

Creating and Using an Enterprise Item Database for Improved Direct Materials Sourcing

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Convergence Data Services provides Item Data Management solutions that bridge the Product Engineering and Supply Chain Management domains.

Our Mission is to help our customers extract more value out of their enterprise item data assets.

Today's Presenters:

Dan Bueche

Rod Richardson

Richard Turner

Educational Workshop Course Modules

■ **Creating an Enterprise Item Database for Improved Direct Materials Sourcing**

- Leveraging the Item Database beyond direct materials sourcing
- DFMA Product Cost Data Management and Competitive Benchmarking
- Managing Volatile Compliance Data
- Preparing and Migrating data for PLM
- Creating an effective part classification schema

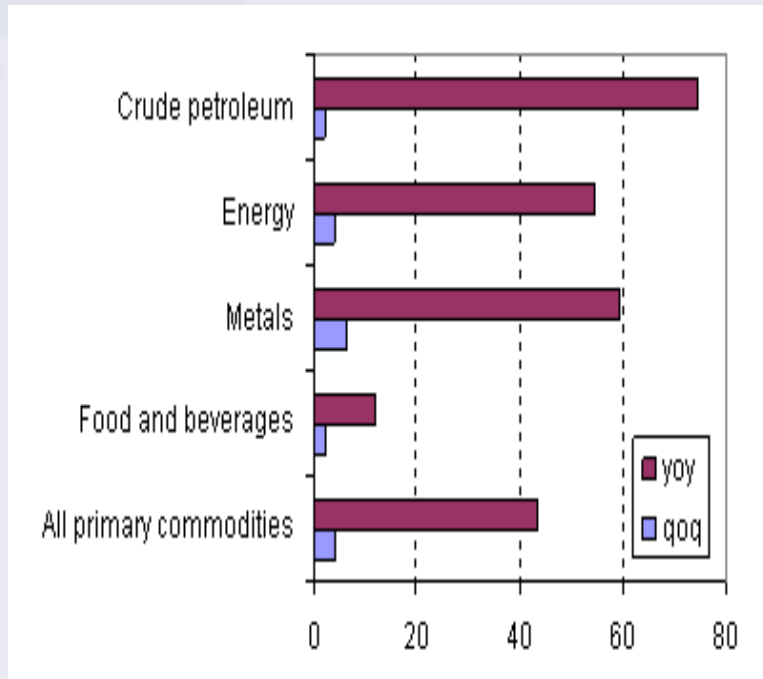
Today's Topic:

■ Creating an Enterprise Item Database for Improved Direct Materials Sourcing

What you will learn:

- How to overcome the shortcomings of existing systems and processes
- How to leverage your enterprise item data assets to achieve significant savings.
- How to assess more commodities, more often and with fewer resources.
- How to achieve long-term, sustained savings and additional benefits.
- How to sell this to management

Rapidly rising material costs and the total costs of direct materials are putting ever increasing pressure on manufacturer's bottom lines.



