

# **Parts Management Data Sharing XSB Interim Pilot Effort**

## **Impact of data sharing on OEM Design**

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# SPLs/Preferred Supplier Listings

- The objective is to reduce cost and risk by standardizing designs
- The Industry average cost for introducing a new part into inventory is \$9400
  - Ref- Coopers & Lybrand – 1991 dollars
  - In 2008 DSCC estimated the cost at >\$27K for gov't programs
  - Saving a few cents/dollars on a part can be expensive if it introduces a new part or supplier into the system
- Standardization reduces the overhead required to:
  - Select and review new parts and suppliers
  - Certify and track new parts and suppliers
  - Create design libraries (schematic symbol and footprints)
  - Procure, kit, store and manage parts
  - Resolve part/supplier issues
  - Program manufacturing machines
  - Develop manufacturing processes
  - .....

Standardization Matters

# SmartFind Search Tool - PaRTS

- PaRTS Search Engine (Convergence Data Services SmartFind)
  - GUI front end - flexible UI that can show many columns of attributes
  - **Key word search – impacted by data sharing pilot**
  - **Parametric Searches – impacted by data sharing pilot**
  - **Standard Parts List Visibility – impacted by data sharing pilot**
  - **Inventory Visibility**
  - **Cost Visibility**
  - **Obsolescence Visibility**
- Design For Retrieval (Convergence Data Services DFR)
  - Underlying database in Oracle.
  - Data maintenance tool suite
  - LiveUpdate – see DFR changes real-time

Make Finding and Using Standard Parts Easy

# PaRTS Search Engine

- PaRTS provides key word search and parametric search capability along with Standard Parts List, Program Parts Selection Lists, Cost, Inventory and Obsolescence data.

The screenshot shows the PaRTS Search Engine interface. At the top, there are navigation links: Home, View Configuration, Release Notes, Help. Below that, it says "Logged in as: rhyneri" with a Logout link. There are buttons for "Parts Universe", "Google", "Cadstar", "IHS", and "IRC".

The search area includes a "Search Text" field with "connector circular" entered. Below it are "Search Type" (Standard), "Sort Field" (Relevance), and "List Filter" (Upload File). To the right, there are "Attribute Filter" options: "Add Filter(s)", "Add Key Attribute(s)", and "Clear Filter(s)". Below these are several filter rows with checkboxes and dropdown menus for "Attribute", "Operation", "Filter", and "UOM".

At the bottom, there are "Search" and "Reset" buttons. Below the search area, there is a breadcrumb trail: "Root\Corporate Catalog\Northrop Grumman Part\Interconnects\Connector\Circular Connector\MIL Circular Connector".

The "Search Results" section shows a tree view on the left with "MIL Circular Connector (7179)" selected. The main area shows "Showing items 1-25 of 7179" with a table of results. The table has columns for "Item Number (Corporate Part Number)", "Qualifier", and "Item Description". Two items are visible:

Item Number (Corporate Part Number)	Qualifier	Item Description
<a href="#">MS3456KT28-21S</a>	Part.0	CONNECTOR, PLUG, CABLE, CIRCULAR, 5015, SHELL SIZE 28, 37 #8 CONTACTS
<a href="#">MS3456LS22-2SW</a>	Part.0	CONNECTOR, PLUG, CABLE, CIRCULAR, 5015 SERIES, SHELL SIZE 22, 3 #8 CONTACTS

• Key word search:

