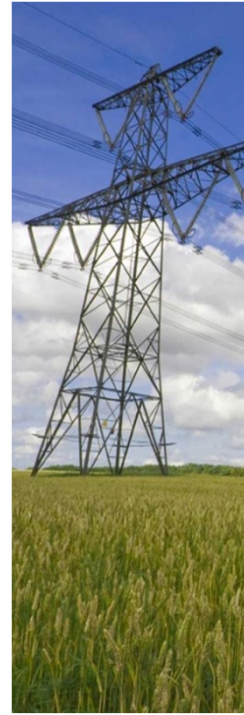




POSC Caesar Association Australasian Conference (Perth)



SAP & ISO15926 – What Does it Mean?

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October 12th, 2011

SAP & ISO15926

- What does NRX know about SAP?
- What am I going to show you?
- Showing you SAP & ISO15926...
- What exactly did I show you?



What do we know about SAP?

Certification Type

Tens - Invitation Only

Endorsed Business Solution | SAP Certified - Powered by SAP NetWeaver

NRX Asset Hub for SAP is the sole SAP EBS for moving data from capital projects into SAP Plant Maintenance

SAP Endorsed Business Solutions

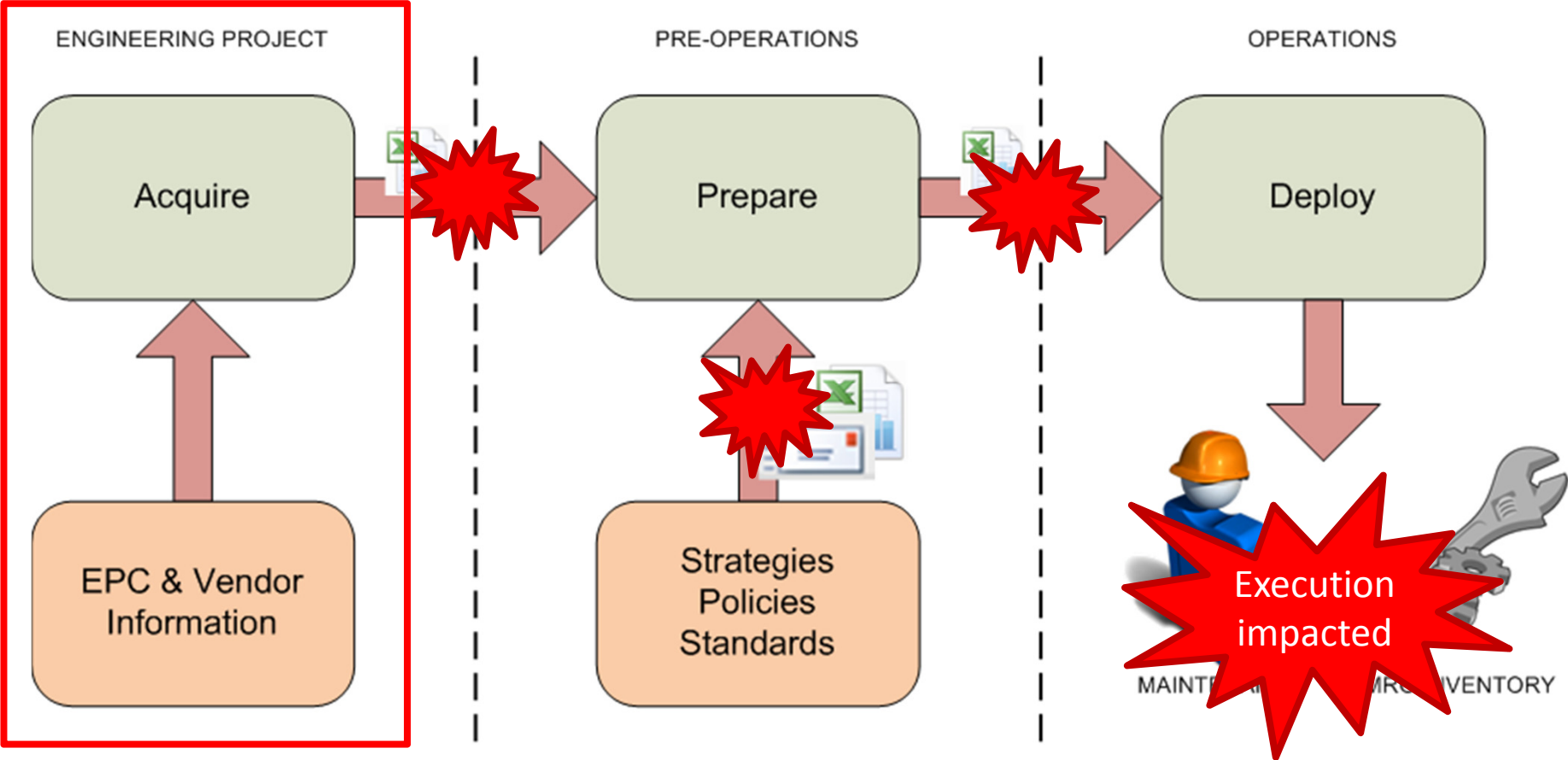


The screenshot shows the SAP EcoHub website interface. At the top, it says 'SAP EcoHub Software and Services by SAP and Partners'. Below the navigation bar, there's a search bar and a shopping cart icon. The main content area displays search results for 'NRX'. On the left, there's a 'REFINE SEARCH' sidebar with filters for 'Solution' (Software (2)), 'Industry' (Aerospace & Defense (2), Automotive (2), Chemicals (2), Consumer Products (2), Engineering (2)), and 'Solution Area' (Business Intelligence (2)). The main results list two items: 'Maintenance Mentor' and 'NRX Asset Hub for SAP'. The 'Maintenance Mentor' result includes a description: 'NRX Maintenance Mentor is a SAP Portal application for simplifying enterprise asset and materials management business processes and enabling Operational Effectiveness. Maintenance Mentor is a SAP Endorsed Business Solution. Maintenance Mentor was previously known as VIP.' It also shows 'Software by NRX Global' and a date of '04 Oct 2010'. The 'NRX Asset Hub for SAP' result includes a description: 'The NRX Asset Hub is used by asset intensive companies to define, collect, transform, enrich, validate, deploy and sustain critical asset data and documents for individual projects and sites, and across the enterprise. The NRX Asset Hub helps to ensure data integrity for Brownfield data remedia ...'. It also shows 'Software by NRX Global' and a date of '03 Sep 2008'. Red arrows point from the 'Maintenance Mentor' logo on the left to the 'Maintenance Mentor' search result, and from the 'NRX Asset Hub for SAP' search result to the ISO 15926 logo on the right.



