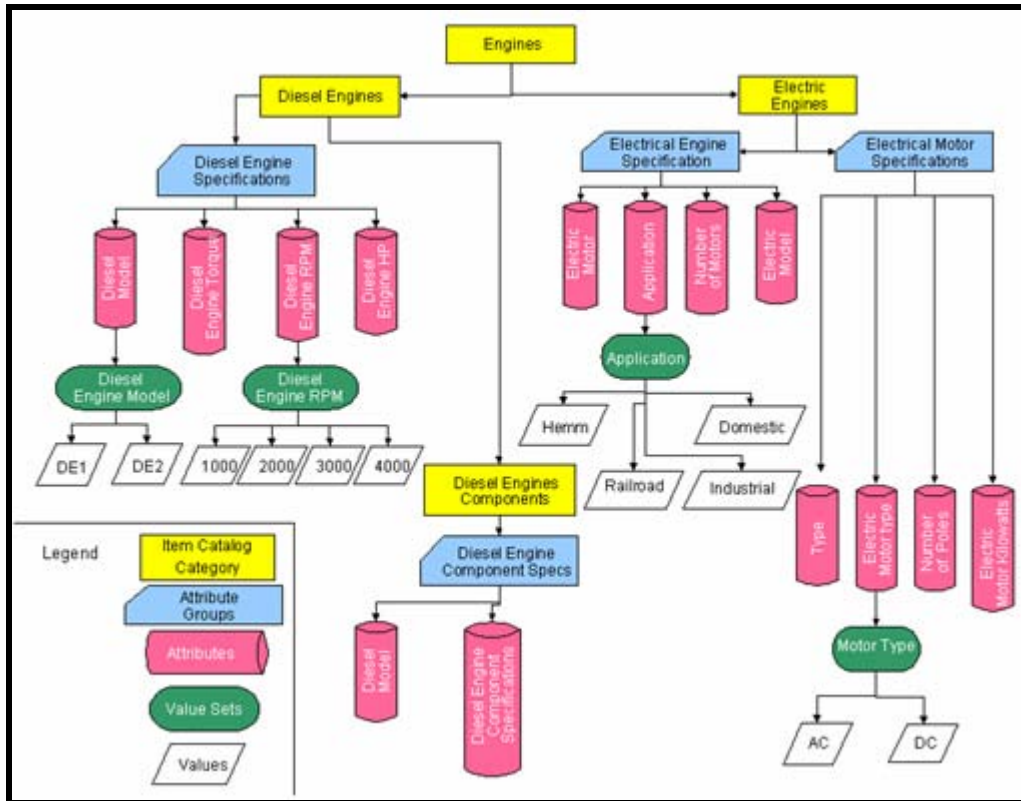
As in the concept and design phase, Oracle Change Management workflows are used to define prototyping, piloting, and launch business processes. These workflows rely on request, in-process, and approval steps to manage the product introduction. The Change Management task templates may be used to define business activities that must be completed within each stage as well as assignment to individuals or groups. Again, the power of the process is the ability to track the workflows, document tasks, and record approvals.

During these phases, production readiness is addressed. The Change Management workflows can be used to document Oracle system tasks, such as planning or pricing setups. During these phases, a decision needs to be made to manage attributes with either Change Management workflows or the APC application (note: attribute information associated with items is usually tracked using the APC). With Oracle R12 version, edits to item operational attributes can be tracked via Change Management workflows.

Production – the product lifecycle is maturing and, by now, significant design changes are decreasing. Product change business processes now are quite structured and follow classical engineering change request (ECR), change notice (ECN, and change order (ECO) processes. The Oracle Change Management application acts as an overlay to Oracle Engineering – in fact, ECO's created in Change Management seamlessly transfer into Engineering. ECR's and ECN's can be built using Change Management. These are simple request, review, & approval workflows.

Service, Obsolete – this is the final product stage. New products are overtaking older products and they are now only available for warranty purposes. The Oracle APC application is used, in conjunction with Oracle Inventory, to alter item operational attributes and statuses. Due to the mature state of information, workflow no longer dominates product management.

Product Attribution



The heart of product management resides in the ability to create and maintain a strong data model. All too often, product management and item creation are treated tactically with no forethought regarding process or security. As a result, product information becomes cluttered, item proliferation is rampant, data becomes invalid, and the strategic objective is lost. A strong data model consists of information that is valued by the enterprise, true, validated, and secured.

Product Classification – products, platforms, and families need to be group into logical classifications. For example, product families may consist of Small Gasoline Engines, Small Diesel Engines, and Large Diesel Engines. Certain product attributes, such as make, model, list price, and horsepower, are common to all product families and, hence, can be grouped as a parent classification, Engines. These classifications are identified in the Oracle APC application as Item Catalog Categories (ICC).

This classification exercise is conducted as a white board analysis, typically using spreadsheets. A cursory review of the product attributes both operational and user defined, form the basis of classification. As the product attribution analysis deepens, the enterprise may find it necessary to revised the product classifications based on logical attribute groupings.