Commodity price developments, first quarter 2010

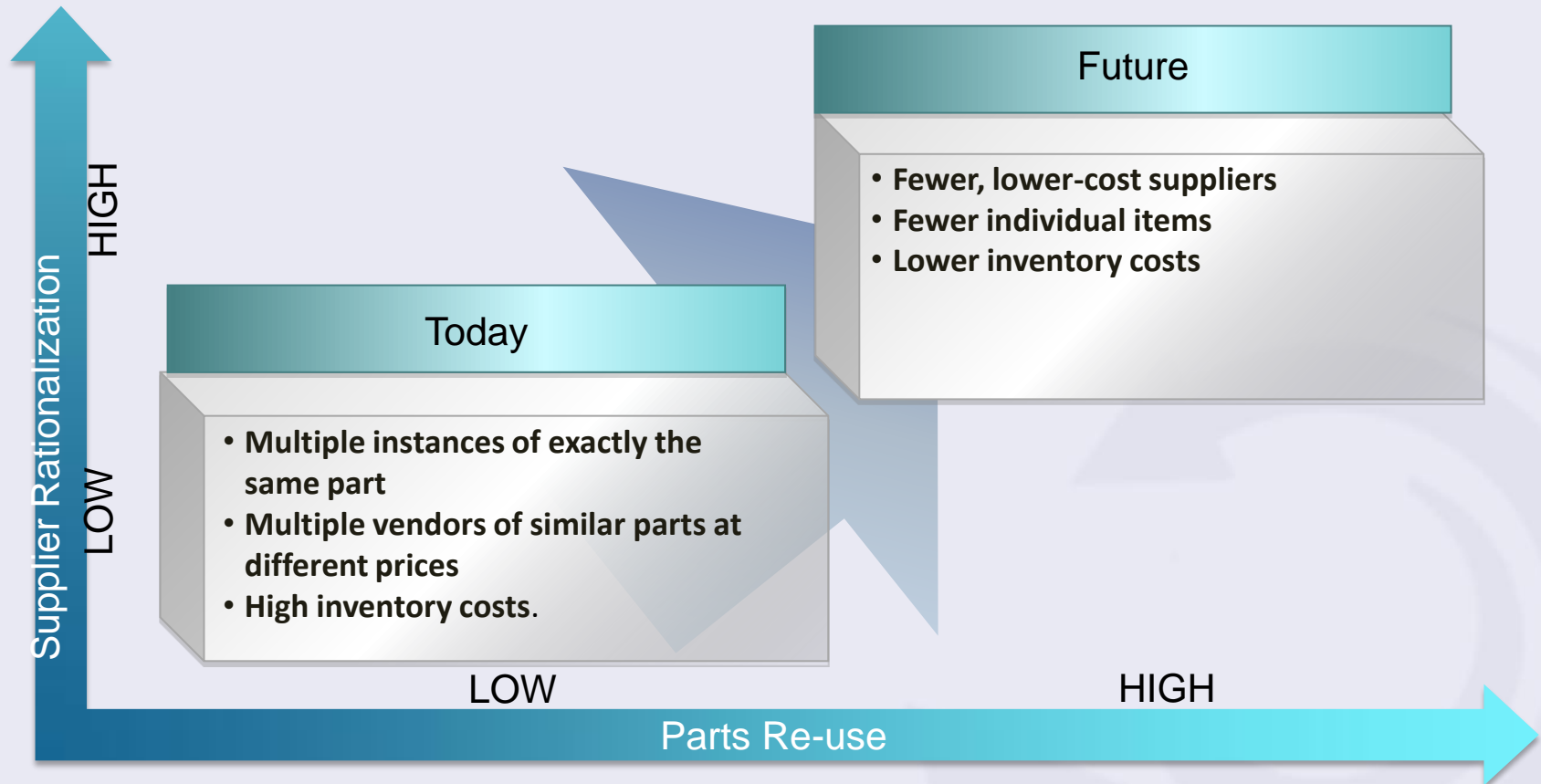
Percentage change

Source: IMF

- Many North American industrial companies “are pushing up prices — and warning of further increases to come — in the wake of **fast-rising raw material costs.**”
- Chris Liddell, chief financial officer at **General Motors**, said at the Detroit car show last week: “We’ve got cost pressures all around.” He estimates that raw materials made up about \$3,500 of a car that sells for \$28,000.
- **Goodyear** raised tire prices by up to 8 per cent last October, and rubber prices have climbed to new records since then.

Source: Financial Times, 01/16/2011

To address these pressures, companies are looking for ways to reduce the cost of direct materials through strategic sourcing initiatives.



To achieve real business benefits in strategic sourcing, organizations need to answer questions at a low level of granularity.



■ Procurement asks:

- How many different kinds of bolts are we purchasing annually?
- Can we get larger discounts by consolidating orders?
- From which supplier(s) do we buy them and which give us the best discounts?

■ Engineering asks:

- What bolts do we currently source that meet my current spec's?
- Which parts are "preferred"?
- How can I reduce the cost of my design by utilizing "standard" fasteners?



Companies are challenged in answering these questions due to the isolated nature of current enterprise systems and process domains.

■ Technical Systems Domain: PLM/PDM

- Item Technical Data is embedded within Documents (drawings, specs, etc.)
- Limited access provided to managers of Operations
- Commercial data not integrated with technical

■ Commercial Systems Domain: ERP/MRP

- Operational / commercial processes isolated from the technical data
- Technical users access limited
- Multiple instances of similar data (e.g. across divisions)

■ 3rd Party Content Domain

- Vast amounts of data available however it is isolated from both the Technical Systems and Commercial Systems domains
- Doesn't cover your entire product line

No one system/domain has the complete holistic view of item data...

To overcome this challenge, many companies resort to highly labor intensive tactical measures which bring short-term benefits.



- Teams of people convened
 - Find and Collect Data
 - Manual processes
- Data is collected and organized
 - Static Spreadsheets
 - Filing system
- Data is analyzed
 - One-time sourcing improvements

...Every iteration takes similar effort!

These efforts do not provide the controls and filters that are required to sustain benefits over the long term.

- Engineers continue to design and spec new parts even if similar ones exist here or in other locations
- Procurement sources new items for new programs when similar items might already be sourced
- Item data from newly acquired companies requires integration with the status quo

