



Digital Data Workshop – SSFA



Washington DC
May 3rd 2011

Richard Turner

<http://www.convergedata.com/>

AIA Standards Facts – 2005

- “A standard is a set of characteristics or quantities that describes features of a product, process, service, interface or material.”
- “Nearly 40% of all engineering and manufacturing data is standards based.”
- “...the overwhelming predominance of standards data is still interpreted in document form”

“The Future of Aerospace Standardization”, prepared January 2005

AIA Standards as Data Vision - 2005

- “Access not just to the standard as a document, but to the **technical information contained in the standards** so that users can access the standards data as they need it, in the form they need it, and easily integrate that data into the rest of the product definition data....”
- “Standards move to being managed and controlled as a **collection of data elements, rather than as a paper paradigm document**, so that users (human, machine, and other applications) can construct the appropriate “view” of the standards data that best meets their needs”
- “Standards...need to continuously evolve ...to ensure that the standards and the technical data contained therein can be **captured, managed, disseminated and integrated into the design, build and support processes...**”

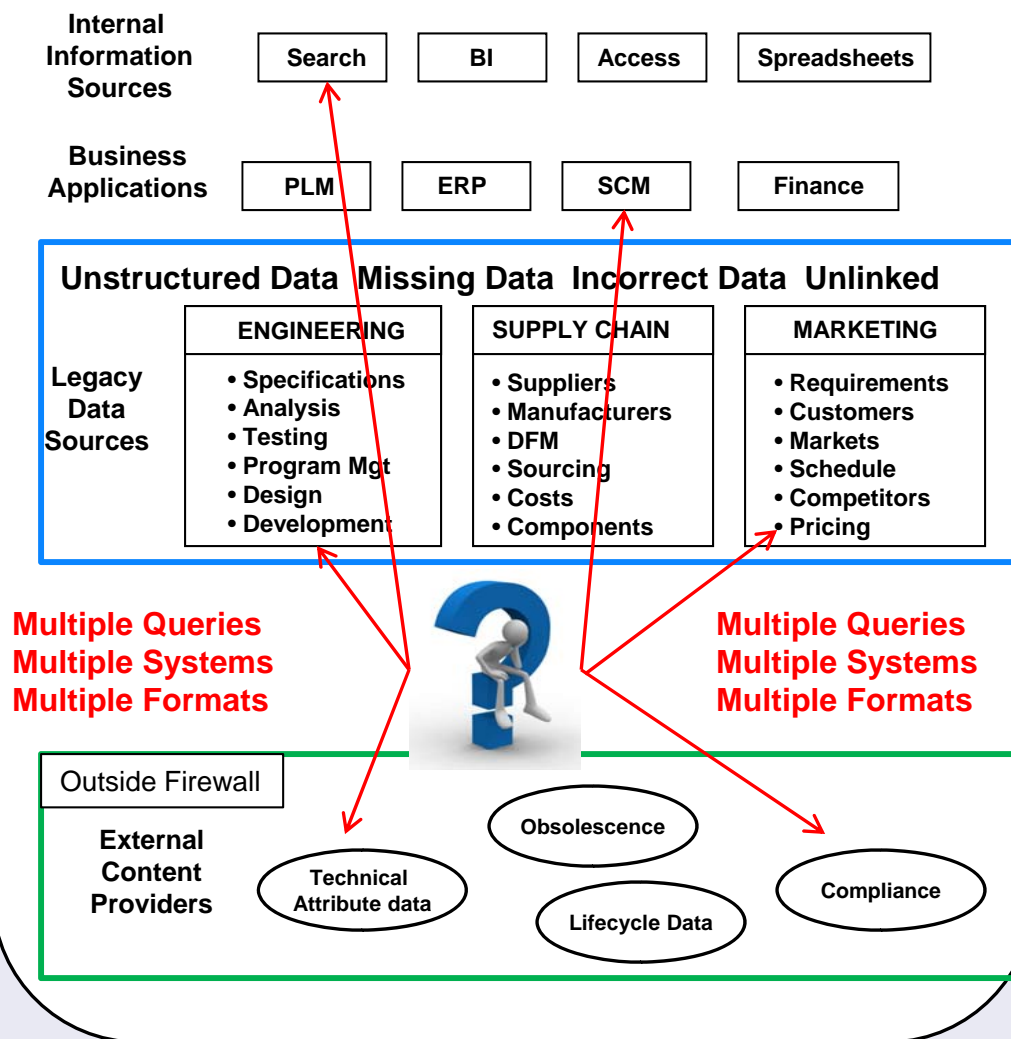
The Future of Aerospace Standardization”, prepared January 2005

Agenda: Standards as Digital Data Today

- Typical Enterprise Issues / Roadblocks for Standards as Data
- An Integrated Parts/Standards Data Architecture
- Case Examples – Northrop, Boeing and Whirlpool

The typical corporate information management infrastructure lacks a complete, integrated digital representation of part data.