The concept of hierarchy applies to the classification process. As mentioned, common product attributes can be grouped into ICC's. This is an important design consideration because parent and child ICC's can be linked together. The Oracle APC application makes use of inheritance to transfer information from parent groupings to their children. This helps to maintain data normalization.

Attribution – attribution consists of identifying specifications, requirements, features, etc. uniquely associated with product classifications. These attribute groups are linked directly to ICC's. For example, the Oracle Item Master groups operational attributes by functional area. The same logic applies to user defined attributes. For example, Small Gasoline Engines may consist of rpm, power, oil/fuel mixture, and weight specifications. They are grouped together as Engine Performance attributes.

Again, this process is primarily a white paper analysis using spreadsheets to support analysis. It is during the attribution process that a comprehensive data model develops. It is common to find attributes only partially assigned to products; this, in turn, forces the data modeler to revisit the product classifications. It is best to complete these iterations before committing the data model to Oracle (for obvious reasons).

Individual attributes are supported by value sets. The Oracle APC attributes behave just like descriptive flexfields. Value sets are defined for each attribute. Oracle supports the free from characters, numbers, dates, list of values, and table validation.

Security – Oracle provides a role based security model based on roles and privileges. This security model is over and above the traditional Users and Responsibilities functionality. It allows access information access to be control at the item/attribute level.

Lifecycle Phases

The lifecycle phases are used to determine establish a state of operational capability with a product. During early phases, operational capabilities consist of product tracking, costing, & preliminary BOM design. At each subsequent phase, more and more functionality needs to be switched on. Also, as a product progresses across lifecycle phases, the enterprise investment increases. As such, more controls are required.

Lifecycle phases are analogous to Oracle inventory item statuses with a few key exceptions. Inventory item statuses are used to define operational capability by either enabling or disabling operational attributes. Lifecycle phases are used to define the different lifecycle states and the item statuses are associated to the lifecycle phases.

Each lifecycle phase has an Item Change Policy associated with it. In essence, these policies determine how the lifecycle progression behaves:

- Are lifecycle phase promotions allowed?
- Are lifecycle phase demotions allowed?
- What are the predecessor and successor phase?
- Are Change Orders required to promote times through phases?

Each lifecycle phase also controls what types of item related changes are allowed – attributes, attachments, or associations.

The power of the lifecycle phase is the ability to track, monitor, control, & report on changes to the item's attributes and, when necessary, use a Change Order with tasks to execute the edits.

Advanced Product Catalog

As mentioned, the Oracle APC application is used to create Item Catalog Categories. The ICC data entity can be viewed as an object that bundles both data and functionality together and assigns this bundle to a family of items. For example, electronic components exhibit similar characteristics, specifications, regulations, and lifecycles. These traits are modeled as attributes, lifecycle phases, value sets and joined together in the ICC.

Steps to create an Item Catalog Category:

1. Analyze the Item Catalog Categories and perform the product attribution

As mentioned, this is a technology neutral exercise. This analysis will take a lot of time and be iterative in nature. It is a pre-requisite to constructing a foundation for the APC data model.

2. Create the Item Catalog Category

During the product attribution step, parent and child classification relationships will be determine. Make use of these hierarchies when ever possible to cut down on redundancy and data denormalization.

The screenshot shows the Oracle APC Administration interface for creating an Item Catalog Category. The breadcrumb trail is 'Items > Item Catalog Categories > Create/Edit Item Catalog Category'. The main heading is 'Create Item Catalog Category'. Below this, there are two tips: 'TIP When you change the Inactive Date, the change will be enforced on all the children of this item catalog category.' and 'TIP The Inactive Date must be a date in the future.' The 'Item Catalog Category' section has a 'Personalize Region' link and a 'Catalog' dropdown menu set to 'Supplier Product Data'. The 'Item Catalog Category Details' section includes 'Description' (Supplier Product Data), 'Parent Item Catalog Category' (Supplier Information), 'Default Template' (Purchased items), 'Item Creation Allowed' (checked), and 'Inactive On' (empty date field). At the bottom right, there are 'Cancel' and 'Apply' buttons.

3. Establish security by assigning People to the Item Catalog Category and to Items

Note: only People assigned to the ICC are able to perform maintenance. This provides a fine degree of control for attributes. By assigning People to Items, the APC controls who can manage items in specified inventory organizations.

The screenshot shows the Oracle APC Administration interface. The top navigation bar includes 'Home', 'Logout', 'Preferences', 'Help', 'Personalize Region', 'Items', 'Structures', 'Change Management', 'Security', 'Functions', 'Catalogs', and 'Value Sets'. The left sidebar contains 'Item Catalog Categories', 'Lifecycle Phases', and 'Attributes'. The main content area is titled 'People' and includes sections for 'Personalize Region', 'Item Catalog Category People', and a 'Select Users and...' table.