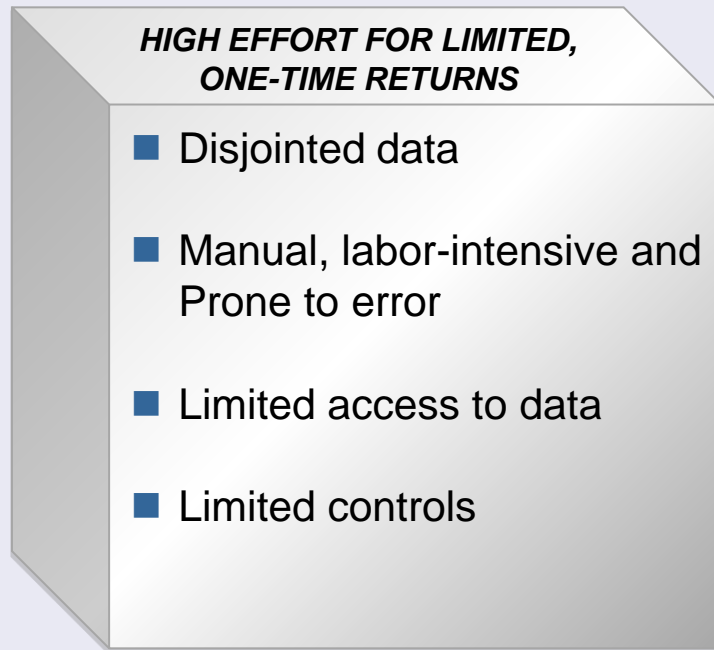
Nearly as soon as you get today's picture together, the data is already out of date...

...and there are little controls to keep things from reverting to the way they once were.

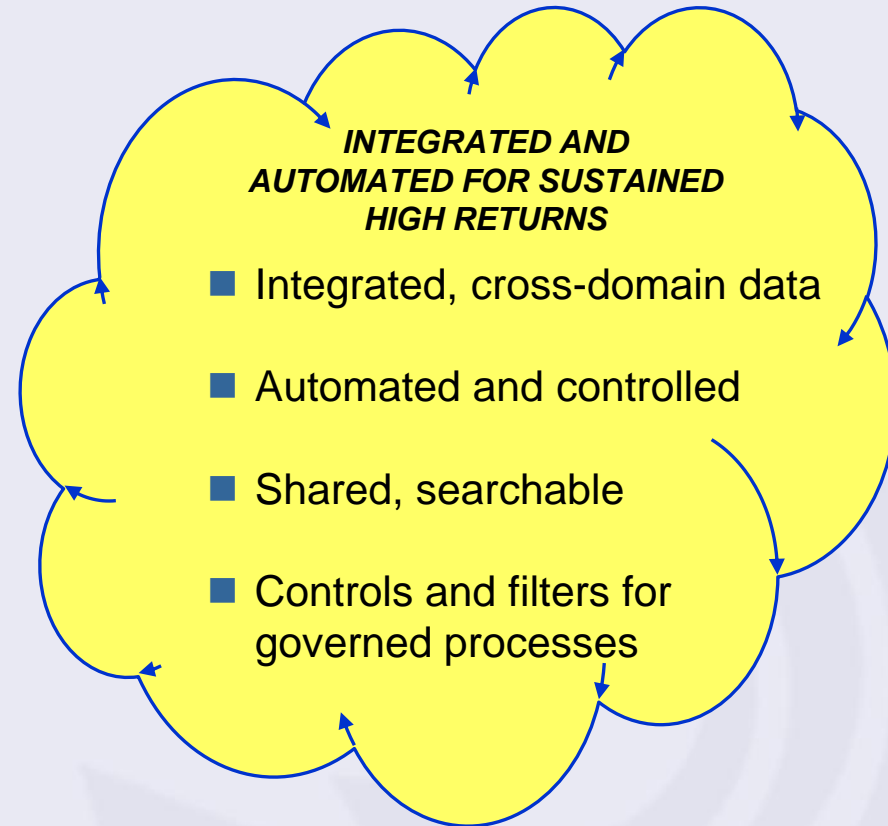


Wouldn't it be better to have a way to pull together the data and make it available to more people and over time?

Current State



Future State



In the future state, items from across the enterprise are collected, technical attributes are extracted and exposed, and are managed in a common database.

Typical ERP Domain Item Master Data

Item Number	Qualifier	Item Description	UNSPSC	ECCMA SCD
DDXB30US16-36	Part.CAGE-Code.08742	Screw 12 pt	31161614	0161-1#01-076683#1
DDXB30US16-47	Part.CAGE-Code.08742	Bolt nickel	31161614	0161-1#01-076683#1
DDXB30US16-51	Part.CAGE-Code.08742	Bolt 12 pt Nickel	31161614	0161-1#01-076683#1
DDXB30US16-52	Part.CAGE-Code.08742	Bolt	31161614	0161-1#01-076683#1
DDXB30US16-83	Part.CAGE-Code.08742	Screw 12 pt	31161614	0161-1#01-076683#1
DDXB30US16K116	Part.CAGE-Code.08742	Bolt nickel 220KSI	31161614	0161-1#01-076683#1
DDXB30US16K118	Part.CAGE-Code.08742	Bolt 12 pt Nickel	31161614	0161-1#01-076683#1
DDXB30US16K147	Part.CAGE-Code.08742	Bolt	31161614	0161-1#01-076683#1
DDXB30US16K14X	Part.CAGE-Code.08742	Bolt 1/64 oversized	31161614	0161-1#01-076683#1
DDXB30US16K18X	Part.CAGE-Code.08742	Bolt Special	31161614	0161-1#01-076683#1
DDXB30US16K19	Part.CAGE-Code.08742	Bolt nickel	31161614	0161-1#01-076683#1
DDXB30US16K20	Part.CAGE-Code.08742	Bolt 12 pt Ni	31161614	0161-1#01-076683#1