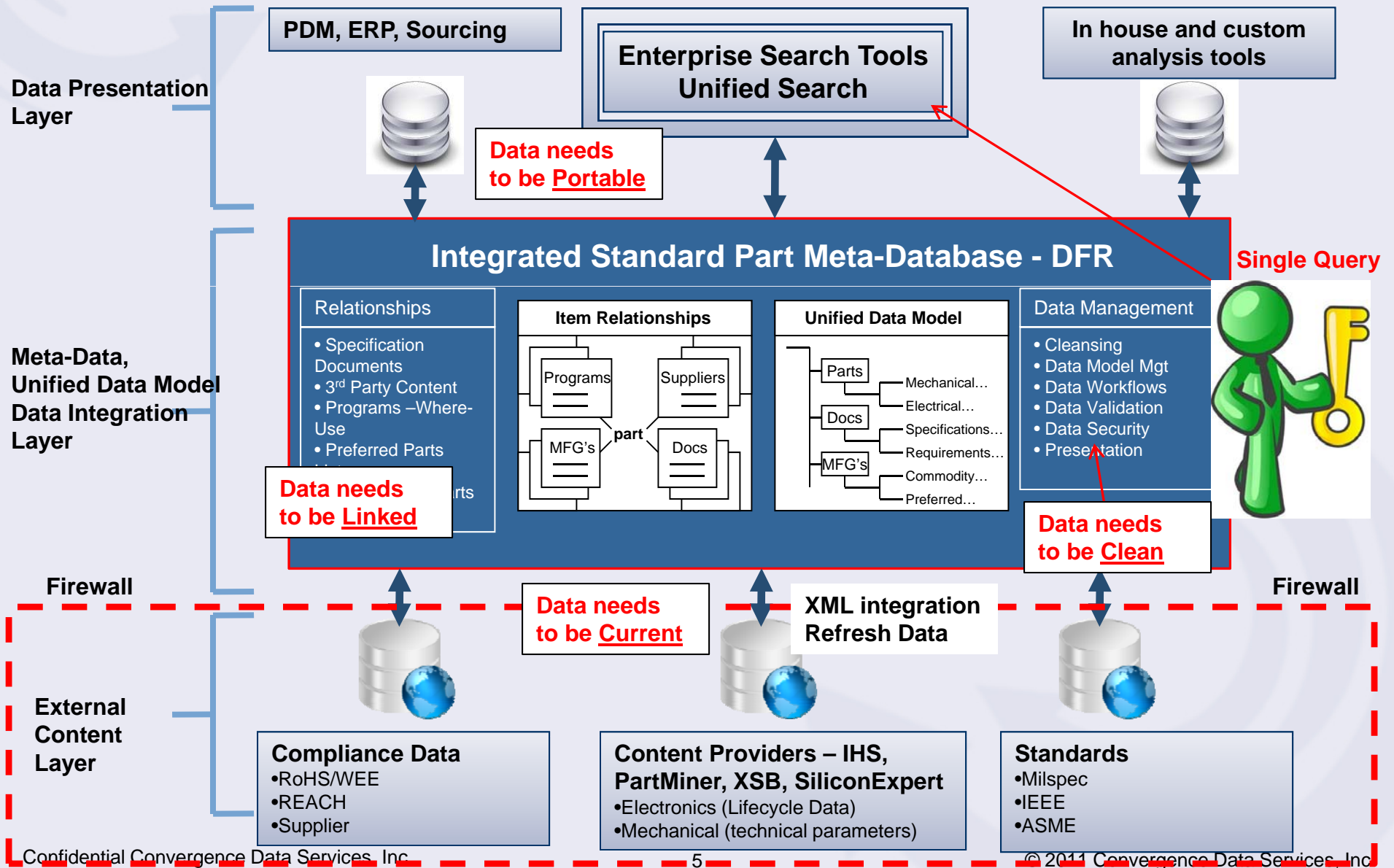
Typical Corporate Data Architecture



Roadblocks

- **Unstructured Data** – missing data, erroneous data and unlinked data elements
- **Decentralized** – data within and outside the enterprise resides in multiple databases
- **Ineffective Aggregation** – vital sources of information are not effectively aggregated, including information existing outside the firewall
- **Compounding Issue** - organizations are constantly acquiring new data sources, compounding the data issues
- **Data Governance** – lack of guidelines for creating information drives incompleteness, data quality issues and data inconsistencies.

The CDS Design for Retrieval solution provides an Integrated Standard Part Architecture



Convergence Data Services helps organizations build, integrate and sustain better digital part data.

Build Better Data

- Tools and services that help companies **create, organize, augment, cleanse and validate data**



DFR – Data Developer

- Custom, hierarchical taxonomy** of products and services



DFR – Classification Mgr

- Unified Data Model** that comprises a variety of information sources including item relationships



DFR – Item Loader

Integrate and Sustain Data

- Application and **data integration** capabilities e.g. direct material sourcing applications, engineering tools (DFM, CAD, PDM, etc.)
- NPI – New Part Introduction Workflow**
- Data analysis** tools supporting cluster identification for sourcing or product standardization
- 3rd party content integration** including lifecycle analysis services; material compliance
- Data migration** services for part catalogs, PLM, ERP and other enterprise systems (i2, PTC, JDE, etc.)

Note: i2-Explore Electronics Catalog replacement technology where IHS now owns the data in PartsUniverse today

DFR's Integration Tools ensure extended enterprise integration of your standard part architecture.