Item Catalog Category People

Personalize E_GOROLEGRANTSREGION
 TIP These roles apply at the Item Catalog Category level (for example, users with these roles can create an item in this Item Catalog Category).
 Personalize E_GOROLEGRANTSEDITBUTTONR_G

Select Users and...

Select Role	Type	Name	Company	Start Date	End Date
<input type="checkbox"/> Catalog Category User	Person	Robert Pierson	Vision Enterprise	02-May-2004	

Personalize E_GOROLEGRANTSTABLE

The screenshot shows the Oracle APC Administration interface. The left sidebar contains 'People', 'Attribute Groups', 'Item Pages', 'Lifecyclees', 'Attachment Categories', 'Criteria Templates', 'Results Formats', and 'Import Formats'. The main content area is titled 'Item People' and includes sections for 'Personalize Region', 'Item People', and a 'Select Users and...' table.

Item People

Personalize Region
 TIP The following are default User role assignments for all items in this Item Catalog Category in the selected organization.

Organization:

Personalize E_GOROLEGRANTSREGION
 Personalize E_GOROLEGRANTSEDITBUTTONR_G

Select Users and...

Select Role	Type	Name	Company	Start Date	End Date
<input type="checkbox"/> Design Engineer	Person	Robert Pierson	Vision Enterprise	02-May-2004	
<input type="checkbox"/> Item Author	Person	Robert Pierson	Vision Enterprise	02-May-2004	

Personalize E_GOROLEGRANTSTABLE

4. Create Value Sets and Values.

Oracle APC comes pre-seeded with commonly used value sets. Again, the product attribution analysis will determine the amount and types of values sets required to fully specify products.

5. Create Attribute Groups

Similar Value Sets are grouped together to form Attribute Groups.

6. Assign Attribute Groups to Item Catalog Categories

The screenshot shows the Oracle APC Administration interface. The breadcrumb trail is: Items > Structures > Change Management > Security > Functions > Catalogs > Value Sets. The current page is 'Add Attribute Groups to Catalog Categories'. It features a search bar with a 'Go' button and a 'Results' section containing a table of attribute groups.

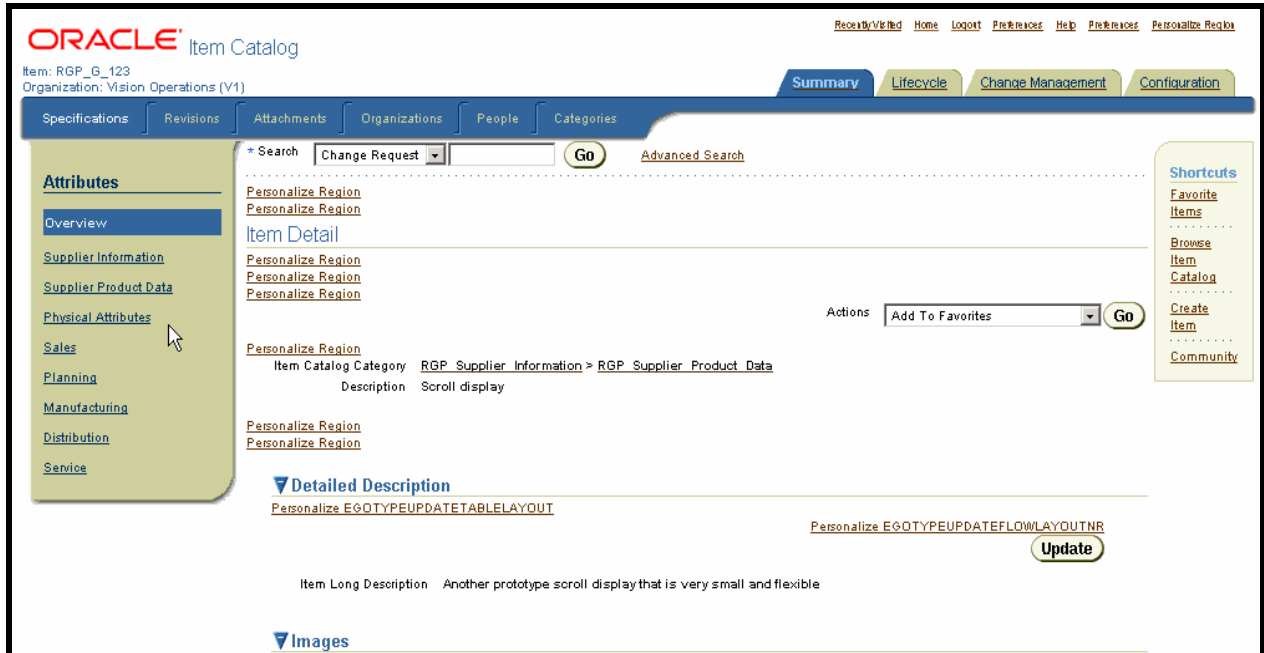
Select	Display Name	Internal Name	Description	Data Level
<input type="checkbox"/>	Supplier Product Data	Supp_Prod_Data	Supplier Product Data	Item
<input type="checkbox"/>	GRIP	GRIP	Wheelbarrow Grip Attributes	Item
<input type="checkbox"/>	Images	ItemDetailImage	A special Attribute Group for the Item Detail page	Item
<input type="checkbox"/>	BIN	BIN	Wheelbarrow Bin Attributes	Item
<input type="checkbox"/>	RGP Hardware Group	RGP_HARDWARE	RGP test hardware group	Item
<input type="checkbox"/>	WHEELS	WHEELS	Wheelbarrow Wheels Attributes	Item
<input type="checkbox"/>	HANDLES	HANDLES	Wheelbarrow Handle Attributes	Item
<input type="checkbox"/>	Detailed Description	ItemDetailDesc	A special Attribute Group for the Item Detail page	Item
<input type="checkbox"/>	WB	WB	Wheelbarrow Attributes	Item
<input type="checkbox"/>	Supplier Attributes	Supp_Prod_Attr	Supplier Product number	Item