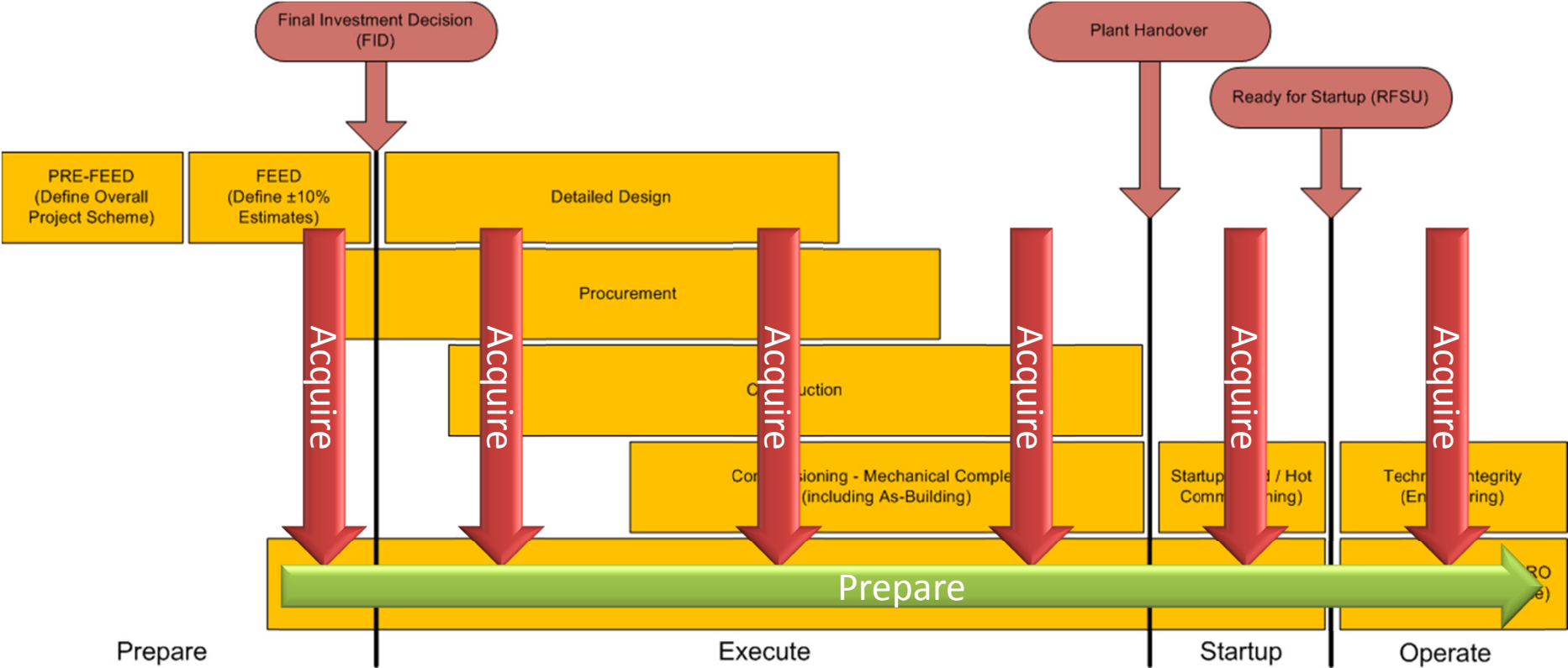
The Journey from Concept to Operations

As-Is Workflow

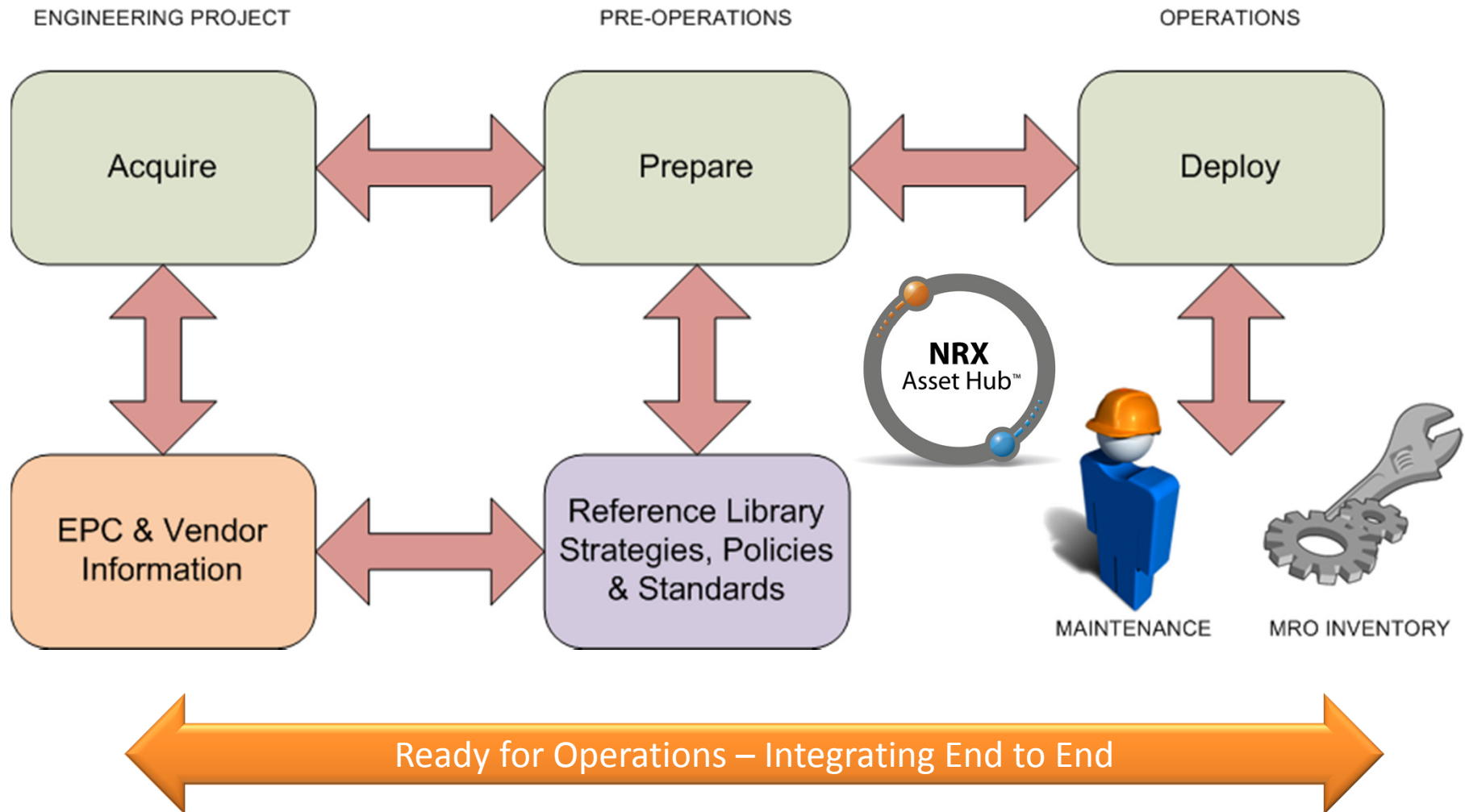


Disconnected Islands of Automation

Overlaid with Project Phases



A Better Way - Streamlined Workflow



What am I going to show you?



What is relevant?
NRX
Asset Hub™
How is it implemented?



Units



- CENTRIFUGAL PUMP
 - CLASS_OF_ASSEMBLY_OF_INDIVIDUAL
 - CLASS_OF_WHOLE
 - CLASS_OF_PART
 - FLOOD LUBRICATOR
 - OIL MIST LUBRICATOR
 - OIL PRESSURE LUBRICATOR
 - PUMP CASING
 - PUMP IMPELLER
 - CLASS_OF_IDENTIFICATION
 - CLASS_OF_INDIRECT_PROPERTY
 - PROPERTY_SPACE
 - NET POSITIVE SUCTION HEAD AVAILABLE
 - UPPER LIMIT HEAD WITH RATED IMPELLER DIAMETER
 - UPPER LIMIT NUMBER OF IMPELLERS
 - UPPER LIMIT POWER CONSUMPTION WITH RATED IMPELLER
 - CLASS_OF_POSSESSOR
- CLASSIFICATION
- SPECIALIZATION
 - SUPERCLASS
 - DYNAMIC PUMP
 - SUBCLASS

