

# Maximizing Your Company's Return on Data (RoD)

24 April 2012



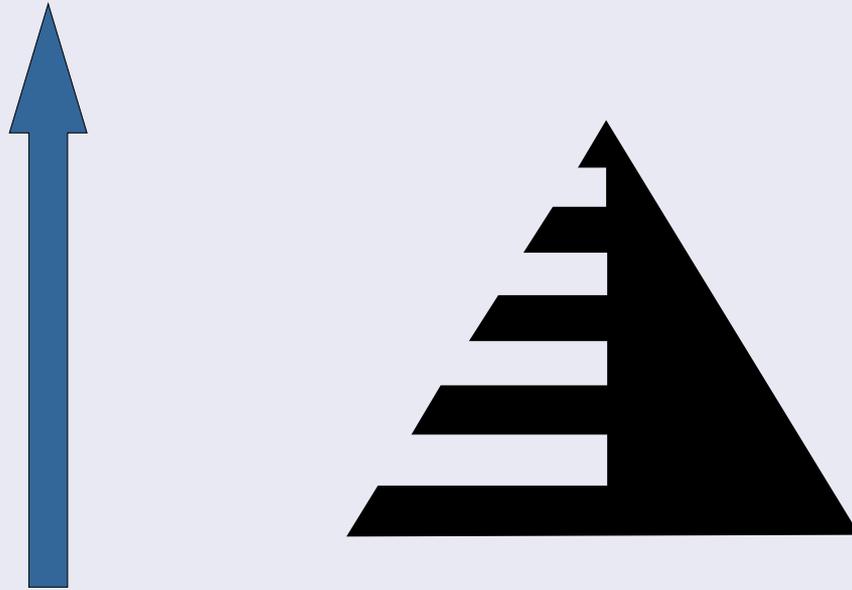
## Why investigate improving return on data?



**“I was awfully curious to find out why I didn’t go insane.”**

***Abraham Maslow, 1908-1970***

# Capabilities build on each other....



....from the most basic to the most complex

## Discussion Topics

---

- Company & Product Background
- Poor Return on Data Dilemma
- Improving and Sustaining Return on Data

# Convergence Data Services - Overview



**Our Mission is to help our customers extract more value out of their enterprise systems with improved item data.**

## ■ Our Focus

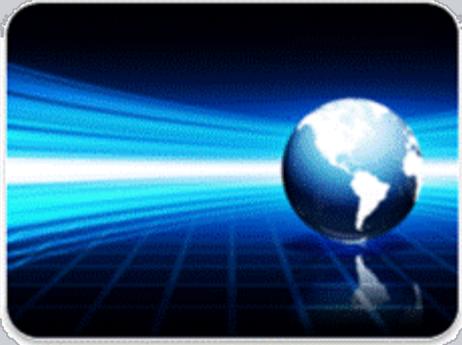
- Leading provider of Component and Supplier Management Solutions
- 10+ years experience in providing advanced Software and Consulting Services to industries including Aerospace / Defense, Consumer / White Goods, and Oil / Gas

## ■ Primary Areas Served Today – *client examples*

- Product Development – *Northrop Grumman standard part reuse and NPI*
- Strategic Sourcing – *Whirlpool direct materials cost reduction*
- Managing Compliance Data – *Boeing IHS third party content integration*
- Product Cost Management – *Whirlpool cost modeling enablement*
- ERP/PLM Data Migration – *Weatherford acquisition integration*

# CDS - Solutions that Power Decision Making

## CDS Solution Offerings

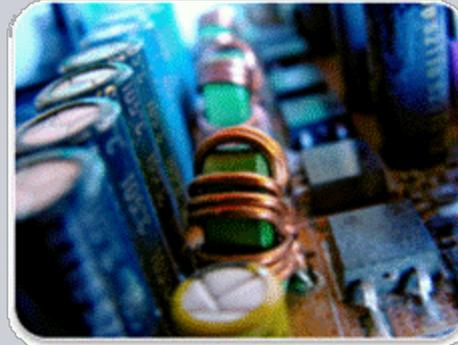


### Create Item Taxonomies, Data Models and Data

- Assign item Attributes & Relationships
- Establish Allowed Values and Units of Measure
- Manage Data Migration, Cleansing and Validation Processes