The screenshot shows the Oracle APC Administration interface for 'Attribute Groups'. The breadcrumb trail is: Items > Structures > Change Management > Security > Functions > Catalogs > Value Sets. The current page is 'Attribute Groups'. It features a left-hand navigation menu, a search bar, and a table of attribute groups.

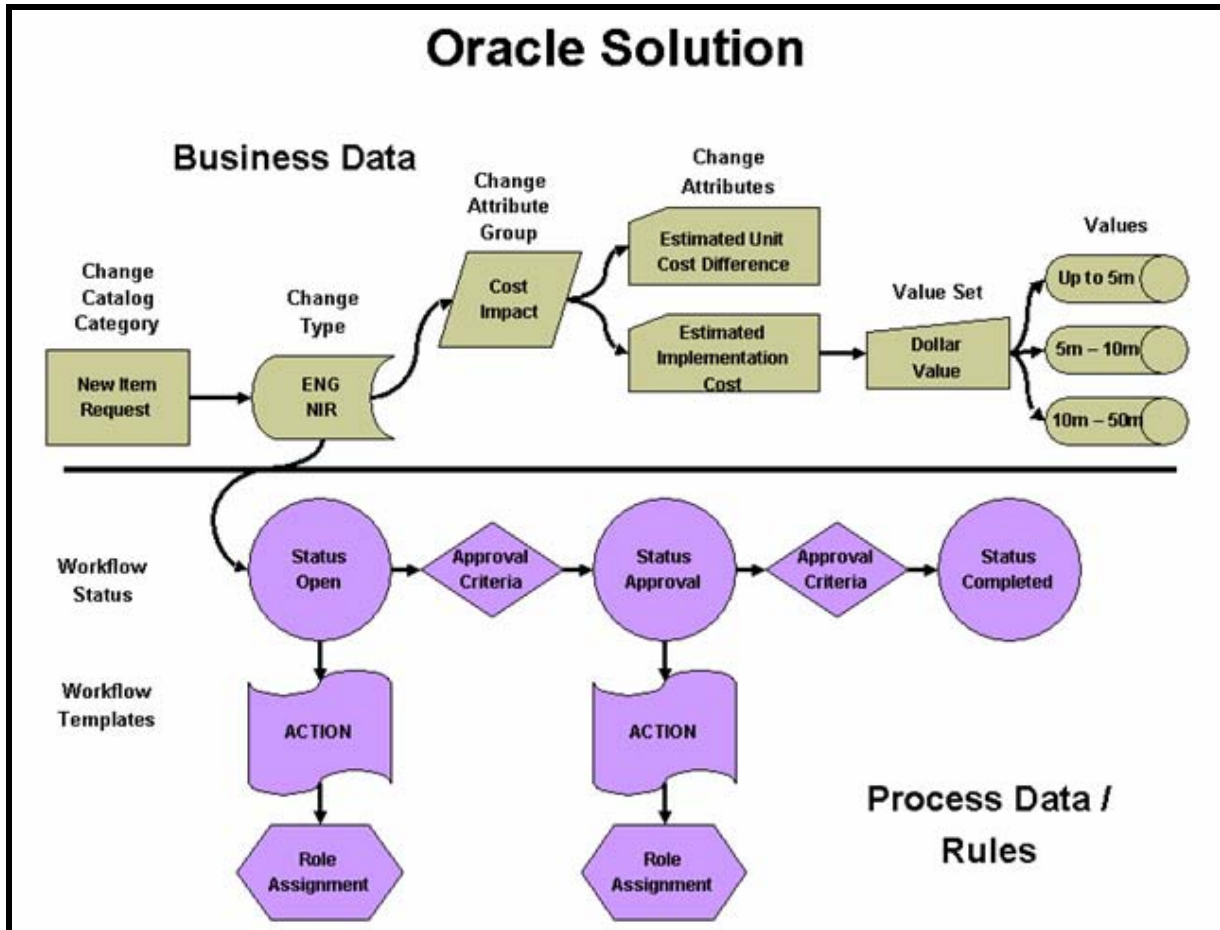
Select	Display Name	Description	Data Level	Classification	Pages	Update Actions
<input type="checkbox"/>	Supplier Information	Supplier Information	Item	RGP_Supplier_Information	Supplier Information	

7. Create Item Pages

Item Pages are used to display Attribute Group information. The APC allows attribute groups to be hidden from end users of the ICC. For example, operational attributes related to Assets are not necessary for a given ICC. Oracle does not allow these standard operational attributes to be deleted from an ICC; however, they can be hidden from view and effectively rendered inactive.