■ Application Integration

- PDM, CAD and ERP data integration
- New part request process integration



■ 3rd Party Content Integration

- Multi-dimensional mapping; part number, mfg number and content ref number
- Enabling lifecycle data and Hazmat data services



■ Search Integration

- Custom exporting creating search index's
- Updates for baseline and incremental changes
- UI to configure search tool and access control for users



DFR manages the creation and maintenance of the data model including the cleansing of parametric attribute data.

Design For Retrieval - [Data Developer]

File Edit View Reports Format Tools Window Help

Batch: --ALL BATCHES-- User: --ALL USERS-- Status: --ALL STATUSES--

☐ Browse mode ☐ ValidationMode ☒ Auto Retrieve After Filtering

Home Item Number / Description Where Used Relationship

Retrieve Reset Columns Selected Column Link Part to Document

Recover undo Save for undo Clear All Filters

Views... ☐ Restrict to Allowed Values

Root (1547299)

- DFR Administration (51828)
- Non-Parts (7)
- Organization Information (10590)
- Part Information (1401756)
 - Electrical (248827)
 - #Test (6)
 - #Test2 (15)
 - Assembly, Purchased (1362)
 - Battery (56)
 - Capacitor (29249)
 - Capacitor, Fixed (29155)
 - Capacitor, Variable (94)
 - Circuit Breaker (1718)
 - Coil Form (including Bobbin) (1285)
 - Connector (75109)
 - Core (4290)
 - Crystal/Oscillator (509)
 - Display (6)
 - Fan/Blower (174)
 - Filter (349)
 - Focal Plane Array (4)
 - Fuse (1223)
 - Heater (144)
 - Indicator/Light Source (446)
 - Inductor (1084)
 - Integrated Circuit (IC) (12463)
 - Magnet (17)
 - Magnetics, Miscellaneous (0)
 - Meter (445)
 - Other, Electrical (2672)
 - Power Supply (232)
 - Relay (2047)
 - Resistor (101980)
 - Semiconductor (8608)
 - Surge Suppressor (2)
 - Switch (2923)
 - Transducer (128)
 - Transformer (281)
 - IHS Reference Item (133522)
 - Interconnect, Electrical (18582)
 - Mechanical (266314)
 - Kaw Material (18463)

Batch: --ALL BATCHES-- User: --ALL USERS-- Status: --ALL STATUSES-- Category: Capacitor, Variable (94)

Item Number	Description	ESD Sensitive	ESD Sensitivity Level	FSC	Generic Identifier	Handbook H5 Name	Item Images	Link GIDEP Information to Part	Link Internal Part to Manufacturer Part	Link Part to Attachments	Link Part to Document	Link Part to IHS Reference Part	Link Part to List/Program	Link Part to Related Part	Link Part to Site Part Data	Material, Body	Material, Body
71	DS446	No		5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=1>	GLASS	CAP
72	DS466	No		5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=1>	GLASS	CAP
73	GME11501	No	4	5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=1>	<count=0>	<count=0>	<count=0>	<count=1>		CAP
74	GMG10601	No	4	5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=1>	<count=0>	<count=0>	<count=0>	<count=1>		CAP
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76	L303	No		5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=1>		CAP
77	L304	No		5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=1>		CAP
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79	M39003/06-2049R						<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>	<count=0>		CAP
80	PC2232R5	NULL		5910	PC22		<count=0>	<count=0>	<count=0>	<count=0>	<count=2>	<count=1>	<count=0>	<count=0>	<count=1>		CAP
81	PC22K080	NULL		5910	PC22		<count=0>	<count=0>	<count=0>	<count=0>	<count=2>	<count=1>	<count=0>	<count=0>	<count=1>		CAP
82	PC26J100	No	4	5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=2>	<count=0>	<count=0>	<count=0>	<count=1>	CERAMIC	CAP
83	PC26J140	No	4	5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=2>	<count=0>	<count=0>	<count=0>	<count=1>	CERAMIC	CAP
84	PC26J200	No	4	5910			<count=0>	<count=1>	<count=0>	<count=0>	<count=2>	<count=0>	<count=0>	<count=0>	<count=1>	CERAMIC	CAP
85	PC26T100	No	4	5910			<count=0>	<count=0>	<count=0>	<count=0>	<count=2>	<count=0>	<count=0>	<count=0>	<count=1>	CERAMIC	CAP

UnSelect All Select All

Detail Items

Collection Link Part to Document Item Number PC26J100

	Part Number	Part Number Owner	Qualifier	Item Description	Assigned User	Status	Category Path	Purpose of the Reference
1	MIL-PRF-14409	81349	Document.CAGE...	CAPACITORS, VARIABLE (PISTON TYPE, TUBULAR TRIMM...		Approved	Root\Reference Data\Document Info...	GENERAL SPECIFICATION
2	MIL-PRF-14409/13	81349	Document.CAGE...	CAPACITORS, VARIABLE (PISTON TYPE, TUBULAR TRIMM...		In Work	Root\Reference Data\Document Info...	PRIMARY DEFINITION DOC

UnSelect All Select All

Cancel Commit

Logged in at 4/27/2011 10:49:43 AM / -- admin / DEMO_BOEING

3.6.896.0 MSSQL

DFR maintains the relationships between the digital part data and the related specifications / drawings.