***Core Item Classification Database Manager and Catalog***



### Browse, Search & Analyze Item Catalog

- Navigate Classification Structure
- Perform attribute value based parts searching
- Compare, Save and Export search results



***Web-based Browse and Search***



### Simplify Data Entry & Editing

- Form-like, web-based
- Real-time data validation
- Manage your parts lists – My Items
- Part classification
- Supports Relationships



***Web-based Item Creation and Editing***

## Discussion Topics

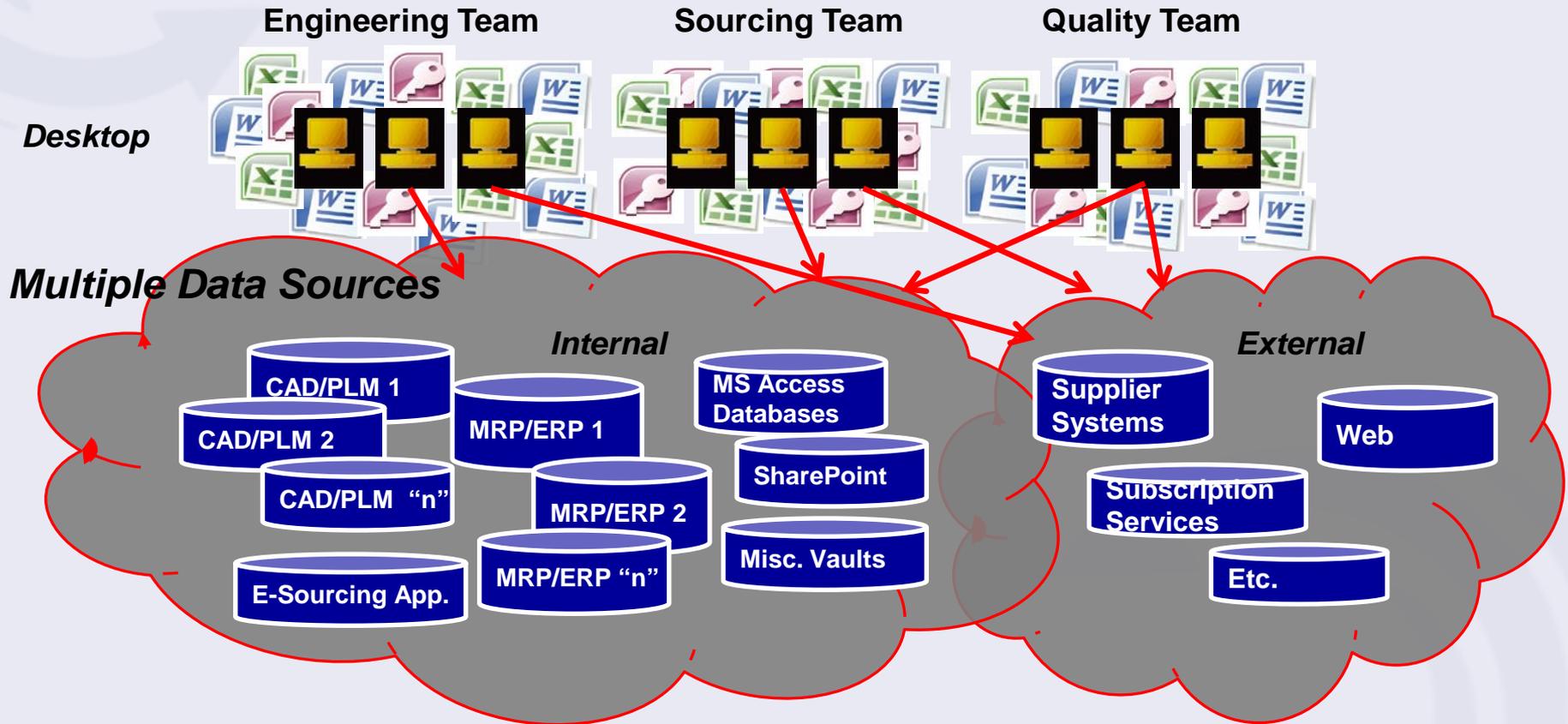
---

- Company & Product Background

- Poor Return on Data Dilemma

- Improving and Sustaining Return on Data

# Typical corporate scenario



## Current Architecture/Technology Challenges

- Number of Legacy Systems
- Functional Silo Systems
- Manual Systems (Excel, Access, Word etc.)
- Technical architecture of legacy systems