Change Management



The schematic above illustrates the Change Type structure and associated workflow. As mentioned, the lifecycle phase has an Item Change Policy. PLM can be configured to enforce a Change Order Change Type whenever an item is ready to be promoted across lifecycle phases.

Steps to create Lifecycles and Change Policies:

1. Create the Lifecycle Stages

Status Type	Status	System Status	Description	From	To	Starting Status
Phase	Concept	General	Evaluate options, defin	01-JUN-2003		<input type="checkbox"/>
Phase	Design	General	Define specifications, s	01-JUN-2003		<input type="checkbox"/>
Phase	Pre-Production	General	Production trial runs, v	01-JUN-2003		<input type="checkbox"/>
Phase	Production	General	Begins immediately w	01-JUN-2003		<input type="checkbox"/>
Phase	Prototype	General	Build and test prototyp	01-JUN-2003		<input type="checkbox"/>
Phase	Retirement	General	End-of-Life decision an	01-JUN-2003		<input type="checkbox"/>

— Status Controls —

Action	Allow	Default
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

— Next Allowable Statuses —

None
 System Status
 Status
 All

Next Allowable Statuses

2. Create Lifecycle Details

Lifecycle Details

- Indicates required field
 - Name: Computer Component Lifecycle
 - Short Name: Computer Component Lifecycle
 - Description: Computer component item lifecycle
- Enable for Projects
- Enable for Items

Lifecycle Phases

Sequence Number	Phase	Short Name	Name	Description	Delete
1	Concept	Concept	Concept	Evaluate market, define requirements	
2	Design	Design	Design	Define specifications, structures, and processes	
3	Prototype	Prototype	Prototype	Build and test prototypes	
4	Pre-Production	Pre-Production	Pre-Production	Production trial runs, validation testing, release to manufacturing	
5	Production	Production	Production	Begins immediately with the production cutover, marking the last phase of the implementation, and the beginning of the system support cycle	

3. Assign Lifecycles to Item Catalog Categories

Lifecycles
Item Catalog Category: **Motherboards** Add

Select Lifecycle Associations and... Delete

Select Name	Description	Classification
<input checked="" type="radio"/> Computer Component Lifecycle	Computer component item lifecycle	Motherboards
<input type="radio"/> Computer Component Revision Lifecycle	Computer component item revision lifecycle	Motherboards

Add

Change Policy

▶ Show Key Notation

View: Policy for Attributes Go Update: Concept Go

Attribute	Concept	Design	Prototype	Pre-Production	Production	Retirement
Memo Policy for Associations	✓	✓	🔗	🔗	🔗	✗
Memo Policy for Attachments	✓	✓	🔗	🔗	🔗	✗
Memo Policy for Attributes	✓	✓	🔗	🔗	🔗	✗
Memo Policy for Promote and Demote	✓	✓	🔗	🔗	🔗	✗
Assembly Clearances	✓	✓	✓	✓	✗	✗
Benchmark Ratings	✓	✓	✓	✓	🔗	✗
Operating Conditions	✓	✓	🔗	🔗	✗	✗
Motherboard Specifications	✓	✓	🔗	🔗	🔗	✗

Change Policy

4. Create Item Change Policies

Update Change Policy for: Attributes
Item Catalog Category: **Motherboards** Lifecycle: **Computer Component Lifecycle**

Concept Design **Prototype** Pre-Production Production Retirement

Select an attribute and... Remove Previous 1-4 of 6 Next 2

Select All | Select None

Select Attribute Group	Change Policy
<input type="checkbox"/> Assembly Clearances	Allowed
<input type="checkbox"/> Benchmark Ratings	Allowed
<input type="checkbox"/> Operating Conditions	Change Order Required
<input type="checkbox"/> Motherboard Specification	Change Order Required
<input type="checkbox"/> Memory Configurations	Change Order Required
Add Another Row	
	Allowed
	Change Order Required
	Not Allowed

Concept Design **Prototype** Pre-Production Production Retirement

Cancel Apply

Steps to create Change Types:

1. Create Change Categories

Oracle provides five preseeded Change Categories – Ideas, Issues, Change Requests, New Item Requests, & Change Orders. User defined Change Categories are also possible.