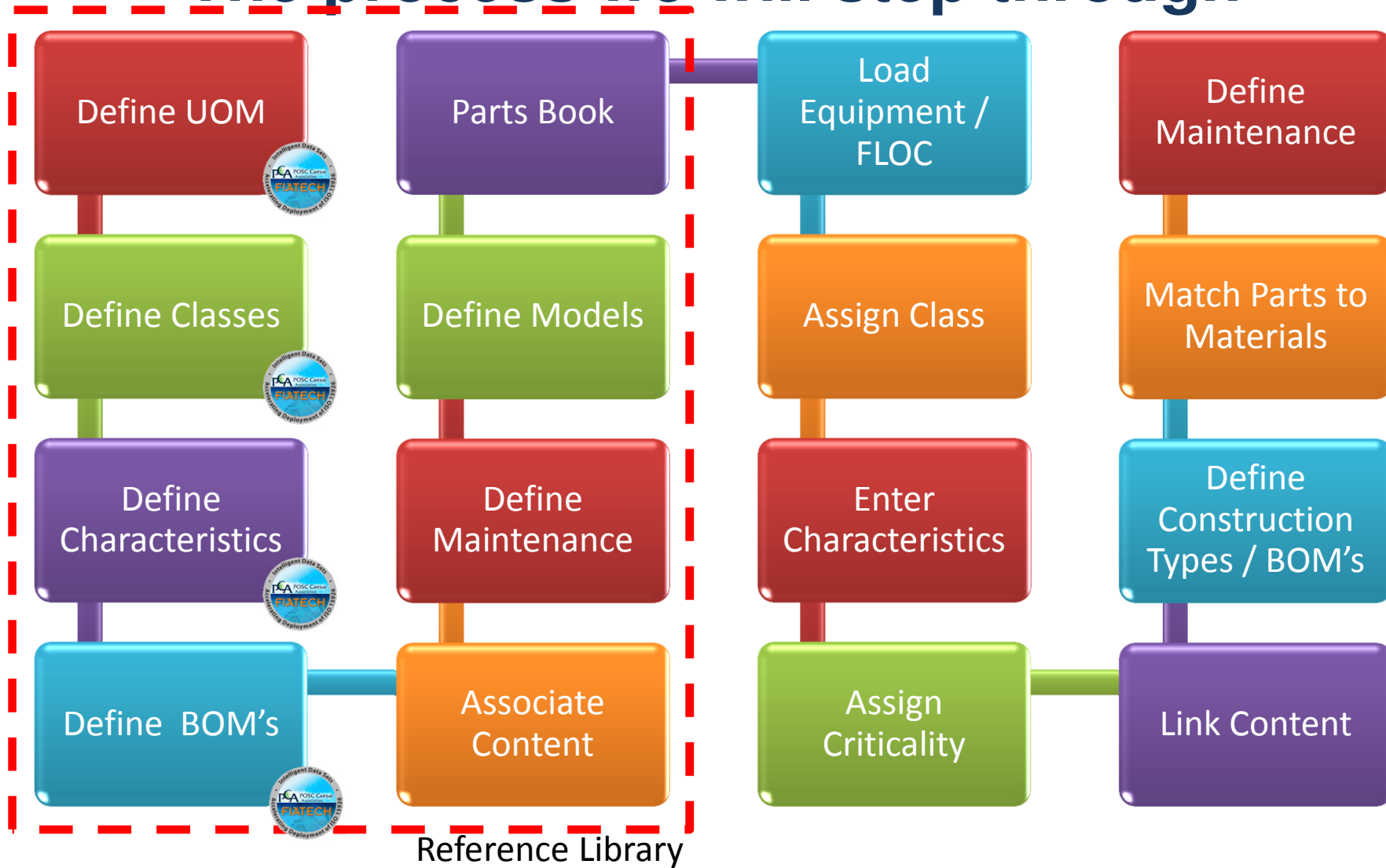
Characteristics
for EQ & FLOCs

Assemblies

Materials



The process we will step through

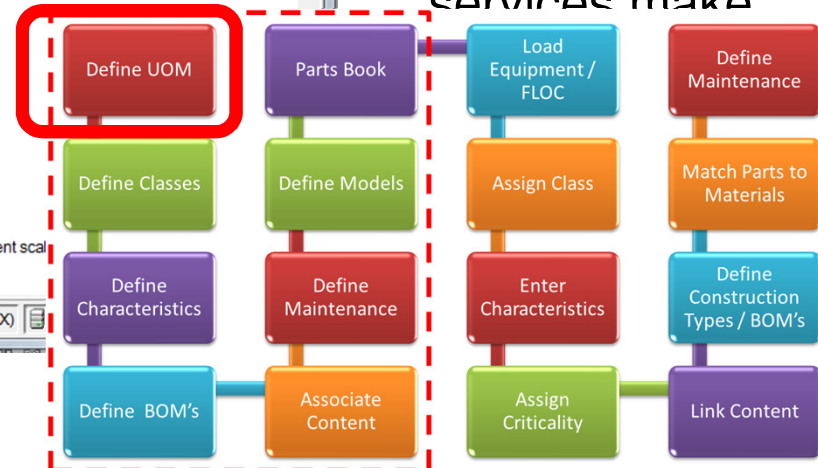


UOM

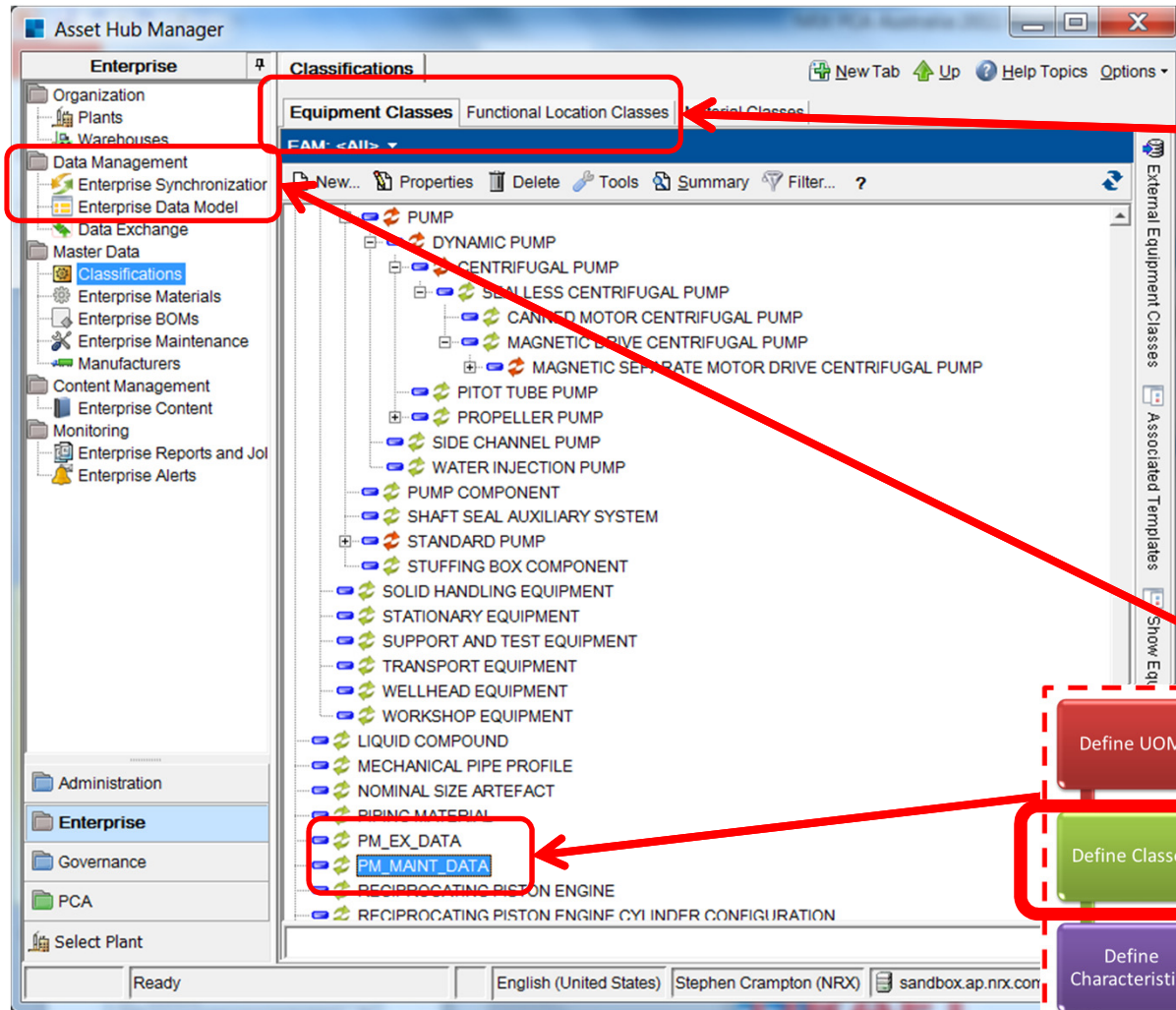
The screenshot shows the 'Asset Hub Manager' interface. The 'Enterprise Data Model' window is open, displaying a list of 'Units of Measure' categories. The 'area scale' is selected. A dialog box titled 'Unit Of Measure Category Properties' is overlaid, showing the 'area scale' selected in the 'Unit Of Measure category' field. Below this, a table lists various units of measure for this category, such as 'acre [acre]', 'square centimetre [cm2]', and 'square metre [m2]'. The 'Enterprise' folder in the left-hand navigation tree is highlighted with a red box. A red arrow points from the 'Enterprise' folder to the 'Unit Of Measure Category Properties' dialog box.