The screenshot displays the SmartFind web application interface. At the top, there are navigation buttons: "New Search", "Find Similar", and "XML Export for Clone". The main content area is divided into two sections. The first section, "Item Summary Information", lists various attributes for a part with Item Number CV98F2R5. The second section, "Item Information", contains tabs for "Item Details", "Performance", "Material", and "Relationships". The "Relationships" tab is active, showing a table of references. A red circle highlights the "Link Part to Document" button. Two yellow callout boxes provide definitions: "General Specification = The document that defines the general requirements & qualifications of the part." and "Primary Definition Doc = The drawing that defines the part itself, e.g. physical dimensions, etc.".

Item Summary Information

Item Number (Part Number)	CV98F2R5
Qualifier	Part.CAGE-Code.81349
Item Description	CAPACITOR, VARIABLE, CAPACITORS, VARIABLE, CERAMIC DIELECTRIC, STYLE CV98
Legacy Part Number (Legacy ObjectID)	22489686
Update	4/10/2006 10:16:25 AM
Category	Root\Reference Data\Part Information\Electrical\Capacitor\Capacitor, Variable
Status	IN_WORK
Noun Name *	CAPACITOR, VARIABLE
Status (per Def. Document)	ACTIVE
FSC	5910
Generic Identifier	CV98
Voltage Rating (V) *	250

Item Information

Item Details Performance Material Relationships

Link Part to Site Part Data Link Part to Document Link Part to IHS Reference Part

Item Number	Qualifier	Description	Purpose of the Reference
MIL-PRF-81	Document.CAGE-Code.81349	CAPACITORS, VARIABLE, CERAMIC DIELECTRIC, GENERAL SPECIFICATION FOR	GENERAL SPECIFICATION
MIL-PRF-81/Q	Document.CAGE-Code.81349	CAPACITORS, VARIABLE, CERAMIC DIELECTRIC, STYLE CV98	PRIMARY DEFINITION DOC

General Specification = The document that defines the general requirements & qualifications of the part.

Primary Definition Doc = The drawing that defines the part itself, e.g. physical dimensions, etc.

SmartFind® 3.6.896.0 SQL DEMO_BOEING - LiveUpdate Convergence Data Services Copyright © 2006-2011

SmartFind search leveraging the IHS part cross-reference

[Home](#)
[View Configuration](#)
[Release Notes](#)
[Help](#)

Logged in as: **rturner**
[Logout](#)

[Punch-out to Parts Universe](#)

[Parts Universe](#)

Search Text:

Search Type:
 Link Part to IHS REF LCM Data
[Manage](#)

List Filter: Part Number
[Upload File](#)
 414-4107-003
 2209616-2
 414-4109-003
 414-4108-005
 414-4108-006

Attribute Filters: [Add Filter\(s\)](#) [Clear Filter\(s\)](#)
 Attribute:
☒ 4D RoHS Compliant
☒ 4D YTEOL
☒ 4D Life Cycle Code
☒ 4D Life Cycle Stage
☒ 4D Mfr Name
☒ 4D Part Status

Operation:
 Equal: YES
 Greater: 3
 Ignore:
 Ignore:
 Ignore:
 Ignore:

Filter:
 Filter:
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Search
 Reset

Templates:
 Lifecycle Data Search - YTEOL & RoHS Compliance
 Global
 Personal

Check All
 UnCheck All

Query – engineer wants to find compliant parts in their parts list

Classification structure showing matches by category

Part Information (46)
 Electrical (38)
 Battery (1)
 Capacitor (1)
 Capacitor, Fixed (1)
 Integrated Circuit (IC) (2)
 IC, Linear (1)
 IC, Linear, DC-DC Converter/Switching Regulator (1)
 IC, Supervisory Circuit (1)
 Resistor (19)
 Resistor, Fixed (2)
 Resistor, Variable (17)
 Semiconductor (15)
 Diode (1)
 Diode, Power (1)
 Optoelectronic Device (13)
 Optoisolator (Optocoupler) (13)
 Transistor (1)
 Transistor, FET (1)
 Transistor, FET, General Purpose, Power (1)
 Uncategorized Parts (8)

Search Results
 Showing items 1-25 of 46

Item Cart
 Quick Stats

Export

	Part Number	ITQ	IHS Object ID	IREFQ	4D RoHS Compliant	4D YTEOL (yr)	4D Life Cycle Code	4D Life Cycle Stage	4D Mfr Name	4D Part Status
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Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE
Add to Cart	HCPL-573K#300	Part.CAGE-Code.50434	2074582240	Part.CAGE-Code.6A920	Yes	10	3.85	MATURE	Avago Tech	ACTIVE