Before
Ambiguous Descriptions
No Attributes

Enterprise Repository w/enhanced technical data

Item Number	Qualifier	Item Description	UNSPSC	ECCMA SCD	Component Length(in)	Grip Length (in)	Shank Length (in)	Thread Length (in)
DDXB30US16-36	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	4.573	2.25	3.773	1.523
DDXB30US16-47	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	5.2605	2.9375	4.4605	1.523
DDXB30US16-51	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	5.5105	3.1875	4.7105	1.523
DDXB30US16-52	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	5.573	3.25	4.773	1.523
DDXB30US16-83	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	7.5105	5.1875	6.7105	1.523
DDXB30US16K116	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	9.573	7.25	8.773	1.523

After
New Descriptions
Technical Attributes

“Part identification is no longer limited to description and part number...To uniquely identify/differentiate some of our equipment takes more than 40 attributes per part.”

Item commercial attributes are also collected and combined with the technical data to provide a more complete, cross-domain view of each item.

Enhanced Descriptions

Enhanced Technical Data

Cost Data

Item Number	Qualifier	Item Description	UNSPSC	ECCMA SCD	Component Length(in)	Grip Length(in)	Shank Length(in)	Thread Length(in)	Vendor Name	Unit Cost	YTD Cost
DDXB30US16-36	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	4.573	2.25	3.773	1.523	Aerovox	5.25895	694.1814
DDXB30US16-47	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	5.2605	2.9375	4.4605	1.523	Duriron Co	6.049575	623.106225
DDXB30US16-51	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	5.5105	3.1875	4.7105	1.523	Tierney Elec	6.337075	716.089475
DDXB30US16-52	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	5.573	3.25	4.773	1.523	Champion	6.40895	1371.5153
DDXB30US16-83	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	7.5105	5.1875	6.7105	1.523	Penn	10.139175	1024.056675
DDXB30US16K116	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	9.573	7.25	8.773	1.523	Prawnto	12.92355	180.9297
DDXB30US16K118	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	9.698	7.375	8.898	1.523	Grippe	13.0923	392.769
DDXB30US16K147	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	11.5105	9.1875	10.7105	1.523	Aerovox	15.539175	1849.161825
DDXB30US16K14X	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (OVERSIZE)	31161614	0161-1#01-076683#1	3.198	0.875	2.398	1.523	Duriron Co	2.8782	1286.5554
DDXB30US16K18X	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (OVERSIZE)	31161614	0161-1#01-076683#1	3.448	1.125	2.648	1.523	Tierney Elec	3.1032	1455.4008
DDXB30US16K19	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	3.5105	1.1875	2.6875	1.523	Penn	3.2157	339.75455
DDXB30US16K20	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	31161614	0161-1#01-076683#1	3.573	1.25	2.773	1.523	Penn	3.2157	225.099

Attributes + Cost = Value

“Cost data without attribute data is useless”

Dana Nickerson
 Director Engineering & Technology
 Whirlpool Corporation

Item data is further enhanced by capturing and exposing Item “relationship attributes” which provide visibility to enterprise item usage.

SMARTFIND
BY CONVERGENCE DATA SERVICES

Item Summary Information

Item Number	INT4-102336
Qualifier	Part.Org-ID.INT-ORG4
Revision	
Item Description	1M X 4 STATIC COLUMN DRAM, 60 ns, PDSO20
Legacy Part Number	
Update	11/29/2007 11:39:59 AM
Category	Root\Parts\Electrical\Integrated Circuit (IC)\IC, Memory\IC, Memory, DRAM
Status	NEW

Item Information

Item Details | Relationships

Link Internal Part to Manufacturer Part | [Link Part to Document](#) | [Link Part to List/Program](#) | [Part to MFG Compliance Part](#)

Item Number	Qualifier	Description
UPD424402LA-60L	Part.Org-ID.ORG10023	1M X 4 STATIC COLUMN DRAM, 60 ns, PDSO20

- E.g. Part number to manufacturer part number relationship
 - Expose Duplicates i.e. multiple part numbers for same vendor part number
 - Expose “Collisions” i.e. two parts with same part number but different vendor part numbers

A hierarchical classification schema, customized to your enterprise, makes it easier to find and compare duplicate or similar items.