Name	Default
acre [acre]	False
are [are]	False
barn [b]	False
hectare [ha]	False
hundred square foot [ft2(100)]	False
millidarcy [mD]	False
square centimetre [cm2]	False
square decimetre [dm2]	False
square foot [ft2]	False
square inch [in2]	False
square kilometre [km2]	False
square metre [m2]	False

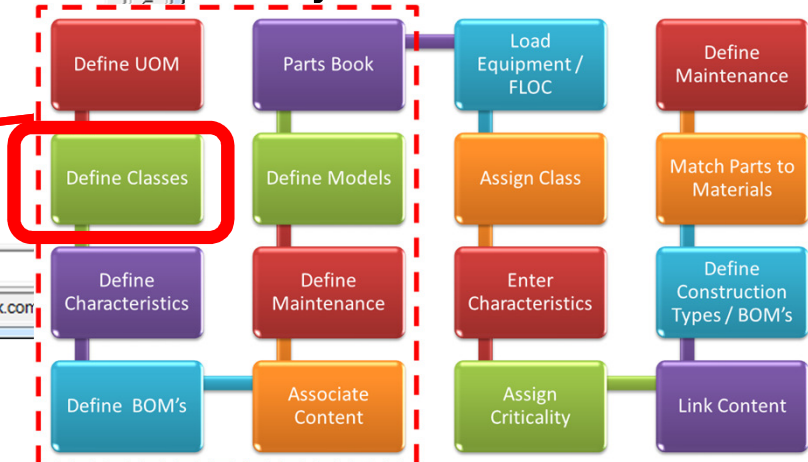
- Defined for the Enterprise
- UOM is taken from ISO15926 Part 4 (uom.xls)
- SAP is the master for UOM and synchronized with Asset Hub.
- Asset Hub web services make



Classifications



- Taken from the RDL
- Many SAP PM systems model equipment as Functional Locations for operational reasons so Classifications need to apply to both EQ & FLOC
- Synchronized from



Classifications : RDL Integration

RDL URI

RDS/WIP: Home Page • Project Page • IDS-ADI Project • POSC Caesar • FIATECH

Search

RDS/WIP: CENTRIFUGAL PUMP

General

RDS/WIP URI http://rdl.rdfacade.org/data#R84144178538

Label CENTRIFUGAL PUMP

Description A dynamic pump utilizing impellers provided with vanes generating centrifugal force to achieve the required pressure head.

Entity Type http://dm.rdfacade.org/data#ClassOfInanimatePhysicalObject

PCA Attributes

Identifier RDS416834

Designation CENTRIFUGAL PUMP

Creation Date 1999.07.01

Creator u20683

Status Recorded

Close

Back Forward Print

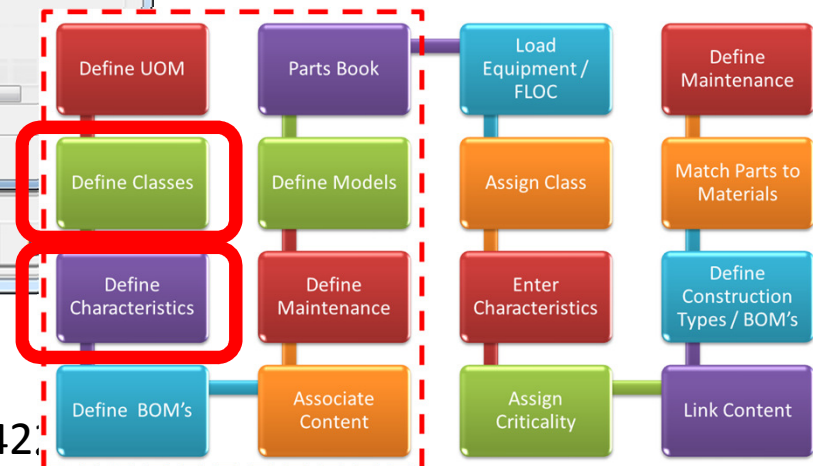
Description: A dynamic pump utilizing impellers provided with vanes generating centrifugal force to achieve the required pressure head.

OK Cancel

Equipment/FLOC Class information from RDL Façade

Characteristics from RDL and inherited from SuperClass

RDL searched from within Asset Hub



Can also be used to map to ISO142

Assemblies / BOM's

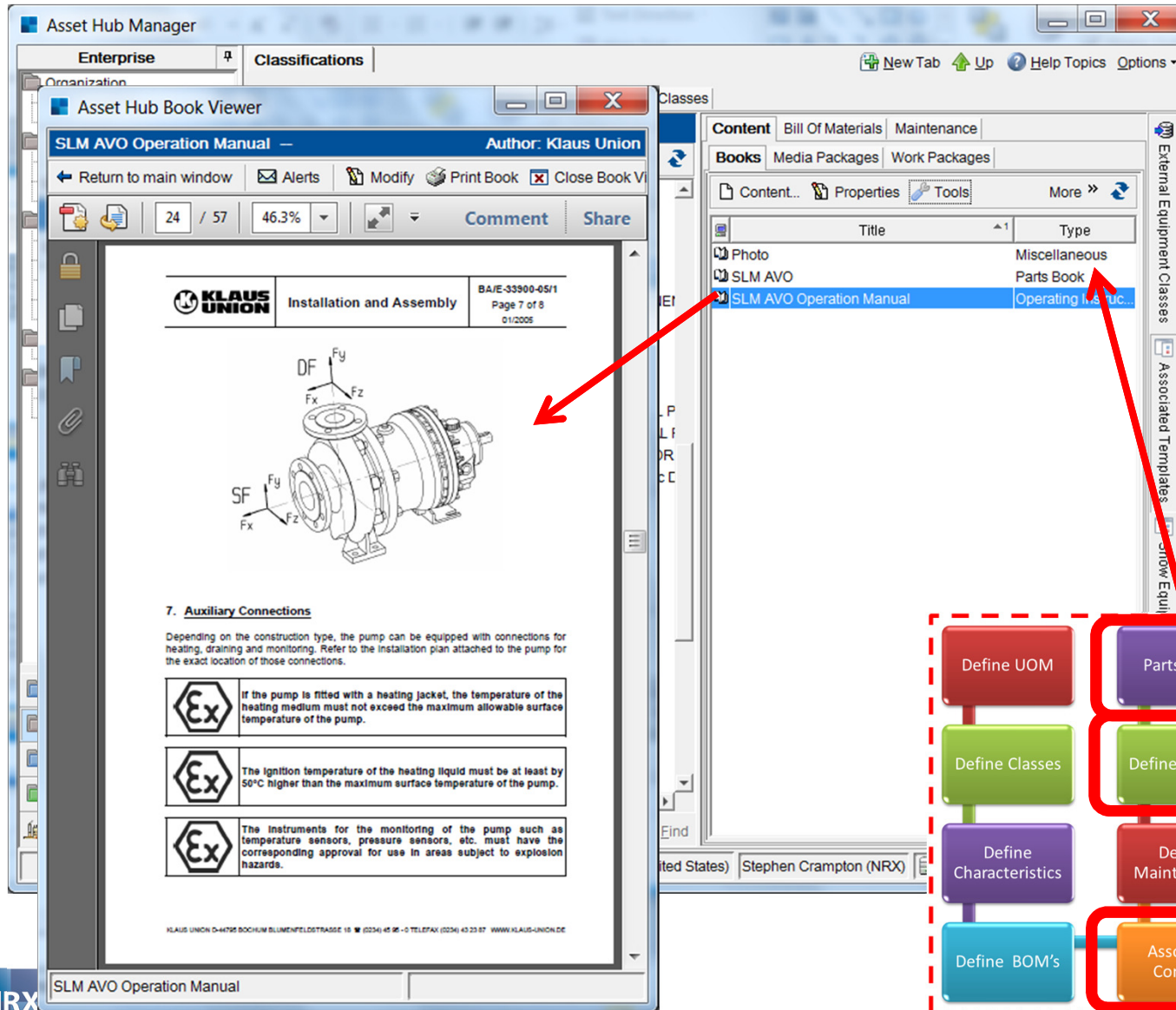
The screenshot shows the Asset Hub Manager interface. On the left is a navigation tree with categories like Enterprise, Administration, and Governance. The main area displays a classification tree for 'EAM: AP-SANDBOX' under 'Equipment Classes'. The right pane shows a 'Bill Of Materials' list with items like 'BOM-000117 - PUMP IMPELLER'. A red box highlights a section of the classification tree, and a red arrow points from the BOM list to it. Below the screenshot is a flowchart of configuration tasks.

```

    graph TD
      subgraph Tasks
        D1[Define UOM] --- D2[Define Classes]
        D2 --- D3[Define Characteristics]
        D3 --- D4[Define BOM's]
        P1[Parts Book] --- P2[Define Models]
        P2 --- P3[Define Maintenance]
        P3 --- P4[Associate Content]
        L1[Load Equipment / FLOC] --- L2[Assign Class]
        L2 --- L3[Enter Characteristics]
        L3 --- L4[Assign Criticality]
        M1[Define Maintenance] --- M2[Match Parts to Materials]
        M2 --- M3[Define Construction Types / BOM's]
        M3 --- M4[Link Content]
      end
  