Comparing Parts in a search result

CPIMS <i>BOEING</i>		Home View Configuration Release	
BY CONVERGENCE DATA SERVICES		Logged in as: rrich	
Item Number	M23269/01-3009 ✓	M23269/01-7003 ✓	M23269/10-3078 ✓
ItemID	41725	41777	41921
Qualifier	Part.CAGE-Code.81349	Part.CAGE-Code.81349	Part.CAGE-Code.81349
Revision			
Item Description	CAPACITOR, FIXED, CAPACITORS, FIXED, GLASS DIELECTRIC, (AXIAL WIRE-LEAD TERMINALS), ESTABLISHED RELIABILITY, STYLE CYR10	CAPACITOR, FIXED, CAPACITORS, FIXED, GLASS DIELECTRIC, (AXIAL WIRE-LEAD TERMINALS), ESTABLISHED RELIABILITY, STYLE CYR10	CAPACITOR, FIXED, CAPACITORS, FIXED, GLASS DIELECTRIC, (RADIAL OR AXIAL WIRE-LEAD TERMINALS), ESTABLISHED RELIABILITY, STYLES CYR51, CYR52, AND CYR53
Legacy Part Number	30611074	30611224	30611553
Update	9/2/2009 1:31:26 PM	9/1/2009 10:57:06 AM	9/8/2009 9:19:05 AM
Category	Root\Boeing Reference Data\Part Information\Electrical\Capacitor\Capacitor, Fixed	Root\Boeing Reference Data\Part Information\Electrical\Capacitor\Capacitor, Fixed	Root\Boeing Reference Data\Part Information\Electrical\Capacitor\Capacitor, Fixed
Status	PENDING	PENDING	PENDING
Noun Name	CAPACITOR, FIXED	CAPACITOR, FIXED	CAPACITOR, FIXED
Description	CAPACITORS, FIXED, GLASS DIELECTRIC, (AXIAL WIRE-LEAD TERMINALS), ESTABLISHED RELIABILITY, STYLE CYR10	CAPACITORS, FIXED, GLASS DIELECTRIC, (AXIAL WIRE-LEAD TERMINALS), ESTABLISHED RELIABILITY, STYLE CYR10	CAPACITORS, FIXED, GLASS DIELECTRIC, (RADIAL OR AXIAL WIRE-LEAD TERMINALS), ESTABLISHED RELIABILITY, STYLES CYR51, CYR52, AND CYR53

■ Differences are highlighted.

Where Used Query – Program or Site

CPIMS
BY CONVERGENCE DATA SERVICES

BOEING

[Home](#) [View Configuration](#) [Release Notes](#) [Help](#)

Logged in as: **rturner** [Logout](#)

[Parts Universe](#)

[New Search](#) [Find Similar](#) [XML Export for Clone](#)

Item Summary Information

Item Number (Part Number) M39003/01-6112
Qualifier Part.CAGE-Code.81349
Item Description CAPACITOR, FIXED, CAPACITOR, FIXED, ELECTROLYTIC (SOLID ELECTROLYTE), TANTALUM, (POLARIZED, SINTERED SLUG), ESTABLISHED RELIABILITY, STYLE CSR13
Legacy Part Number (Legacy ObjectID) 29328803
Update 12/20/2005 7:55:36 AM
Category Root\Boeing Reference Data\Part Information\Electrical\Capacitor\Capacitor, Fixed
Status IN_WORK
Noun Name * CAPACITOR, FIXED
Status (per Def. Document) ACTIVE
FSC 5910
Generic Identifier CSR13
Handbook H6 Name CAPACITOR, FIXED
Traceability Code (NASA) TL
Voltage Rating (V) * 22
Capacitance (uF) * 22

Technical Data

Key Relationship Data....

- A part can be used by multiple programs and sites
- A part can have multiple Specification Documents
- IHS Part Cross-References

Item Information

[Item Details](#) [Performance](#) [Material](#) [Relationships](#)

[Link Part to Site Part Data](#) [Link Part to List/Program](#) [Link Part to Document](#) [Link Part to IHS Reference Part](#)

Item Number	Qualifier	Description
28884	Organization.CAGE-Code	THE BOEING COMPANY
18355	Organization.CAGE-Code	BOEING CORPORATION
81205	Organization.CAGE-Code	THE BOEING COMPANY

Relationship Data

SmartFind® 3.6.896.0 SQL

DEV_BOEING - LiveUpdate

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Northrop 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.

PaRTS SEARCH
BY CONVERGENCE DATA SERVICES

Home View Configuration Release Notes Help

Logged in as: rhyneri Logout

Parts Universe Google Cadstar IHS IRC

Search Text: connector circular

Search Type: Standard

Sort Field: Relevance

List Filter: Upload File

Attribute Filter: Add Filter(s) Add Key Attribute(s) Clear Filter(s) Check All UnCheck All

Attribute: Body/Shell Style Ignore UOM X

Attribute: Connector Style Ignore UOM X

Attribute: Contact Gender Ignore UOM X

Attribute: Total Number of Contacts Ignore UOM X

Search Reset

Root\Corporate Catalog\Northrop Grumman Part\Interconnects\Connector\Circular Connector\MIL Circular Connector

Search Results Hide Categories

Root (7179)

Corporate Catalog (7179)

Northrop Grumman Part (7179)

Interconnects (7179)

Connector (7179)

Circular Connector (7179)

MIL Circular Connector (7179)