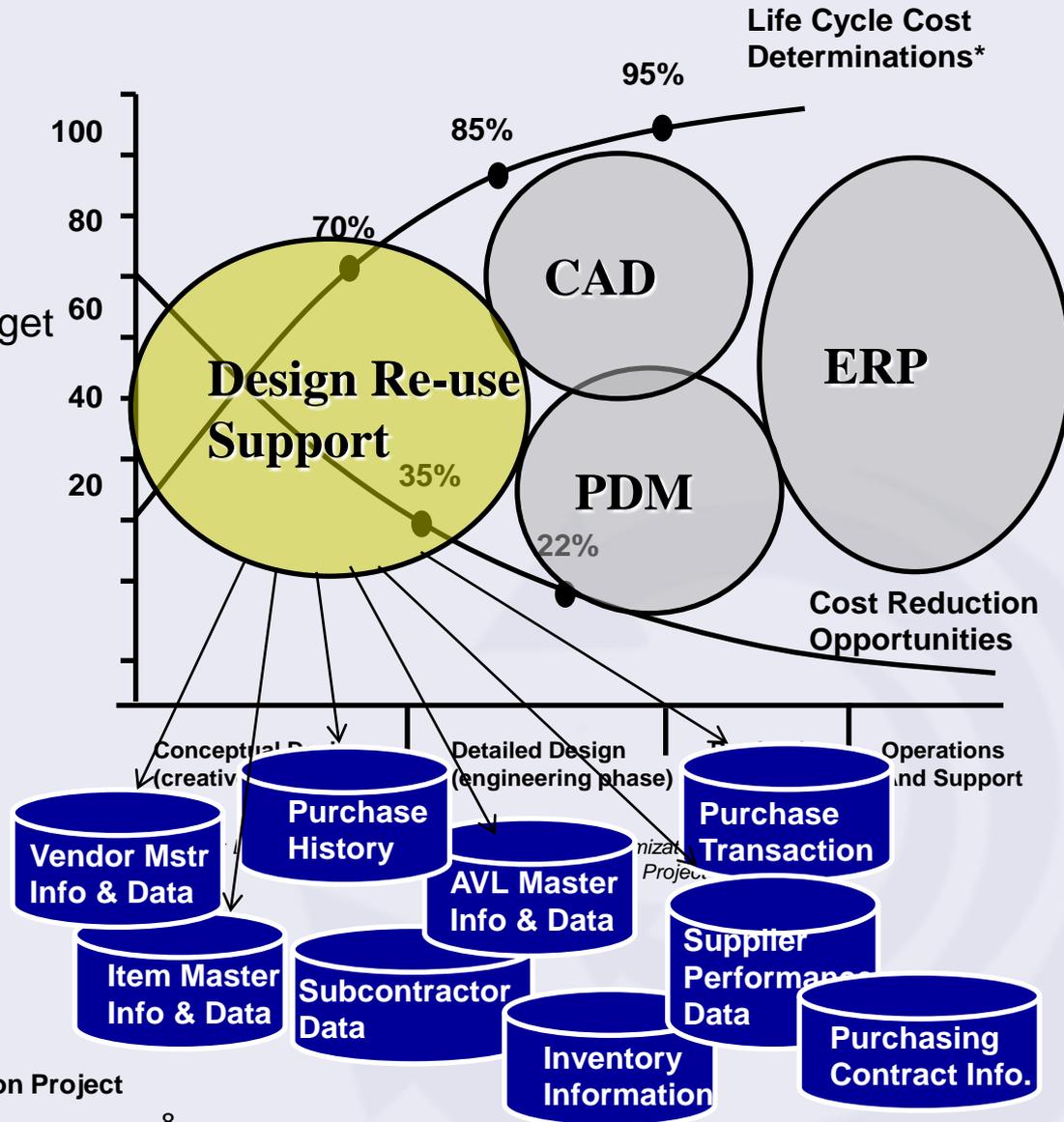
## Current Data Challenges

- Accuracy
- Completeness
- Volume
- Duplication