```

- RDL Defines Assemblies and Class of Parts
- Assemblies represented as BOM's in SAP / Asset Hub
- Does not define specific Materials /

Defining Models of Equipment



- Within any Class we can define specific Models of Equipment.
- We can see where every Class/Model of that Equipment is installed across our Enterprise
- We can associate Content, BOM's, and Maintenance

Parts Book

Asset Hub Book Viewer

SLM AVO - Author: Klaus Union

Return to main window Alerts Modify Print Book Hide Parts List Hide Drawing Close Book Viewer

ITEM	QTY	CAT ID	PART NO.	DESCRIPTION
101	1		P01138212	PUMP CASING
108	1		P00031664	MULTI-STEP CASING
109.1	1		P00041372	STAGE SHELL
114	6		P00031684	SIDE CHANNEL CASING
231	1		P00050991	IMPELLER SUCTION SIDE
146.1	1		P00097459	INTERMEDIATE LANTERN
146.2	1		P00070484	INTERMEDIATE FLANGE
161	1		P00069973	CASING COVER
161.1	1		P00091551	CASING COVER
210	1		P00086109	SHAFT
235	6		P00963246	IMPELLER WHEEL
314	2		P00069853	THRUST BEARING
411.8	1		P00203398	DRAIN PLUG GASKET
400.1	1		P00990121	GASKET
400.2	1		P00063272	GASKET
400.3	1		P00989527	GASKET
411.6	1		P00203398	DRAIN PLUG GASKET
411.7	1		P00203398	DRAIN PLUG GASKET
504.2	2		P00989527	GASKET
109	5		P00031669	STAGE SHELL
511.2	1		P00077802	RUB RING
525	1		P00069993	DISTANCE SLEEVE
529.1	1		P00069858	BEARING SLEEVE
529.4	1		P0045082	BEARING SLEEVE
545	1		P00099836	BEARING BUSH

Hot-Spotted Graphics that can be deployed in the SAP GUI for more accurate Material Selection in Work Orders

Allows all Vendor Parts (& SAP Materials if matched) to be linked to Equipment without an SAP BOM

CAT ID / SKU is the SAP Material Master ID

Vendor Part Number & Description (Complex Assemblies Common)