Search Results Item Cart

Showing items 1-25 of 7179

	Item Number (Corporate Part Number)	Qualifier	Item Description
Add to Cart	MS3456KT28-21S	Part.0	CONNECTOR, PLUG, CABLE, CIRCULAR, 5015, SHELL SIZE 28, 37 #8 CONTACTS
Add to Cart	MS3456LS22-2SW	Part.0	CONNECTOR, PLUG, CABLE, CIRCULAR, 5015 SERIES, SHELL SIZE 22, 3 #8 CONTACTS

- Punch out to IHS catalog data

- Refine by Key Attributes

- Key word search:

- Links to external data
- Information Handling Services (IHS)
- XSB

Standard Parts List flags also integrated into CAD tool menus

Standard Parts List Parametric and Inventory Search

Links to specification documents in IHS's Parts Universe – 2 different models

Outside the Firewall – IHS Parts Universe

IHS 4DONLINE Parts Universe User: CDS

Results Documents Details Environmental Compare Transfers Mfr Info Alerts Life Cycle

Part Number: AM27H010-45DC Mfr Name: AMD PS: D

Part Documents

Document Title	Document Type
A) 27H010, DATASHEET (1994/07/01)	Datasheet
A) 27010, DATASHEET (1993/07/01)	Datasheet
A) 27010, DATASHEET (1991/03/01)	Datasheet
F) PACKAGE CODES (2001/05/17)	Package
F) PACKAGE CODES (2001/04/05)	
F) THRU-HOLE LEADED PACKAGES (2001/04/05)	
F) CHAPTER 6 PACKAGE MATERIALS (2001/04/05)	
F) CERAMIC DUAL-IN-LINE PACKAGES (2000/02/10)	Package
F) PERFORMANCE CHARACTERISTICS OF IC PACKAGES (2000/02/10)	Package
F) OVERVIEW OF PACKING OPTIONS FOR AMD PRODUCTS (1999/11/17)	Package

Environmental Documents

mental Documents

Link to Documents showing key data sheets and package documents for the associated Northrop part.

Inside the Firewall

- IHS – 80 million parts w/ critical lifecycle and compliance data
- Datasheets – contain manufacturability information, performance characteristics, and material data

Item Information

Item Details Performance Material Relationships

Link Part to Site Part Data Link Part to Document Link Part to IHS Reference Part

Item Number	Qualifier	Description	Purpose of the Reference
MIL-PRF-81	Document.CAGE-Code.81349	CAPACITORS, VARIABLE, CERAMIC DIELECTRIC, GENERAL SPECIFICATION FOR	GENERAL SPECIFICATION
MIL-PRF-81/9	Document.CAGE-Code.81349	CAPACITORS, VARIABLE, CERAMIC DIELECTRIC, STYLE CV98	PRIMARY DEFINITION DOC

WebDFR – supporting the new part creation process, classifying parts and entering the correct attribute data.

Valve

Find Category

Clear Results

Clone Item...

Cancel

Continue -->

Item Number: 242342134Raytheon

Available Classifications (filtered by: "Valve")

Unapproved terminal categories are not available.

ROOT

Parts

Oil and Gas

Wellhead and Flowcontrol Products

Actuators

Assembly

Valves

Parts and Components

Valve, Other

Ball Valves

Actuated

Manual

Gate, Dual Cavity

Actuated

Manual

Gate, Single Cavity

Actuated

Manual

Flow control

Surface equipment

Pressure control

Check valve union

Currently Selected Classification

Manual

Approvers: AdminF AdminL, Matt Ditrolio

The operation of a valve by means of a handwheel.

Attributes:

ALTERNATE DESCRIPTION

ALTERNATE METRIC DESCRIPTION

API MONOGRAMMED

API SPECIFICATION

API WELLHEAD MATERIAL CLASS

Business Unit

CONNECTION SIZE

CONNECTION SIZE FRACTIONAL

CONNECTION TYPE

DEFAULT UNITS

DESCRIPTION - CLEAN 60

EQUIPMENT CONDITION

GROSS WEIGHT

INSIDE DIAMETER, NOMINAL

INVENTORY TYPE

ITEM REVISION

LEGACY DESCRIPTION

LEGACY REVISION LEVEL

LIFECYCLE STATE

LONG DESCRIPTION

Make-Buy

MANUFACTURER NAME

MANUFACTURER PART NUMBER

IMG SERIAL NUMBER

MODE OF OPERATION

MODEL DESCRIPTION

Retstart Classification

Item Number

Category:

Cat. Approvers:

Item Description:

ALTERNATE DESCRIPTION

ALTERNATE METRIC

API MONOGRAMMED

API SPECIFICATION

API WELLHEAD MATERIAL CLASS

Business Unit *

CONNECTION SIZE *

CONNECTION SIZE FRACTIONAL

Engineers enter required attribute data for new part

Item Classification		rtturner Logout	
<input type="button" value="Restart Classification"/>	<input type="button" value="Validate"/>	<input type="button" value="Cancel"/>	<input type="button" value="Save to Database"/>
Item Number: 242342134Raytheon			
Category:	Root\Parts\Oil and Gas\Wellhead and Flowcontrol Products\Valves/Gate, Single Cavity\Manual		<input type="button" value="Change Category"/>
Catg. Approvers:	AdminF AdminL, Matt Ditrolio		
Item Description:	<div style="border: 1px solid black; padding: 5px; min-height: 40px;">Valve, 1/4 ID, Stainless, WS202, Chrome</div>		Legend: Required * Recommended + Optional