UNV

Search Code: %391215%

Search Title:

Return 100

Typical ERP UNSPSC Switches example

#	ID	Name
1	39121500	Switches and controls and relays and accessories
2	39121501	Safety switches
3	39121502	Dimmer switches
4	39121503	Drum switches
5	39121504	Time switches
6	39121505	Snap switches
7	39121506	Pressure switches
8	39121507	Toggle switches
9	39121508	Slide switches
10	39121509	Limit switches
11	39121510	Controller switches
12	39121511	Variable switches
13	39121512	Push button switches
14	39121513	Rotary switches
15	39121514	Power relays
16	39121515	General purpose relays
17	39121516	Socket relays
18	39121517	Alternating voltage relays
19	39121518	Mercury relays
20	39121519	Time relays
21	39121520	Overload relays
22	39121521	Motor starter controls
23	39121522	Electrical contacts
24	39121523	Timer controls
25	39121524	Photocontrols
26	39121525	Non fusible switches
27	39121527	Encoders
28	39121528	Photoelectric sensors
29	39121529	Contactors
30	39121531	Level or float switches
31	39121532	Radio frequency RF switches
32	39121533	Switch parts or accessories
33	39121534	Indicator or pilot lights
34	39121535	Control relays
35	39121536	Phase failure relays
36	39121537	Foot switches
37	39121538	Flow switches
38	39121539	Keylock switches
39	39121540	Mercury switches

“Good classification and attribute data combined with query tools make it easier to identify duplicates.”

WEBDFR
BY CONVERGENCE DATA SERVICES

switch Find Category Cancel

Item Number: 1234567-W22

Available Classifications

- ROOT
 - Parts
 - Electrical
 - Integrated Circuit (IC)
 - IC, Linear
 - IC, Linear, Analog Switch
- Optoelectronic Device and Accessory
 - Slotted Switch
 - Slotted Switch - Logic Output
 - Slotted Switch - Transistor Output
 - Switch
- Electromechanical
 - Switch
 - Multiple Actuator
 - Switch, Multiple Actuator, Piano
 - Switch, Multiple Actuator, Rotary
 - Switch, Multiple Actuator, Slide
 - Single Actuator
 - Switch, Single Actuator, Pushbutton
 - Switch, Single Actuator, Rocker

Currently Selected Classification

Switch, Single Actuator, Pushbutton

Approvers: AdminF AdminL, Student01, Student06, mconnet, Rod Richardson, Rod Richard

Switch, Single Actuator, Pushbutton

Attribute Legend:

- Key *
- Required *
- Recommended +

Attributes:

- MANUFACTURER NAME *
- MAXIMUM OPERATING TEMPERATURE
- MINIMUM OPERATING TEMPERATURE
- ACTUATOR ACTION *
- ACTUATOR ANGLE *
- ACTUATOR FINISH *
- ACTUATOR LENGTH *
- ACTUATOR LIGHT *
- ACTUATOR MATERIAL *
- ACTUATOR TYPE *
- ASSOC. PANEL MOUNT HARDWARE *
- BODY DEPTH *
- BODY WIDTH *
- BUSHING LENGTH *
- BUSHING TYPE *
- CENTER CONTACT PLATING *
- CONTACT FORM *
- CONTACT FUNCTION *
- CONTACT RATING 1 *

- 80 Categories of switches at 1 level
- No attributes whatsoever
- Rigid 4 level structure

- Categories customized to your items
- Each category has its own attributes
- No limits to number of levels

Multi-dimensional search and filtering provides additional capabilities to identify groups of similar items, e.g. for potential “market basket” sourcing.

Automatic Calculation

Calculate 1:33:22 PM

Batch
RWT Inconel Bolts No

Neighbor Distance
1.00

Save cluster as Batch

Save

Export

Recent Selections
DDXB30US10K13

Attribute	Critical	Weight Factor	Weight Null	Weight Neg	Occurrences	Minimum	Maximum	Base UOM
Cluster Name	<input type="checkbox"/>	1000	0	0	0			
Drilled Shank	<input type="checkbox"/>	10	1	0	1084	No	Yes	
Shear Strength-Min	<input type="checkbox"/>	10	1	1	1060	18.124...	26.824...	psi
Component Length	<input type="checkbox"/>	1	1	1	1084	0.448	11.531	in
Drilled Head	<input type="checkbox"/>	1	1	0	1084	No	Yes	
Finish	<input type="checkbox"/>	1	1	0	1060	ALUMI...	PASSIV...	
ATTACHMENTS	<input type="checkbox"/>	0	0	0	0			
DESCRIPTION	<input type="checkbox"/>	0	1	0	1084	BOLT, ...	BOLT, ...	
Diameter-Nom	<input type="checkbox"/>	0	0	0	1060	0.1895	1.499	in
Drive Type/Rece...	<input type="checkbox"/>	0	0	0	1084	NONE	NONE	
ECCMA SCD	<input type="checkbox"/>	0	0	0	1084	0161-1	0161-1	