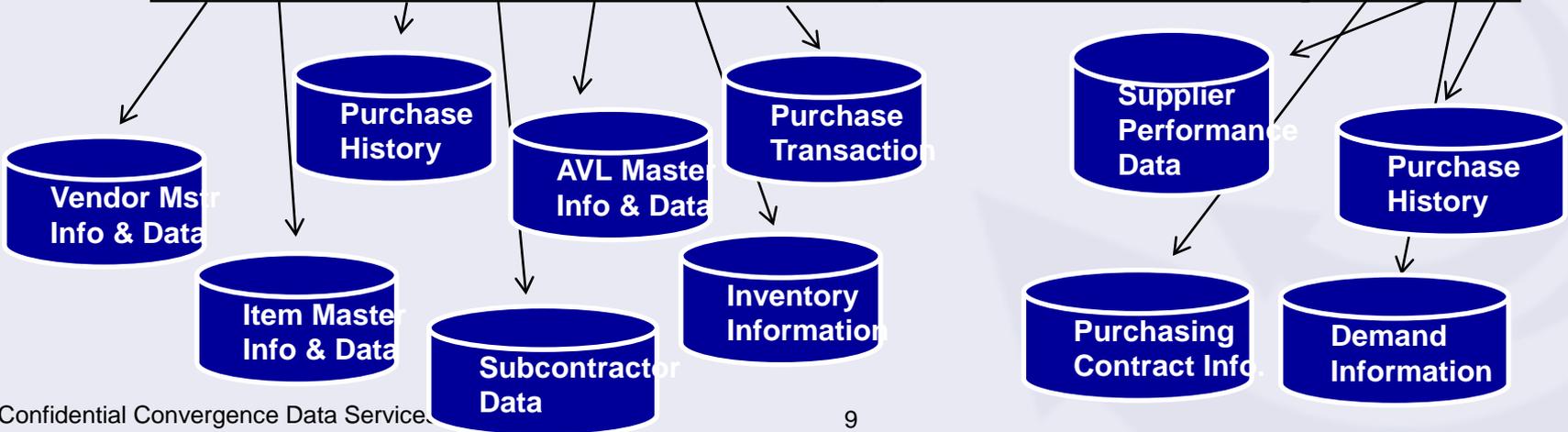
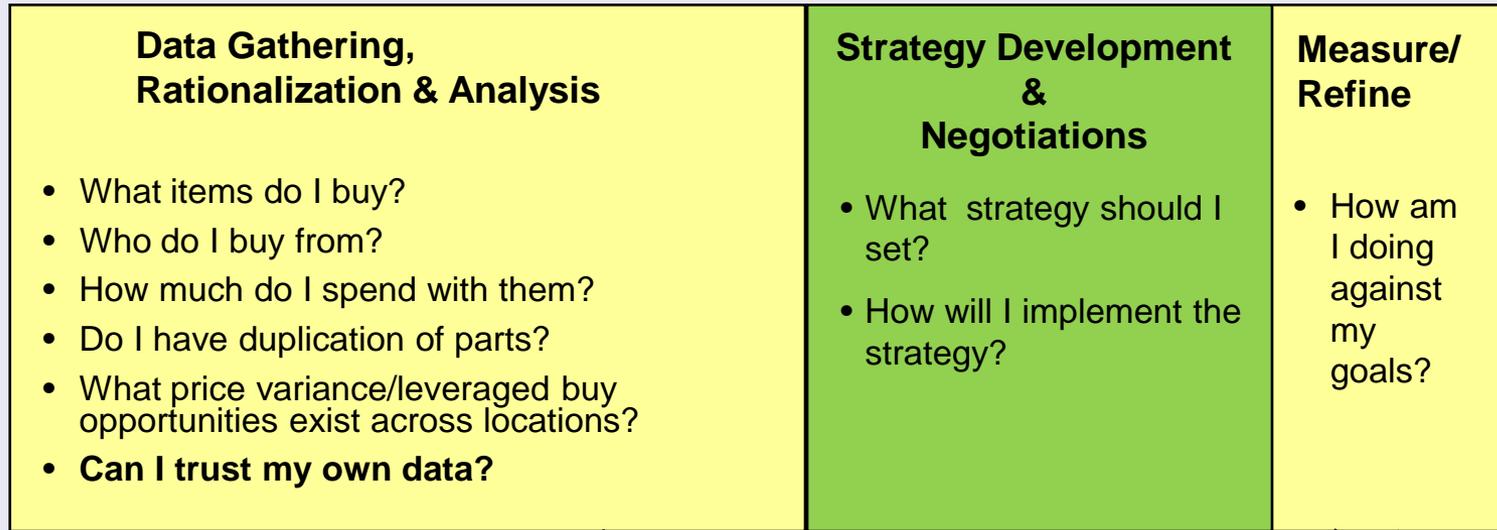
# Impact on product design / development