ALTERNATE DESCRIPTION *	<input type="text"/>	Required
ALTERNATE METRIC DESCRIPTION *	<input type="text"/>	Required
API MONOGRAMMED *	<input type="text"/>	Required
API SPECIFICATION *	<input type="text"/>	Required
API WELLHEAD MATERIAL CLASS *	<input type="text"/>	Required
Business Unit *	<input type="text" value="v"/>	Required
CONNECTION SIZE *	<input type="text" value="12.34"/>	in <input type="text" value="v"/>
CONNECTION SIZE FRACTIONAL *	<input type="text" value="45.5"/>	mm <input type="text" value="v"/>
CONNECTION TYPE *	<input type="text"/>	Required
DEFAULT UNITS *	<input type="text" value="v"/>	Required
DESCRIPTION - CLEAN 60 *	<input type="text" value="cp"/> <input type="text" value="ea"/>	Required
EQUIPMENT CONDITION *	<input type="text" value="ft"/> <input type="text" value="gl"/> <input type="text" value="gm"/> <input type="text" value="in"/>	Required
GROSS WEIGHT *	<input type="text" value="ft"/> <input type="text" value="kg"/> <input type="text" value="l"/> <input type="text" value="lb"/> <input type="text" value="m"/> <input type="text" value="si"/> <input type="text" value="yd"/>	lbs-mass <input type="text" value="v"/> Required
INSIDE DIAMETER, NOMINAL *	<input type="text" value="ft"/> <input type="text" value="kg"/> <input type="text" value="l"/> <input type="text" value="lb"/> <input type="text" value="m"/> <input type="text" value="si"/> <input type="text" value="yd"/>	in <input type="text" value="v"/>
INVENTORY TYPE *	<input type="text" value="ft"/> <input type="text" value="kg"/> <input type="text" value="l"/> <input type="text" value="lb"/> <input type="text" value="m"/> <input type="text" value="si"/> <input type="text" value="yd"/>	Required
ITFM REVISION *	<input type="text" value="ft"/> <input type="text" value="kg"/> <input type="text" value="l"/> <input type="text" value="lb"/> <input type="text" value="m"/> <input type="text" value="si"/> <input type="text" value="yd"/>	Required

Engineers find the category for a new part

Enforcing Data Governance

Edit items
EVV lists
Validations

Cluster of Duplicate Casters from different suppliers, used by different business units that have different prices

☐ Automatic Calculation

Calculate 4:24:29 PM

Batch
HNI Item Cluster

Neighbor Distance
2.00

Save cluster as Batch

Save

Export

Recent Selections
F-FM00115296

Attribute	Critical	Weight Factor	Weight Null	Weight Neg	Occurrences	Minimum	Maximum	Base UOM
Cluster Name	<input type="checkbox"/>	1000	0	0	0			
Stem Length	<input type="checkbox"/>	10	1	1	18	1	1.375	in
Stem Size	<input type="checkbox"/>	10	1	1	18	0.3125	0.4375	in
Item Height	<input type="checkbox"/>	1	1	1	24	2.625	6.25	in
Wheel Width	<input type="checkbox"/>	1	1	1	24	0.8125	1.25	in
Attaching Bolt Size	<input type="checkbox"/>	0	0	0	6	0.25	0.25	in
BALL DIAMETER	<input type="checkbox"/>	0	0	0	18	2	2	in
Bar Code Number	<input type="checkbox"/>	0	0	0	0			
BEARING STYLE	<input type="checkbox"/>	0	0	0	24	Delrin	Delrin	
Bolt Hole Spacing	<input type="checkbox"/>	0	0	0	6	13/16 x...	13/16 x...	
Color 1	<input type="checkbox"/>	0	0	0	24	Black	Chrome	

Small Neighbor Distance will find close duplicates

Item Number	Qualifier	Neig			Item Unit Cost	Vendor Item Number	Vendor Name	Cluster Name	Item Height	Stem Length	Stem Size	Wheel Width
F-FM00115296	Part.0	5	0.000	HBF	9.70...	9FM00115296	E. R. Wagner	9FM00115296	2.625000	1.375000	0.437500	0.812500
H-115296	Part.0	5	0.000	HON Company	3.51...	9FM00115296	E. R. Wagner	9FM00115296	2.625000	1.375000	0.437500	0.812500
A-5296	Part.0	5	0.000	Allsteel Inc	6.95...	9FM00115296	E. R. Wagner	9FM00115296	2.625000	1.375000	0.437500	0.812500
G-4836	Part.0	5	0.000	Gunlocke Co...	5.45...	9FM00115296	E. R. Wagner	9FM00115296	2.625000	1.375000	0.437500	0.812500
L-FM115296	Part.0	5	0.000	Lamex	4.95...	9FM00115296	E. R. Wagner	9FM00115296	2.625000	1.375000	0.437500	0.812500
M-504836	Part.0	5	0.000	Maxon Furniture	8.72...	9FM00115296	E. R. Wagner	9FM00115296	2.625000	1.375000	0.437500	0.812500

Attribute Data Grid is used to set weighting factors critical to the cluster analysis

Results are displayed in the lower grid. This cluster analysis returned items with similar / same technical characteristics.