Item Number	Qualifier	Neighbors	Distance	Unit Cost	Vendor #	YTD Cost	Cluster Name	Component Length	Drilled Head	Drilled Shank	Finish	Shear Strength-Min
DDXB30US10...	Part....	28	0.000	2.081250	20735	299.700...	ICDemo2	2.312500	No	No	ALUMINUM C...	18.124999
DDXB30US10...	Part....	28	0.135	2.362500	33520	1112.73...	ICDemo2	2.625000	No	No	ALUMINUM C...	18.124999
DDXB30US10...	Part....	28	0.162	2.418750	50864	1151.32...	ICDemo2	2.687500	No	No	ALUMINUM C...	18.124999
DDXB30US10...	Part....	28	0.189	2.475000	53399	480.150...	ICDemo2	2.750000	No	No	ALUMINUM C...	18.124999
DDXB30US10...	Part....	28	0.270	2.643750	63380	335.756...	ICDemo2	2.937500	No	No	ALUMINUM C...	18.124999
DDXB30US10...	Part....	28	0.297	2.700000	64268	977.400...	ICDemo2	3.000000	No	No	ALUMINUM C...	18.124999
DDXB30US10...	Part....	28	0.324	2.756250	65876	1320.24...	ICDemo2	3.062500	No	No	ALUMINUM C...	18.124999

- Clustering provides the ability group items and filter data on both technical and commercial attributes.
- A market basket is a segmented portion of a larger grouping of products or services. Comparing bidder proposals on the market basket of items allows the buying organization to award the entire portfolio of products/services to the best bidder.

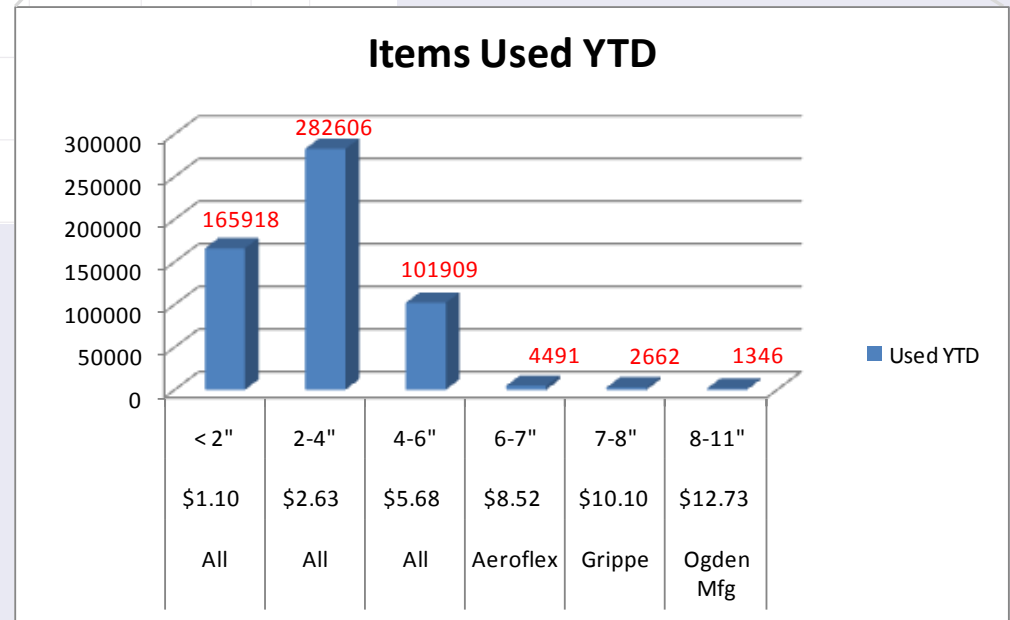
This “clustered data” is easily exported to Business Intelligence or Sourcing applications for further commercial analysis and action.

Showing items 1-25 of 1839

12345678910... >>										
	Item Number	Qualifier	Item Description	ECCMA SCD	UNSPSC	Warehouse 1 Available QTY	Warehouse 1 Committed	Warehouse 1 On Order	Unit Cost	TTD Cost
Add to Cart	DDXB30US10-13	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	0161-1#01-076683#1	31161614	938	836	378	2.3125	4102.375
Add to Cart	DDXB30US10-19	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	0161-1#01-076683#1	31161614	688	1751	453	2.6875	6554.8125
Add to Cart	DDXB30US10-20	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	0161-1#01-076683#1	31161614	67	1393	1351	2.75	4015
Add to Cart	DDXB30US10-20X	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (OVERSIZE)	0161-1#01-076683#1	31161614	356				
Add to Cart	DDXB30US10-23	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (NOMINAL)	0161-1#01-076683#1	31161614	866				
Add to Cart	DDXB30US10-24X	Part.CAGE-Code.08742	BOLT, 12 POINT HEAD, 220 KSI MIN TENSILE, 125 KSI MIN SHEAR, NICKEL ALLOY 718 (OVERSIZE)	0161-1#01-076683#1	31161614	969				

to Excel
to CSV
for Cleaning
for Relationships

- Data can be exported to any tool for analysis



Note: Illustrative Example in Excel

These item classification and clustering abilities enable a path towards component standardization.



- Search items based on multiple dimensions and “distance”
- Identify nearly common items
- Analyze “nearly common” items’ features and attributes
- Select the subset of configurations suitable for multiple applications which will be utilized in the future
- Redesign products as required to accommodate standards
- Institute and manage Global Governance processes for NPI
 - Enforce usage of standard configurations
 - Manage creation of new configurations only as required



The goal is to establish and manage a sustained strategy of component STANDARDIZATION which is GLOBALLY ENFORCED.