• Punch out to IHS catalog data

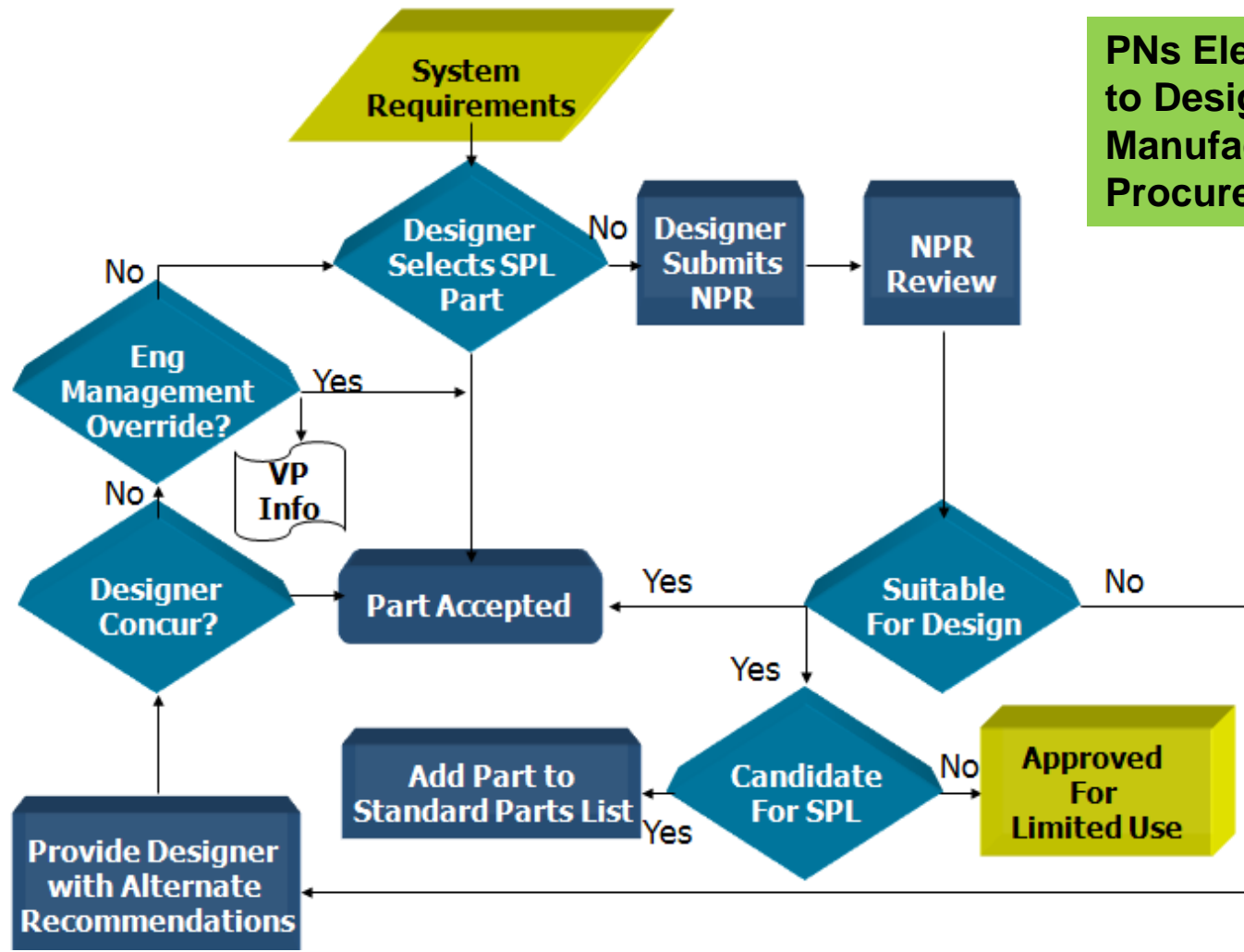
• Refine by Key Attributes

• Links to external data  
• Information Handling Services  
• XSB

Standard Parts List flags also integrated into CAD tool menus

## Standard Parts List Parametric and Inventory Search

# Integrated Electronic New Part Request Workflow



PNs Electronically fed to Design Manufacturing Procurement

Minimize new part introductions and obsolescence problems

# New Part Request Integrated to CAD Model Requests

## New Part Requests

Home

Help Logoff HelpDesk

NPR Signoff  
[View Approvals](#)

Links  
[NPR Request](#)

[History](#)

[Signoff Queue](#)

[Approval](#)

[Design Team Setup](#)

[Signoff Profile Admin](#)

[Reports](#)

External Links  
[IHS](#)

Request has been submitted for signoff.

If you would like to add this part to the QPaRTS Library click the following link: [QPaRTS Library](#)

Request	Part	Index Part	Inquire	New	Save	Submit	Reverse	Duplicate	Clear	Cancel NPR	Validate
<b>Request ID :</b>	<input type="text" value="200521"/>	<input type="button" value="End Edit"/>	<input type="button" value="Search"/>	<b>Request Status :</b>	IN REVIEW						
<b>Request Justification :</b>	<input type="text" value="Testing Mil part"/>			<b>Created :</b>	1/30/2006 1:38:03 PM						
<b>Site :</b>	<input type="text" value="BVM - BVM"/>			<b>Modified :</b>	1/30/2006 1:49:54 PM						
<b>Program :</b>	<input type="text" value="JSFSD2"/> <input type="button" value="Search"/>			<b>Submitted :</b>	1/30/2006 1:49:55 PM						
<b>Charge No :</b>	<input type="text" value="123GO"/>			<b>Final :</b>							
<b>Required By (Date) :</b>	<input type="text" value="2/4/2006"/> <input type="button" value="Calendar"/>			<b>Original User :</b>	JASKA, KEITH A						
<b>Controlling User :</b>	<input type="text" value="JASKAKE"/> <input type="button" value="Search"/> JASKA, KEITH A			<b>Last Modify User :</b>	JASKA, KEITH A						
<b>Requesting User :</b>	<input type="text" value="IRANICA"/> <input type="button" value="Search"/> IRANI, CATALINA			<b>File Name :</b>	<input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Attach"/>						
<b>File Description :</b>	<input type="text"/>										
<b>Attachments :</b>	<input type="checkbox"/>	<b>File Name</b>	<b>Description</b>								
	<a href="#">View</a>	gr_145k145_-.tif	tif file								
<b>First Part Number :</b>	M24308/4-326F			<b>Description :</b>	CONNECTOR,ELEC,RECT,MIN,POLARIZED SHELL,PLUG,PIN						
<b>Part Count :</b>	1										