Define UOM

Parts Book

Load Equipment / FLOC

Define Maintenance

Define Classes

Define Models

Assign Class

Match Parts to Materials

Define Characteristics

Define Maintenance

Enter Characteristics

Define Construction Types / BOM's

Define BOM's

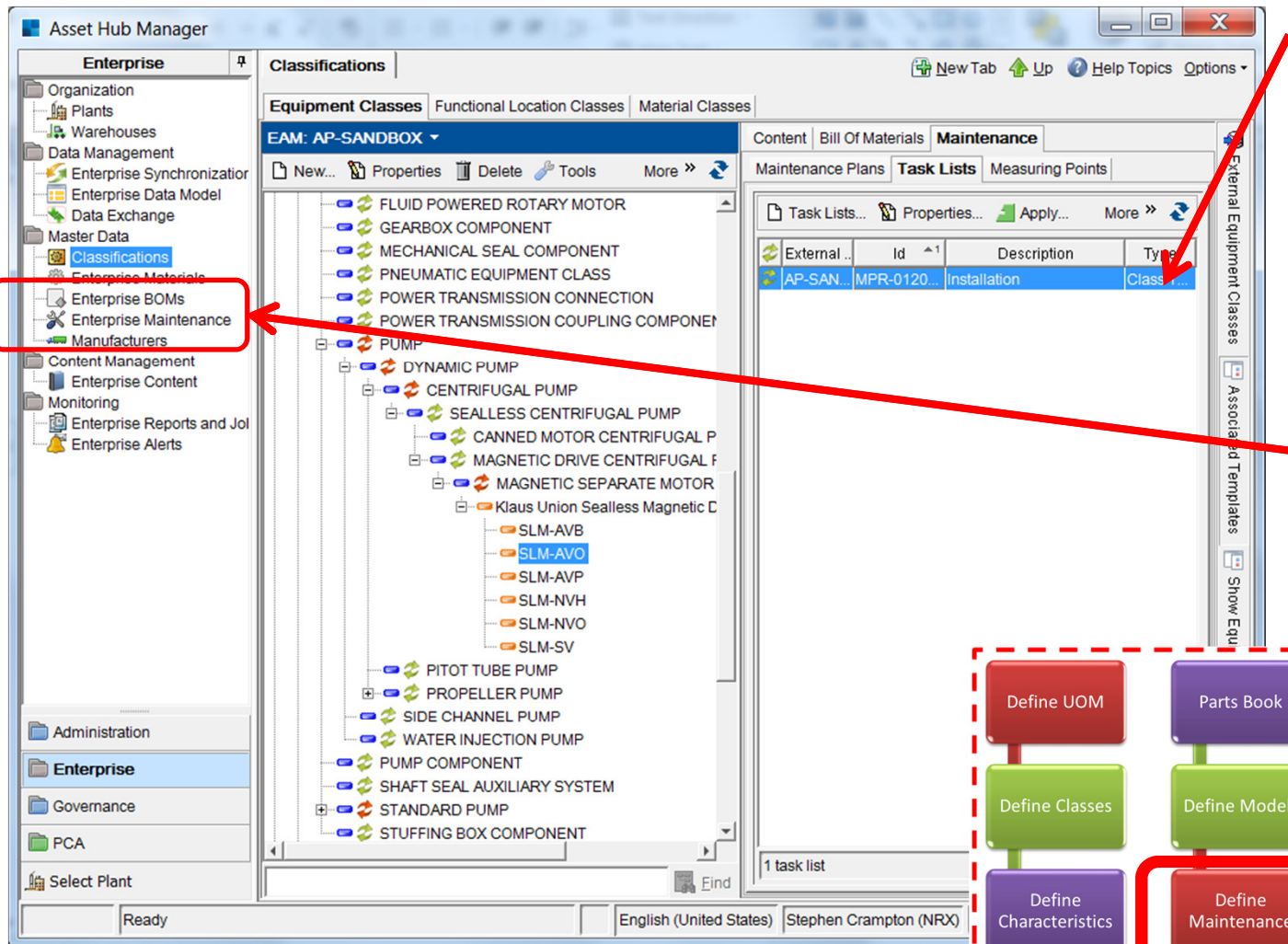
Associate Content

Assign Criticality

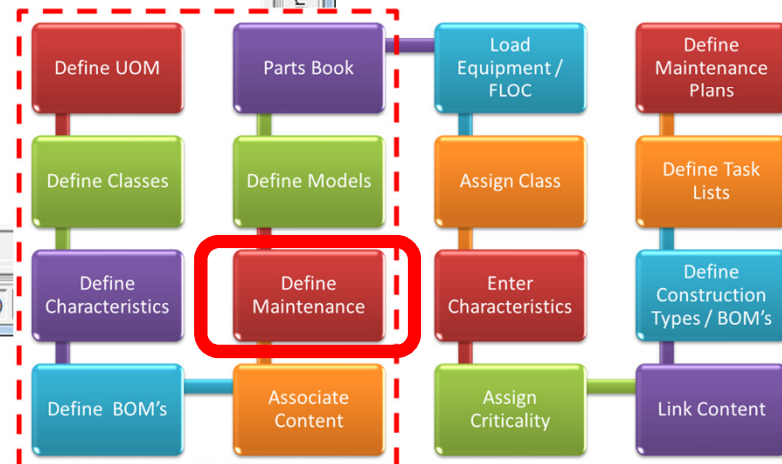
Link Content

NRX

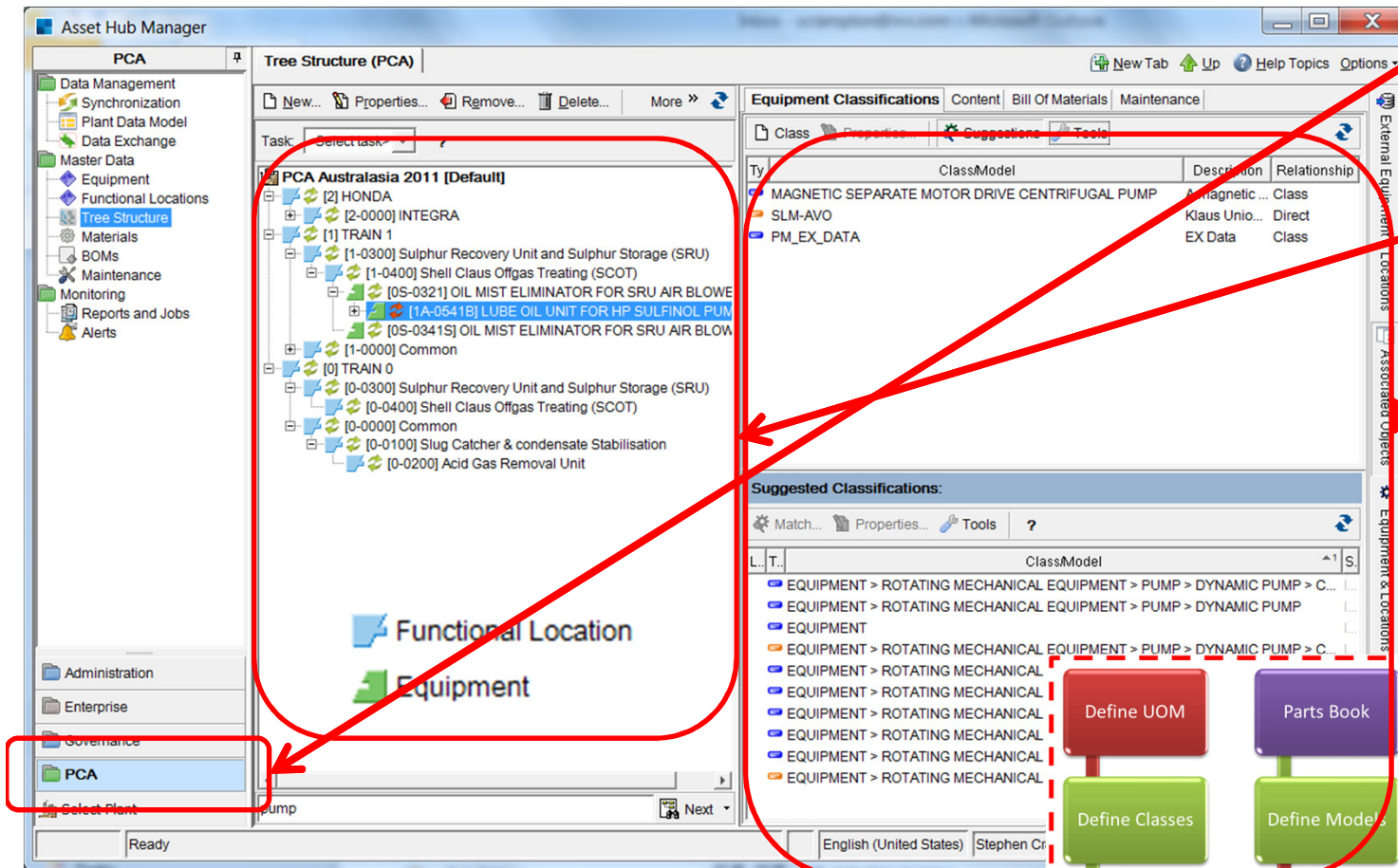
Maintenance



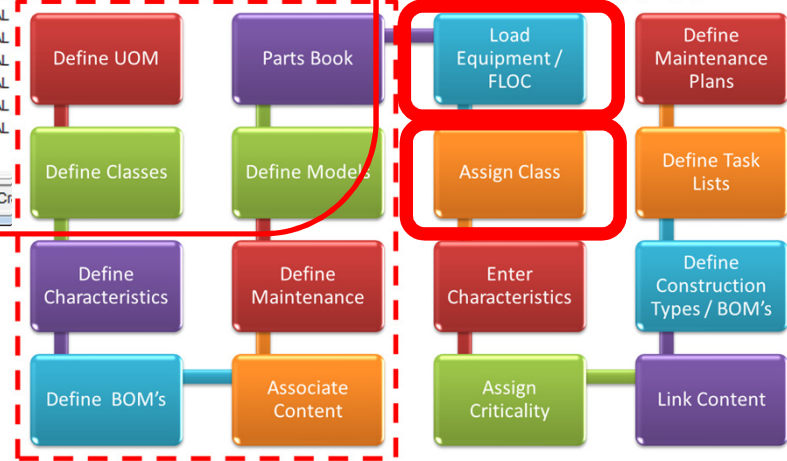
For each Class / Model can define Task Lists, Maintenance Plans, Measuring Points
Maintenance Strategies can also be defined.



Equipment / FLOC's & Classification



Plants created to model Physical Equipment Hierarchy of Functional Locations and Equipment for each Plant established. Class (or Classes) assigned to FLOC's



Enter Characteristics & Criticality

Equipment -- LUBE OIL UNIT FOR HP SULFINOL PUMP [1A-0541B] (Synchronized with AP-SANDBOX)

General | Classification | **Attributes** | Contacts | Status | Work Tasks | History | Images | Audit Trail

EAM Custom

Acquisition value: <not set>

Asset sub number: <not set>

Authorization Group: <not set>

Business area: <not set>

Catalog profile: <not set>

Change Number: <not set>

Country of manufacture: <not set>

Currency: <not set>

Date valid: <not set>

*Equipment category: Equipment Category [E]

Gross weight: <not set>

Individual status of an object: <not set>

Inspection Point: <not set>

Inventory Number: <not set>

Main asset no: <not set>

Maintenance Plant: PCA

Asset Location: <not set>

Room: <not set>

Work Center: <not set>

Select value for "ABC indicator for technical object"

Value	Name
<not set>	<not set>
1	Dept. Shutdown
2	Potential Prod Loss
3	Has Installed Spare
4	No Effect
5	Envir risk
A	Prod. loss involved
B	Reduced prod. loss
C	No effect on prod.

General

Value:

Name:

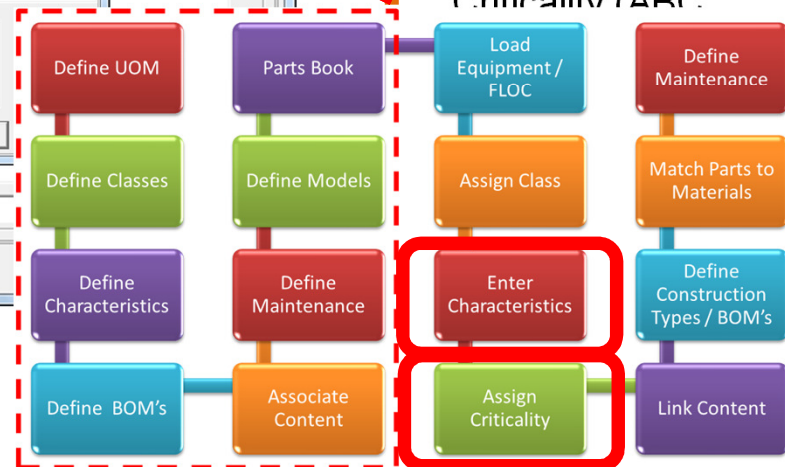
OK

Each piece of Equipment or Functional Location has the characteristics for its class available to be defined.