Standardization and the reduction of complexity over time account for the majority of available benefits.



■ Short Term Benefits - - 30%

- Consolidate to low cost functional equivalents
- Create common specifications
- Rationalizing pricing variances for similar parts
- Negotiate additional discounts due to consolidated volumes

■ Long Term Benefits - - 70%

- Continual Growth of Strategic Suppliers
- Engineering design changes leading to standardization of components
- Faster Innovation
- Faster time to market
- Inventory reduction
- Component / Supplier Globalization
- Reduced product change over
- Improved sales and operations planning
- Supplier migration to low-cost country sourcing

Case Study: Data-enabled savings by Item Commodity Type



High Volume / Lowest Complexity



Low Technology / Low Complexity



High Technology / High Complexity

High volume items, e.g. raw materials, yield some of the highest returns.



- *The least complex in terms of physical attribute variation*
- *An area of high total spend*
 - *Coil steel, wire, bar stock, etc.*
- *Opportunity areas*
 - *Reduce number of configurations*
 - *e.g. from 180 to 25 different steel thicknesses*
 - *Find lowest cost configurations / vendors*
 - *e.g. change thickness to standard automotive values*
- *Benefits - 3 to 8% cost take-out reported; when multiplied by volume yields very high \$\$ savings*

Low complexity, medium volume items offer opportunities for savings through standardization.

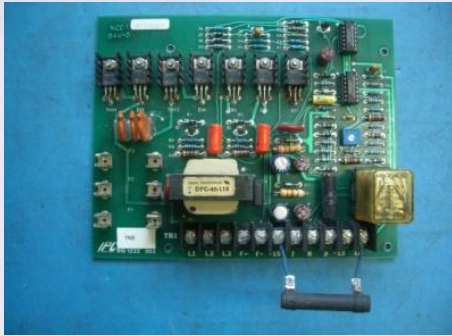


- *Low complexity items in terms of total physical attributes but with potential for high variability.*
 - *Are easily engineered and are therefore often replicated.*
- *Individual items have average volumes, unit prices and spend but replication/duplication drives total spend higher*
 - *Wire harnesses, hoses, tubing, fasteners, stampings, etc.*



- *Opportunity areas*
 - *Standardize on materials*
 - *e.g. reduction in the number of different hose materials*
 - *Standardize dimensional attributes*
 - *e.g. diameter of tubing, length of fasteners*
- *Benefits – 10 to 15% savings reported*

Higher complexity items offer the opportunity for savings through component standardization and the reduction of complexity.



“Reducing complexity provides leverage in surprising ways”

Jeff Burk

Director of Component Architecture
Whirlpool Corporation

- *High complexity, high technology items usually comprised of many other parts.*
- *Typically low volume but high unit cost.*
 - *Motors, electronic circuit boards, pressure valves, etc.*
- *Opportunity areas*
 - *Standardize components within purchased assemblies*
 - *e.g. Perform volume buys for common capacitors for circuit boards purchased from low volume supplier*
 - *Leverage low cost / best cost country sourcing*
 - *e.g. Reduce risk by reducing number of configurations*
- *Benefits – 15 to 25% savings reported*

As stated before, additional benefits accrue over time along with direct materials savings.

- Parts rationalization
 - Reallocate procurement resources to higher value-added tasks
 - Lower inventory costs
 - Less warehouse space required
- Reduction in Engineering time...not reinventing the wheel
- Reduction in time preparing for sourcing events
- Improvement in throughput of sourcing direct materials
 - Assess more commodities, more often, with fewer people

It's the Data that makes the difference for improved direct materials sourcing.



Item Number	Qualifier	Neighbors	Distance	Fitting Diameter Inlet	Fitting Diameter Outlet A	Fitting Diameter Outlet B	Fitting Type Inlet	Fitting Type Outlet A	Fitting Type Outlet B
2188622	Part.0	11	11	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2188623	Part.0	11	11.76609911...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2304833	Part.0	11	13	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2188708	Part.0	11	13.08661422...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2315534	Part.0	11	13.09448824...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2304834	Part.0	11	13.76609911...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2188709	Part.0	11	13.85271333...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2188808	Part.0	11	14.40984275...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2301623	Part.0	11	17.40013016...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
2302395	Part.0	11	17.40013016...	0.25	0.25	0.313	QUICK CONN...	QUICK CONN...	QUICK CONN...
628295	Part.0	11	26.82879078...	0.75	0.5	0.44	THREADED	THREADED	THREADED
628275	Part.0	11	27.01371126...	0.75	0.5	0.44	THREADED	THREADED	THREADED

Old Way:

- Procurement Driven
- Time and resources spent finding and processing data
- Limited data makes it hard to identify best cost savings opportunities
- One-and-done data is quickly obsolete

New Way:

- Joint Engineering and Procurement initiative
- Complete data with proper categorization
- Better tools for searching allows for more analysis of similar items
- Data is stored and re-used supporting both short and long term improvements