- **Technical Attributes are same for clustered items – Friction Ring Stem caster**
- **Internal Item Numbers for same caster are different among 6 business units**
- **Supplier Part numbers are same from all 6 variations of the item number**
- **Item Unit Cost varies from \$3.51 to \$9.70 for the same item**



Eng Analysis for std parts and Sourcing for Market Baskets

Summary Slide

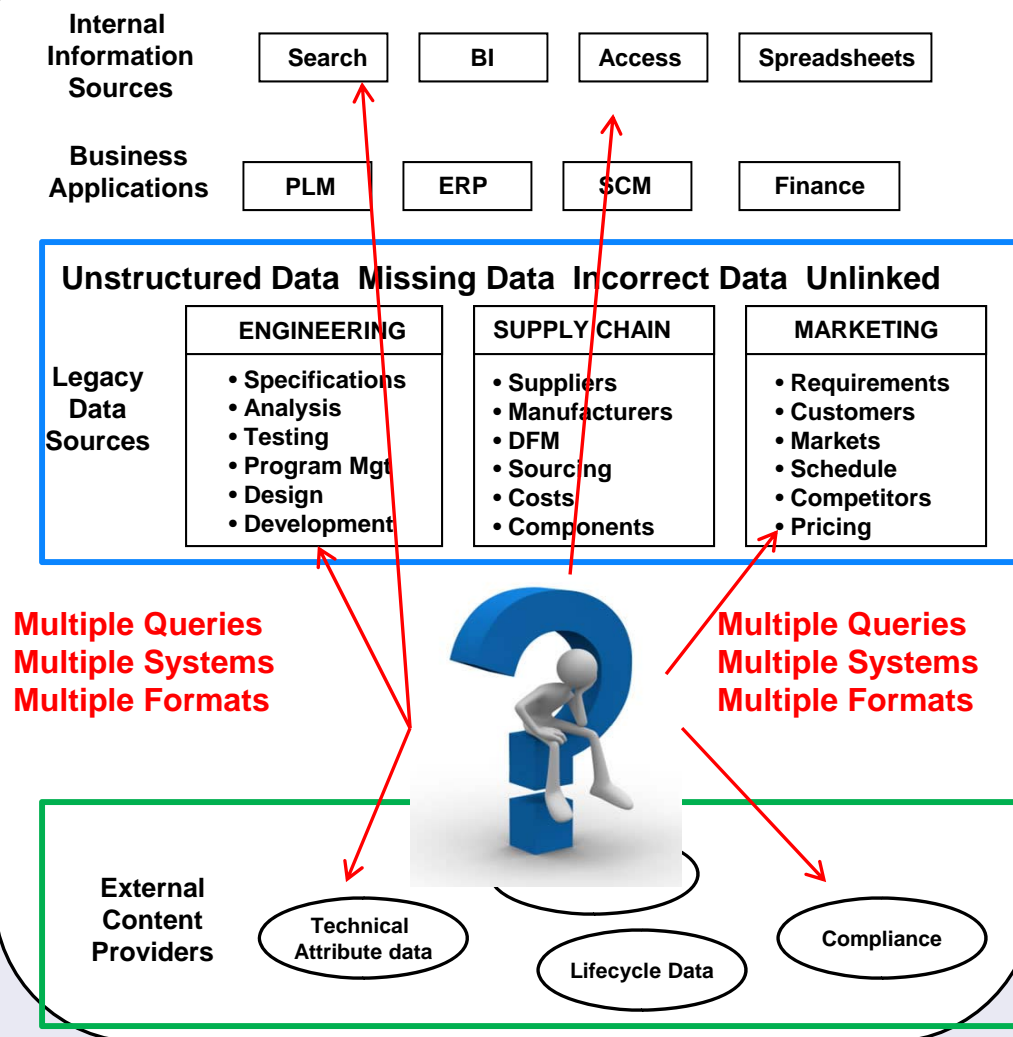


- Specifications are critical to design in Aerospace
- We are dependent on many outside agencies providing and maintaining specifications
- Specifications that aren't easy to find or not current can cause a lot of problems
- Having digital data elements on specifications and associating specifications to the parts they impact is critical to being efficient
- Having a process to insure updated specifications get properly disseminated is also critical



Summary – We can help you not be this person

Typical Corporate Data Architecture



Roadblocks

- **Unstructured Data** – missing data, erroneous data and unlinked data elements
- **Decentralized** – data within and outside the enterprise resides in multiple databases
- **Ineffective Aggregation** – vital sources of information are not effectively aggregated, including information existing outside the firewall
- **Compounding Issue** - organizations are constantly acquiring new data sources, compounding the data issues
- **Data Governance** – lack of guidelines for creating information drives incompleteness, data quality issues and data inconsistencies.