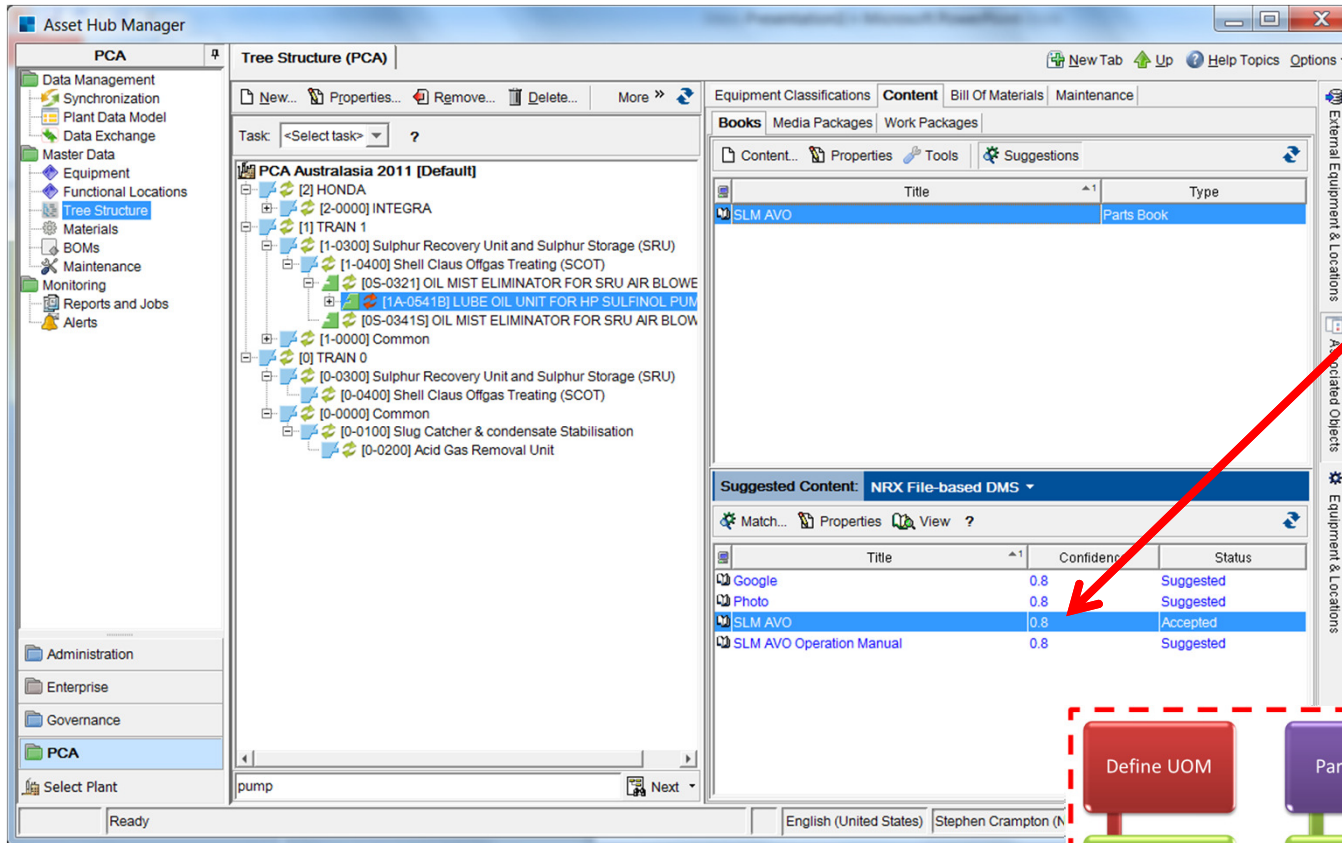
- Characteristics can be mandatory and have validation rules applied

SAP data dictionary is synchronized, so SAP EAM attributes are also available to be set

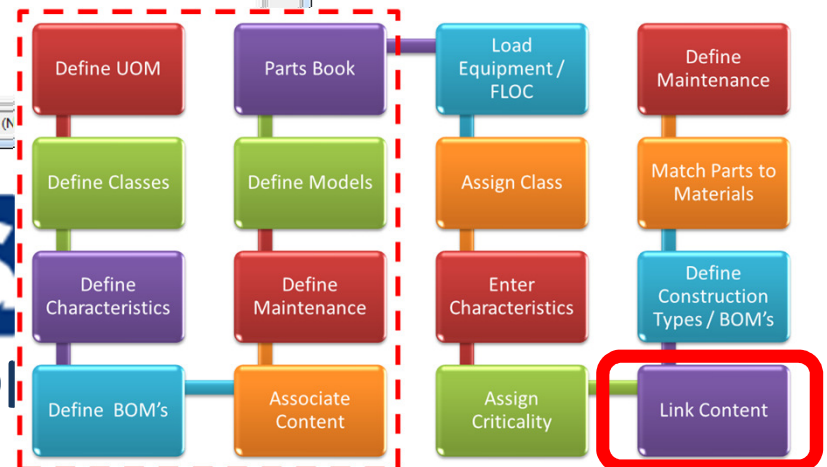
Criticality (ABC



Linking Content to Equipment/FLOC



- Connectors to Enterprise Content Management (ECM) systems
- Content ranked and suggested against SAP objects.
- ECM can be updated with changes from SAP



Construction Types & BOM's

Asset Hub Manager

PCA

Tree Structure (PCA)

PCA Australasia 2011 [Default]

- [2] HONDA
- [1] TRAIN 1
 - [1-0300] Sulphur Recovery Unit and Sulphur Storage (SRU)
 - [1-0400] Shell Claus Offgas Treating (SCOT)
 - [0S-0321] OIL MIST ELIMINATOR FOR SRU AIR BLOWE
 - [1A-0641B] LUBE OIL UNIT FOR HP SULFINOL PUM
 - [0S-0341S] OIL MIST ELIMINATOR FOR SRU AIR BLOW
 - [1-0000] Common
- [0] TRAIN 0
 - [0-0300] Sulphur Recovery Unit and Sulphur Storage (SRU)
 - [0-0400] Shell Claus Offgas Treating (SCOT)
 - [0-0000] Common
 - [0-0100] Slug Catcher & condensate Stabilisation
 - [0-0200] Acid Gas Removal Unit

Classifications Content Bill Of Materials Maintenance

BOM... Material... Tools Suggestions ?

Item Description Qty Category

Bills of Materials

BOM-000119 - SLM-A¹ (Material BOM)

1 bills of materials

BOM Suggestions BOM SKU Matches

Suggested Bill Of Materials:

Id	Description	Class	Status
BOM-000109	INNER MAGNET RING	MAGNETIC DRIVE...	Suggested
BOM-000011	Klaus Union Generic Parts & Tools	Klaus Union Seall...	Suggested
BOM-000111	THROTTLING BUSHING SHAF...	DYNAMIC PUMP	Suggested
BOM-000112	WEAR RING	DYNAMIC PUMP	Suggested
BOM-000110	IMPELLER	DYNAMIC PUMP	Suggested
BOM-000117	PUMP IMPELLER	CENTRIFUGAL P...	Suggested
BOM-000115	OIL PRESSURE LUBRICATOR	CENTRIFUGAL P...	Suggested
BOM-000116	PUMP CASING	CENTRIFUGAL P...	Suggested
BOM-000113	FLOOD LUBRICATOR	CENTRIFUGAL P...	Suggested
BOM-000114	OIL MIST LUBRICATOR	CENTRIFUGAL P...	Suggested

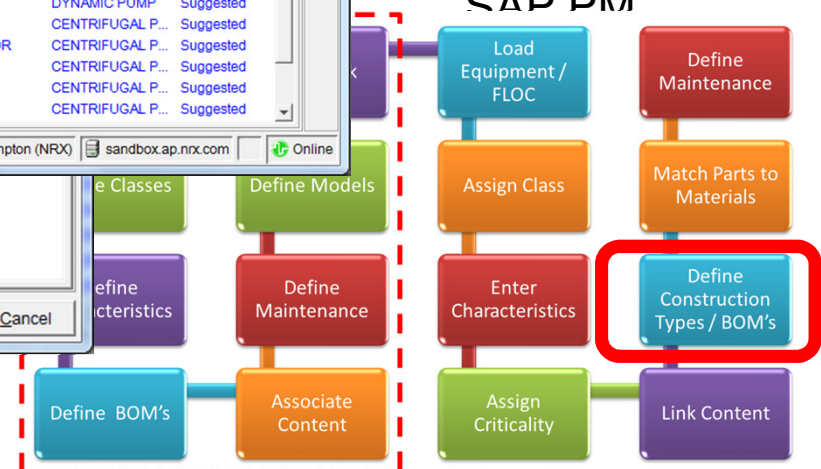
Match... Properties Tools... ?

OK Cancel

For a given piece of equipment all parts of an assembly relevant to that equipment are suggested

The suggestions can be directly accepted

Alternatively, SAP PM



Adding Materials to the BOM

Asset Hub Manager

PCA

Tree Structure (PCA)

PCA Australasia 2011 [Default]

[2] HONDA

[2-0000] INTEGRA

[1] TRAIN 1

[1-0300] Sulphur Recovery Unit and Sulphur Storage (SRU)

[1-0400] Shell Claus Offgas Treating (SCOT)

[0S-0321] OIL MIST ELIMINATOR FOR SRU AIR BLOWE

[1A-0641B] LUBE OIL UNIT FOR HP SULFINOL PUM

[0S-0341S] OIL MIST ELIMINATOR FOR SRU AIR BLOW

[1-0000] Common

[0] TRAIN 0

[0-0300] Sulphur Recovery Unit and Sulphur Storage (SRU)

[0-0400] Shell Claus Offgas Treating (SCOT)

[0-0000] Common

[0-0100] Slug Catcher & condensate Stabilisation

[0-0200] Acid Gas Removal Unit

Classifications Content **Bill Of Materials** Maintenance

BOM... Material... Tools Suggestions ?