The screenshot displays the Oracle Item Catalog Administration interface, specifically the Change Management section. The top navigation bar includes 'Items', 'Structures', 'Change Management', 'Security', and 'Functions'. Below this, a sub-navigation bar lists 'Categories', 'Statuses', 'Codes', 'Workflow', 'Task Templates', 'Header Attributes', and 'Line Attributes'. The main content area is titled 'Categories' and features a table of preseeded change categories. Below the table, there are tabs for 'Basic Information', 'Types', 'Line Types', and 'Reports'. The 'Basic Information' tab is active, showing a table of 'Change Order' header types.

Select	Name	Description	Created By	Start Date	End Date	Search Criteria
<input checked="" type="radio"/>	Change Order	Change Order	SYSADMIN SYSADMIN	27-Oct-2004	31-Dec-2012	
<input type="radio"/>	New Item Request	New Item Request	SYSADMIN SYSADMIN	27-Oct-2004	31-Dec-2012	
<input type="radio"/>	Change Request	Change Request	SYSADMIN SYSADMIN	27-Oct-2004		
<input type="radio"/>	Issue	Issue	SYSADMIN SYSADMIN	27-Oct-2004		
<input type="radio"/>	Idea	Idea	SYSADMIN SYSADMIN	27-Oct-2004		

Category: Change Order

Select Header Type: Duplicate Update Create

Select	Name	Description	Subject Type	Created By	Start Date
<input type="radio"/>	Document	Documentation Only Change	Item Revision	Jonathan Smith	
<input type="radio"/>	ECO	Engineering Change Order	Item Revision	Steve Williams	31-Jul-2003
<input type="radio"/>	MCO	Manufacturing Change Order	Item Revision	Steve Williams	31-Jul-2003
<input type="radio"/>	New Prod	New Product	Item Revision	Jonathan Smith	
<input type="radio"/>	Prod Chg	Product Change	Item Revision	Jonathan Smith	

2. Create Change Types

The screenshot shows the 'Basic Information' page for a Change Type in Oracle Item Catalog Administration. The breadcrumb trail is: Items > Structures > Change Management > Security. The left sidebar contains navigation links: Basic Information (selected), Attribute Groups, Pages, Codes, Configuration, Workflow, and Organization Policies. The main content area is titled 'Basic Information' and contains the following fields:

- Change Category:** Prod Chg
- Change Order:** (empty)
- Type:** Prod Chg
- Name:** Prod Chg
- Description:** Product Change
- Start Date:** (empty)
- End Date:** (empty)
- Auto Numbering:** Number Generation: User Entered
- Subject Selection Criteria:** Subject: Item Revision
- Item Selection Criteria:** A table with columns 'Attribute', 'Value', and 'Allowed'. It contains one row: 'No data exists'.
- Default Assigned To:** (empty)

3. Create Change Type Header Attributes

The screenshot shows the 'Attribute Groups' search results page in Oracle Item Catalog Administration. The breadcrumb trail is: Items > Structures > Change Management > Security. The page title is 'Search: Attribute Groups'. Below the title is a search section with a text field and a 'Go' button. The search results are displayed in a table with the following columns: Select, Display Name, Internal Name, Description, and Attribute Group Type. The table contains the following data:

Select	Display Name	Internal Name	Description	Attribute Group Type
<input type="checkbox"/>	Customer Priorities	cust_priorities		Change Management
<input type="checkbox"/>	Implementation Costs	Impl_Costs		Change Management
<input type="checkbox"/>	Industry Priorities	Industry_Priorities		Change Management
<input type="checkbox"/>	NIR Attributes	NIR_ATTRIBUTES	New Item Request Information	Change Management
<input type="checkbox"/>	RGP Piston Defect review	RGP_PISTON_DEFECT_REVIEW	RGP Piston Defect review	Change Management
<input type="checkbox"/>	RGP Piston Defects	RGP_Piston_Def	RGP Piston Defects	Change Management
<input type="checkbox"/>	Unit Costs	Unit_Costs		Change Management

4. Assign Header Attributes to Change Type

ORACLE Item Catalog Administration

Items Structures **Change Management** Security Functions

Categories | Statuses | Codes | Workflow | Task Templates | Header Attributes | Line Attributes

Change Management: Categories >

Change Category Change Order Type Prod Chg

Search

To find your Attribute Group, select a filter in the poplist and enter a word in the text field, then click "Go". To see a list of all the Attribute Groups, clear the search box and click "Go".