Provides early visibility into what designers are considering

# New Part Approval Electronic Routing

The screenshot displays the 'NPR Approval' web interface. At the top, there is a header with the Northrop Grumman logo and the text 'NPR Approval'. Below the header, there are navigation links: 'Home', 'Help', 'Logoff', and 'HelpDesk'. The main content area shows an 'NPR Number' field with the value '200446' and an 'Inquire' button. To the right of this field, the status 'IN REVIEW' is displayed. A table lists the routing actions, with columns for 'Action', 'Seq. No.', 'Name', and 'Details'. The table shows several rows of actions, including 'IMPM Approved 2/8/2006 7:35:50 PM', 'DTRVW Approved 2/8/2006', and 'CHAIR'. A blue callout box highlights the 'Name' column, which contains the text 'Commodity Design Team By Part Technology'. Another blue callout box points to the 'Details' column, which contains the text 'Approvals and Rejections are listed along with the time of action'. A third blue callout box points to the 'Details' column, which contains the text 'Notes can be entered on a per signer basis, and are listed below the approval state'. On the left side of the interface, there is a sidebar with a menu of options: 'Approval Actions' (Reverse NPR, Add Signer, Refresh), 'NPR Request' (View This Request), 'Links' (NPR Request), 'History', and 'Signoff Queue'.

Action	Seq. No.	Name	Details
	20	Commodity Design Team By Part Technology	IMPM Approved 2/8/2006 7:35:50 PM
	25		DTRVW Approved 2/8/2006
			NOTES: Preferred Supplier.
	30		CERVW
	30		ENGRG
	30		MANFC
	40		PURCH
	40		ENGRG
	50	CHAIR	

Notes can be entered on a per signer basis, and are listed below the approval state

Audit Trail and Metrics with Notes and Attachments

# Parts Management Data Sharing Impact

- Search engine success is driven by complete and accurate data
- Standard Parts List visibility is critical to design cycle time
- Parts Management Data Sharing
  - Improved Interconnect Key attribute data by 27%
  - Improved Fastener Key attribute data by 47%
- Look at cost avoidance due to SPL usage and due to New Part Request (NPR) workflow
  - Prorate potential cost avoidance based on data improvement and percentage of the SPL addressed by the Pilot

Data Sharing Increases Standard Part Usage



# Parts Management Process Baseline

- **Standard Parts List (SPL) – based on ten year history**
  - 7458 NHAs/per year used SPL parts. Multiple SPL applications on each
  - Assume that 50% of the NHAs would have generated at least one functional duplicate were it not for the SPL.
  - 3729 new part introductions avoided annually due to the SPL usage.
- **\$35M/year Cost avoidance over all part types in 2010**
- **New Part Request workflow**
  - Electronic New Part Request (NPR) workflow
  - Quarterly metrics generated directly by the workflow.
  - Rejected 163 interconnect NPRs and corrected part numbers on an additional 87 NPRs
  - Rejected 155 fastener NPRs and corrected parts numbers on an additional 83 NPRs
- **\$3M/year cost avoidance due to NPR process on Connectors and Fasteners in 2010**

Parts Management reduces new part introductions

# Parts Management Data Sharing Impact

- **Connectors - \$476K projected future cost avoidance**
  - Connectors addressed by pilot comprise 3.3% of SPL
  - Average data improvement on connectors in Pilot was 27%
  - \$35M/year Cost avoidance due to SPL
  - \$312K projected cost avoidance due to improvement in ability to find and use SPL parts.
    - $(033 * .27 * \$35M = \$312K)$
  - \$164K projected cost avoidance due to improvement in NPR process
    - $(163 \text{ rejected parts} * \$9400 + 87 \text{ part corrected} * \$500) * 38.5\% \text{ addressed by pilot} * 27\% \text{ data rate improvement} = \$164K$
- Projections dependent on search parameter updates

27 Percent connector data improvement due to Pilot Project

# Parts Management Data Sharing Impact

- **Fasteners - \$1.4M projected future cost avoidance**
  - Fasteners addressed by pilot comprise 8.6% of SPL
    - 1% Nuts, 1% washers, 6.6% screws
  - Average data improvement for fasteners was 47.6%
  - \$960K projected cost avoidance due to improvement in ability to find and use SPL parts.
    - $(\$35\text{M due to SPL} * 8.6\% \text{ of SPL} * 47.6\% \text{ data improvement} * .67\% \text{ addressed by pilot})$
  - \$478K projected cost avoidance due to improvement in NPR process
    - $(155 \text{ rejected parts} * \$9400 + 83 \text{ parts corrected} * 500) * 67\% \text{ addressed by pilot} * 47.6\% \text{ data improvement} = \$478\text{K}$

**\$1.9M projected cost avoidance – Process and Data**