How to sell a component rationalization strategy to management (1/3)

1. Reference publicly available benchmark data.

- "Accenture's experience suggests that companies that source globally can expect to realize net direct material cost savings of between 10 and 20 percent across all product categories, with **an average net saving of about 15 percent**....This optimization includes...simplifying product structures and rationalizing and standardizing relevant parts."
- Convergence customer experience in these industries have seen between 15-20% cost reduction, on average:
 - Oil and Gas
 - General Manufacturing
 - Appliances
- Reference Material
 - This presentation, White Papers and the 2 references in this Workshop, are available from www.convergencedata.com

How to sell a component rationalization strategy to management (2/3)

2. Build your value proposition:

- What is your total direct spend?
- What is your maturity in global component management
- Have you gone through recent M&As or divestitures recently
- Engage the CFO organization to validate the Value Proposition

Value = Total Direct Spend x 15% x Confidence Factors (range: 15-20%)

3. Validate with a Proof of Concept (POC):

- “Low Hanging Fruit”
 - Common buy items
 - Items purchased in a disparate manner
 - Best organizational support
- Identify and Scope Next Steps

4. Identify savings and present to management

- **ROI, NPV, IRR**

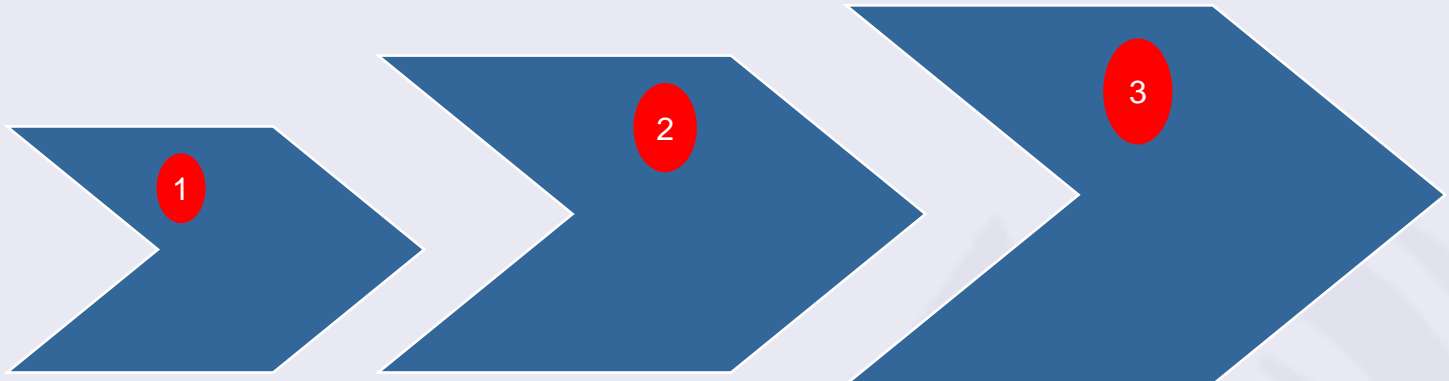
How to sell a component rationalization strategy to management (3/3)

5. Build a scaled approach to ensure executive buy-in and full funding



Phase 0 “Proof of Concept”

- Small team, single commodity
- Identify savings with subset of relevant data
- Obtain Initial Phase funding based on findings



- 1 Perform first phase on a small number of “low hanging fruit” commodities. Demonstrate actual savings. Fund next phase from savings. Define and implement Governance Processes
- 2 Perform on larger set of commodities . Fund next phase from savings. Refine and manage governance processes.
- 3 Repeat until complete.

Whirlpool Case Study: DFR for Component Architecture Management (CAM) Component and Supplier Rationalization Initiative (1/2)

- CEO challenge to company: Take \$3B out of material spend (\$8–9B) in 3 years
- Benchmarks reveal 15% average cost savings available thru standardization
 - Engineering leadership proposed \$1B savings through CAM initiative
 - (\$9 billion total direct spend) x 2/3 = \$6 billion total commodity spend
 - \$1 billion savings / \$6 billion spend = roughly **15%**
 - CFO Funded DFR Proof-of-Concept
- DFR Pilot executed against subset of data for a single commodity
 - Representative complexity commodity with fairly high spend chosen
 - Assessed 350 Water Valve parts
 - Found single plant with 146 different variants, \$2.50 cost variance

Whirlpool Case Study: DFR for Component Architecture Management (CAM) Component and Supplier Rationalization Initiative (2/2)

- Used Pilot findings to estimate Global Savings
 - Projected \$30 million savings for Water Valves consolidation alone
 - Extrapolated savings for all 52 major commodity categories
- CEO Funded Global CAM roll-out based on Pilot findings and Projections
 - First several commodities funded larger roll-out and so-on
- Representative short term benefits:

Commodity Category	Reductions		
	Component	Supplier	Direct Cost
Water Valves	72%	50%	15 - 20%
Switches	48%	66%	10 - 15%

Thank you for your time

- Q&A
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