Search [Display Name] [] [Go]

Results

Select All | Select None

Select Display Name	Internal Name	Description	Attribute Group Type
<input type="checkbox"/> Customer Priorities	cust_priorities		Change Management
<input type="checkbox"/> Implementation Costs	Impl_Costs		Change Management
<input type="checkbox"/> Industry Priorities	Industry_Priorities		Change Management
<input type="checkbox"/> NIR Attributes	NIR_ATTRIBUTES	New Item Request Information	Change Management
<input type="checkbox"/> RGP Piston Defect review	RGP_PISTON_DEFECT_REVIEW	RGP Piston Defect review	Change Management
<input type="checkbox"/> RGP Piston Defects	RGP_Piston_Def	RGP Piston Defects	Change Management
<input type="checkbox"/> Unit Costs	Unit_Costs		Change Management

5. Create Change Type Display Page

ORACLE Item Catalog Administration

Items Structures **Change Management** Security Functions

Categories | Statuses | Codes | Workflow | Task Templates | Header Attributes | Line Attributes

Change Management: Categories >

Create Page

Change Category Change Order Type Prod Chg

Basic Information

* Indicates required field

Basic Information

* Display Name [Prod Chg Page] * Internal Name [PROD_CHG_PAGE]
 Description [Default Product Change Display Page] * Sequence [10]
 * Data Level [Change] [Go]

Attribute Groups

Select Object: [Delete]

Select All | Select None

Select	*Sequence	*Display Name	Description
<input type="checkbox"/>	[10]	[NIR Attributes]	
<input type="checkbox"/>	[20]	[Customer Priorities]	

[Add Another Row]

ORACLE Item Catalog Administration

Items Structures **Change Management** Security Functions

Categories | Statuses | Codes | Workflow | Task Templates | Header Attributes | Line Attributes

Basic Information
Attribute Groups
Pages
Codes
Configuration
Workflow
Organization Policies

Pages

Change Category Change Order Type Prod Chg

Select Object:

Select All | Select None

Select Sequence	Display Name	Internal Name	Description
<input type="checkbox"/> 10	Prod Chg Page	PROD_CHG_PAGE	Default Product Change Display Page

Items | Structures | Change Management | Security | Functions | Catalogs | Value Sets | Close Window | Preferences | Help | Diagnostics

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About this Page

6. Create Change Type Reason Codes

ORACLE Item Catalog Administration

Items Structures **Change Management** Security

Categories | Statuses | Codes | Workflow | Task Templates | Header Attributes | Line Attributes

Basic Information
Attribute Groups
Pages
Codes
Configuration
Workflow
Organization Policies