Item	Description	Qty	Category
BOM-000119 - SLM-A' (Material BOM)		1	<Not set>
MAT-000010	PMP CASING		

1 bills of materials

BOM Suggestions BOM SKU Matches

Suggested Bill Of Materials:

Id	Description	Class	Status
BOM-000108	INNER MAGNET RING	MAGNETIC DRIVE...	Suggested
BOM-000111	Klaus Union Generic Parts & Tools	Klaus Union Seall...	Suggested
BOM-000111	THE BITTLING BUSHING SHAF...	DYNAMIC PUMP	Suggested
BOM-000112	WEAR RING	DYNAMIC PUMP	Suggested
BOM-000110	IMPELLER	DYNAMIC PUMP	Suggested
BOM-000117	PUMP IMPELLER	CENTRIFUGAL P...	Suggested
BOM-000115	OIL PRESSURE LUBRICATOR	CENTRIFUGAL P...	Suggested
BOM-000116	PUMP CASING	CENTRIFUGAL P...	Suggested
BOM-000113	FLOOD LUBRICATOR	CENTRIFUGAL P...	Suggested
BOM-000114	OIL MIST LUBRICATOR	CENTRIFUGAL P...	Suggested

SAP Material Master ID that corresponds to Vendor Part

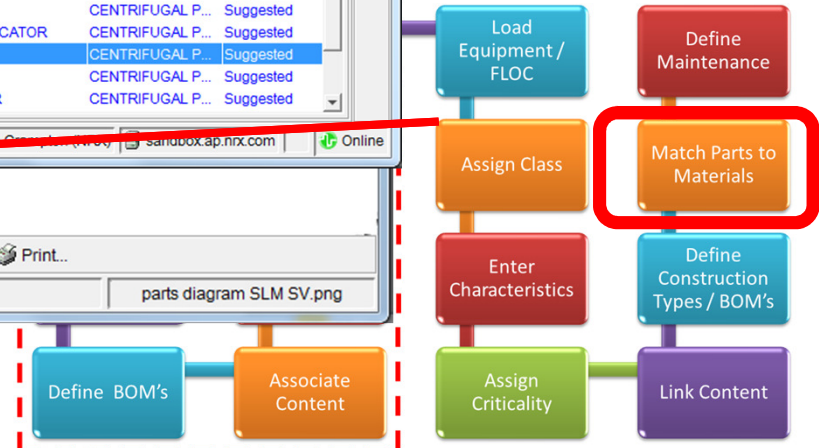
Match Parts to Materials

Now we want to add Parts to the Generic BOM

Start by selecting Parts from the Book

Now match the Part to an SAP Material

Verify the Material or request new



Maintenance

Asset Hub Manager

PCA

Maintenance (PCA)

Maintenance Plans Task Lists Measuring Points

EAM: <All>

New... Delete Properties... Tools Summary Filter...

External Syst...	Id	Description	Created	Last Modified	Type
AP-SANDBOX	MPR-048510	Installation	Sep 13, 2011 07:3...	Sep 13, 2011 07:3...	Equipment

External Task Lists

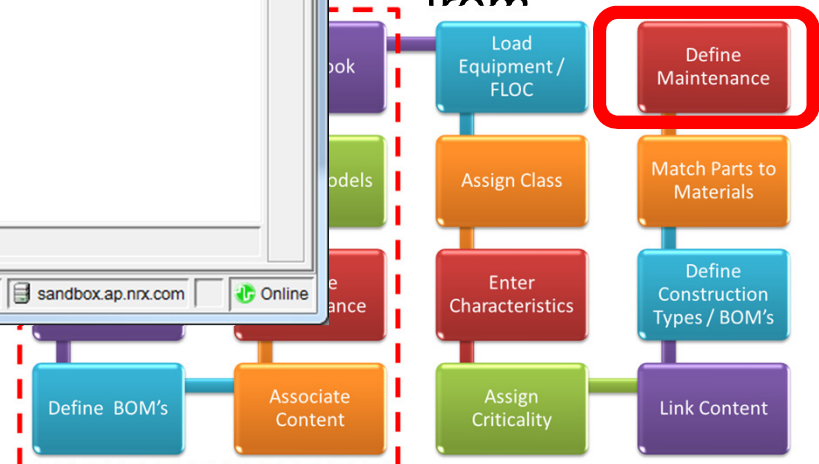
1 task list

Ready English (United States) Stephen Crampton (NRX) sandbox.ap.nrx.com Online

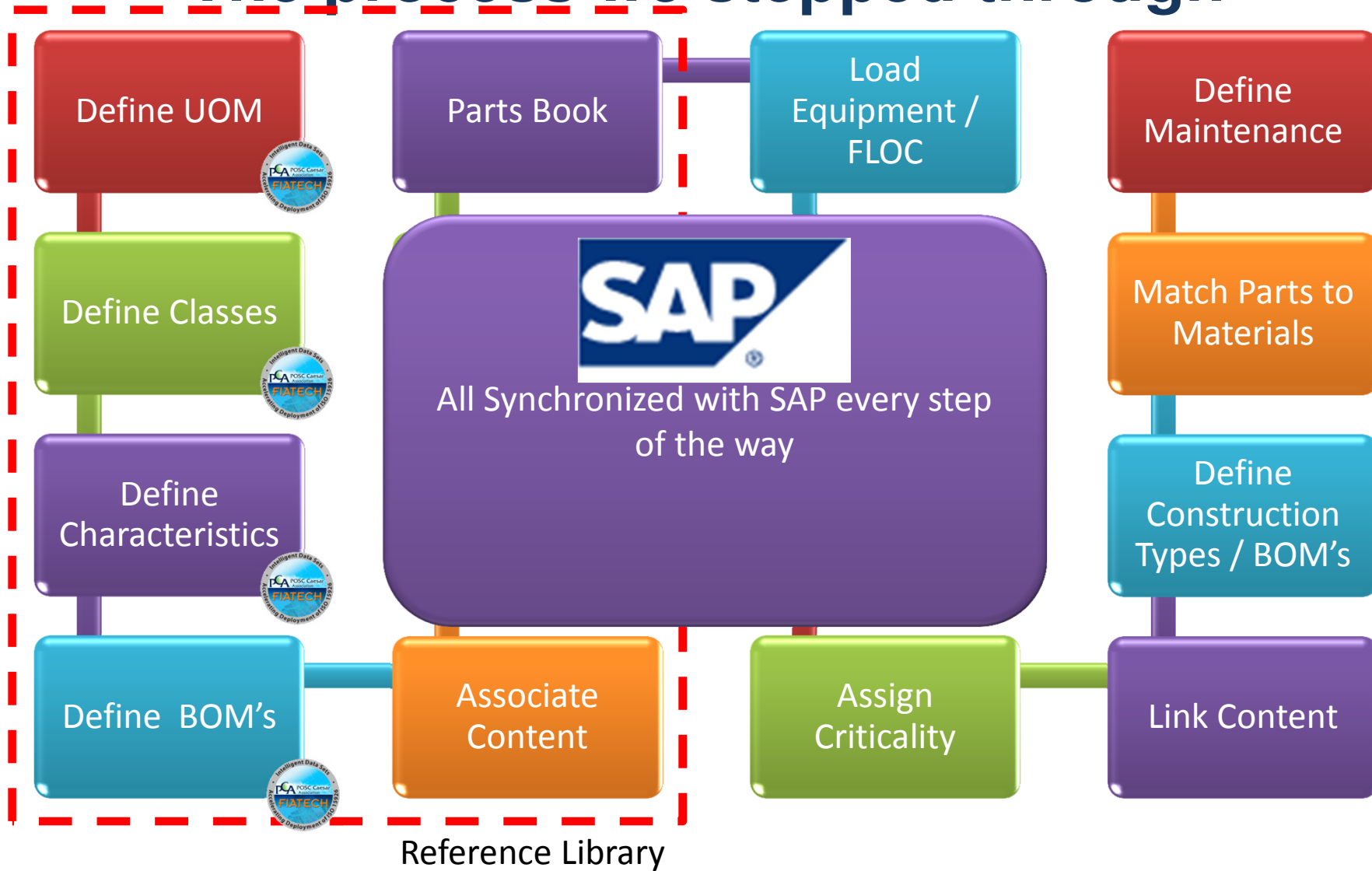
Define Measuring Points, Maintenance Plans & Task Lists

Link to Materials & Documents

Load tasks & frequencies from



The process we stepped through





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