Codes

Change Category Change Order Type Prod Chg

Classification Codes

Derived
 Valid Classification Codes

Classification Codes Available

- Class A
- Class B
- Class C
- Class D

Classification Codes Selected

Priorities

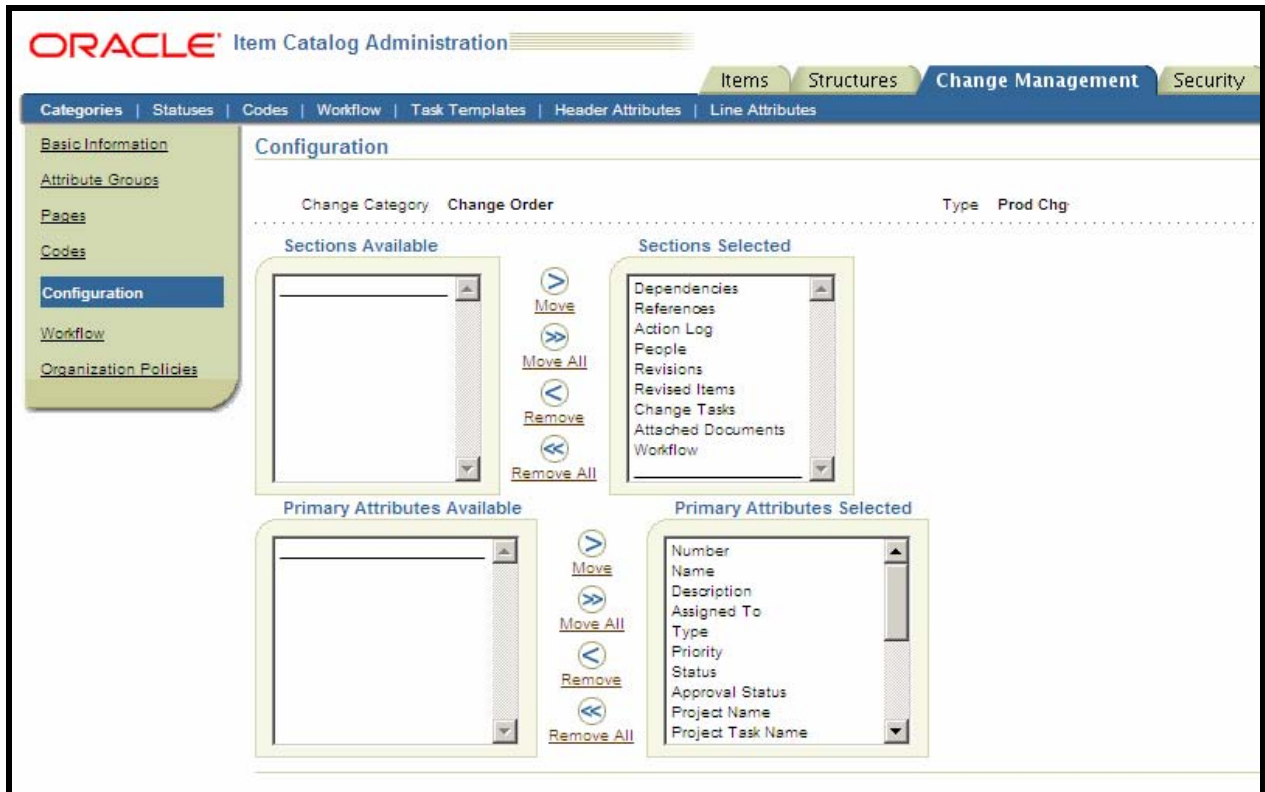
Priorities Available

Priorities Selected

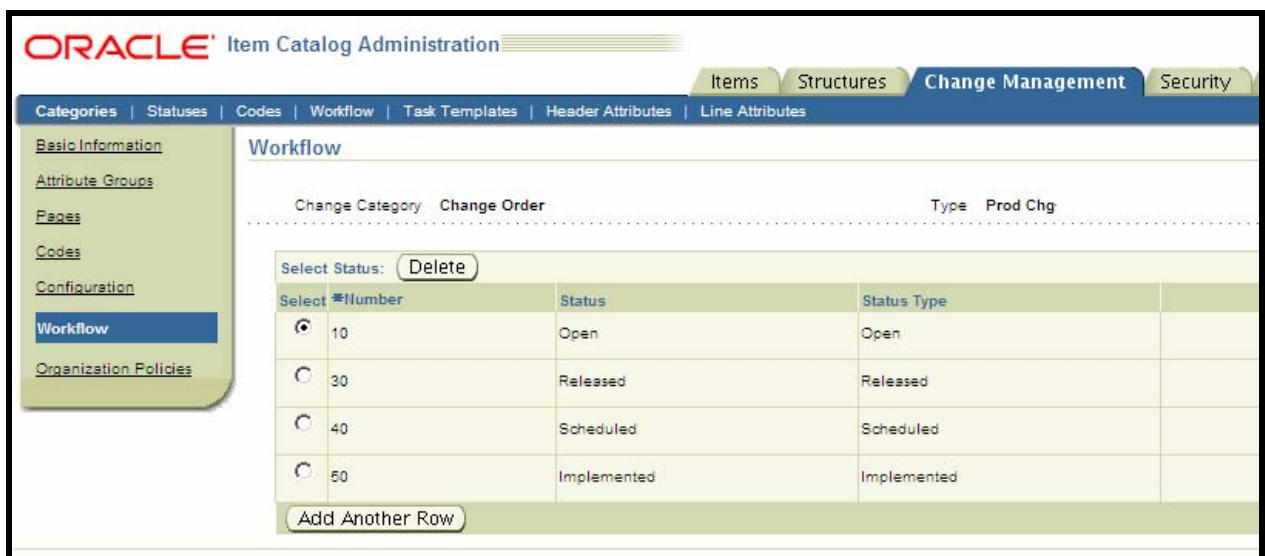
- High
- Low
- Medium
- Standard
- Urgent
- Urgent(!)

7. Create Display Page Configuration

The display page configuration determines what additional information, along with the Change Type attributes, is displayed.



8. Create the Change Type Workflow



Summary

In July, 2007, Oracle announced the acquisition of the Agile Product Lifecycle Management applications. This enterprise scale PLM solution is considered best in breed and is Oracle's stated direction for the future. Oracle has future determined that it will provide ongoing support for the Oracle 11i/R12 PLM application.

Which way to go?

Organizations must decide which way to proceed. A solid case can be made for using the Oracle 11i/R12 PLM solution:

- **The data model is technology neutral** - The greatest amount of work which takes the most time is creating a rational data model. Classification of products, attribution, & data validation are tasks required for any PLM solution to be viable.
- **Leverage existing investment** – a PLM solution can be had with existing licensing fees.
- **Determine the scale of your needs** – Agile provides a world class PLM solution with multiple integration points to a wide variety of CAD, CAM, document management, & ERP solutions. Oracle 11i/R12 PLM can provide the starting point for growth.
- **Product Integration and Maturity** – Oracle 11i/R12 has been available since release 11.5.9. It is tightly integrated with existing applications, has a robust security model, and provides core workflow functionality not previously available.

Additional Information

Oracle PLM White Papers

- [Product Lifecycle Management in the Food & Beverage Industry](#), Feb 2008
- [Product Lifecycle Management in the Medical Device Industry](#), Jan 2008
- [Product Lifecycle Management in the Pharmaceutical Industry](#), Feb 2008

Agile Product Information

- [Agile Product Lifecycle Management \(PLM\) Overview](#), 22 Feb 2008, NCOAUG presentation
- <http://www.oracle.com/agile/index.html>
- <http://www.oracle.com/technology/documentation/agile.html>