## Early Design Support....

- Do I have a part for re-use?
- What parts will help me meet my target cost?
- How reliable is this supplier?
- Which one do I buy the most of?
- Which supplier is closest to the manufacturing plant?
- Are there compliance or counterfeit issues with this part?

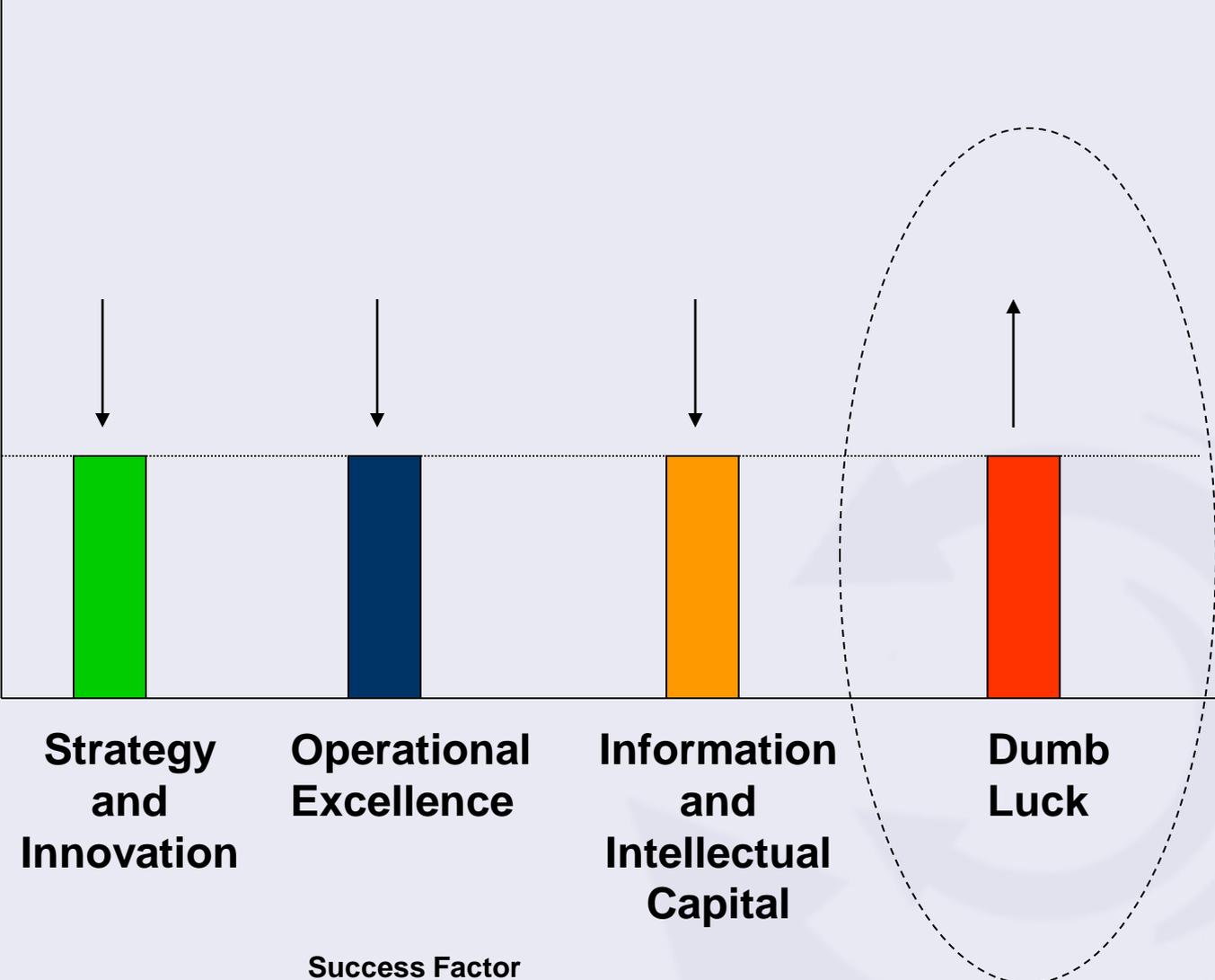


# Impact on supplier management



# A more direct view

Percent Contribution to Success



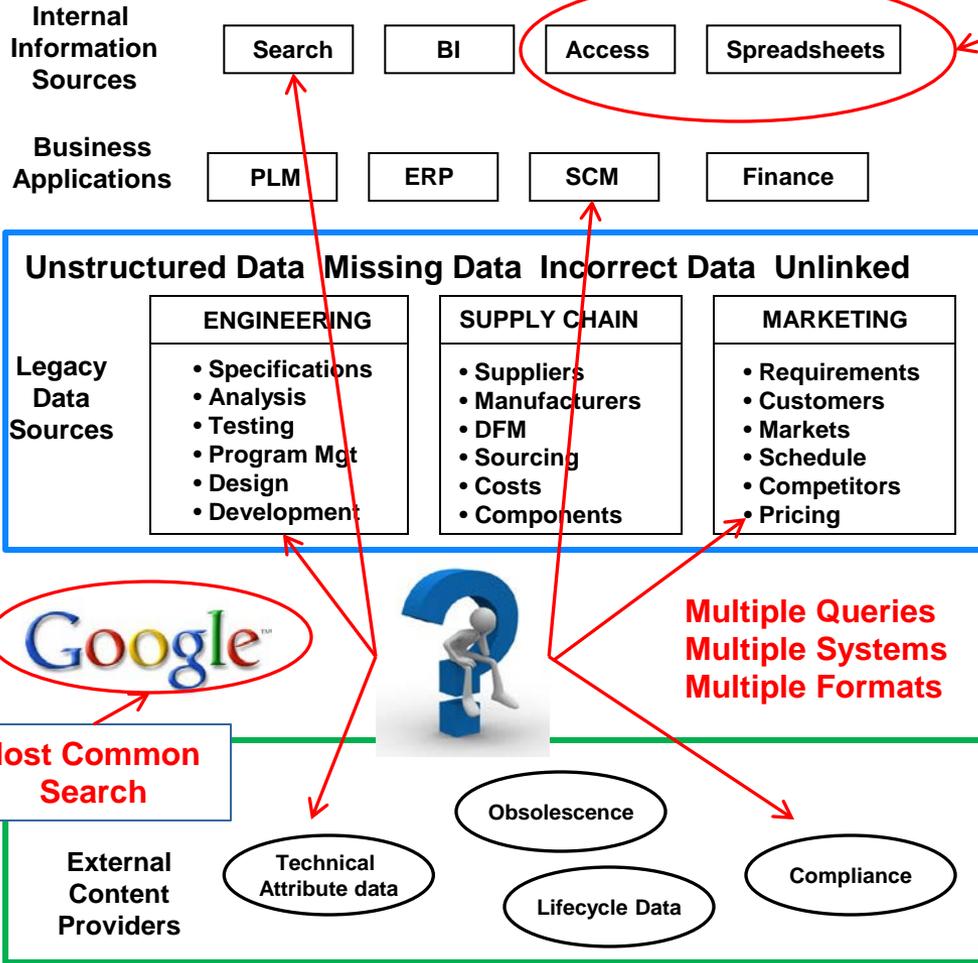
## Discussion Topics

---

- Company & Product Background
- Poor Return on Data Dilemma
- Improving and Sustaining Return on Data

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

## Typical Corporate Data Architecture



Most Common Tools

## 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.
- **Searching Issues** – tools like PLM are not easy to use to get the results you desire and not everyone likes to use PLM tools.

## Specific Problems and their Impact on Companies today.....

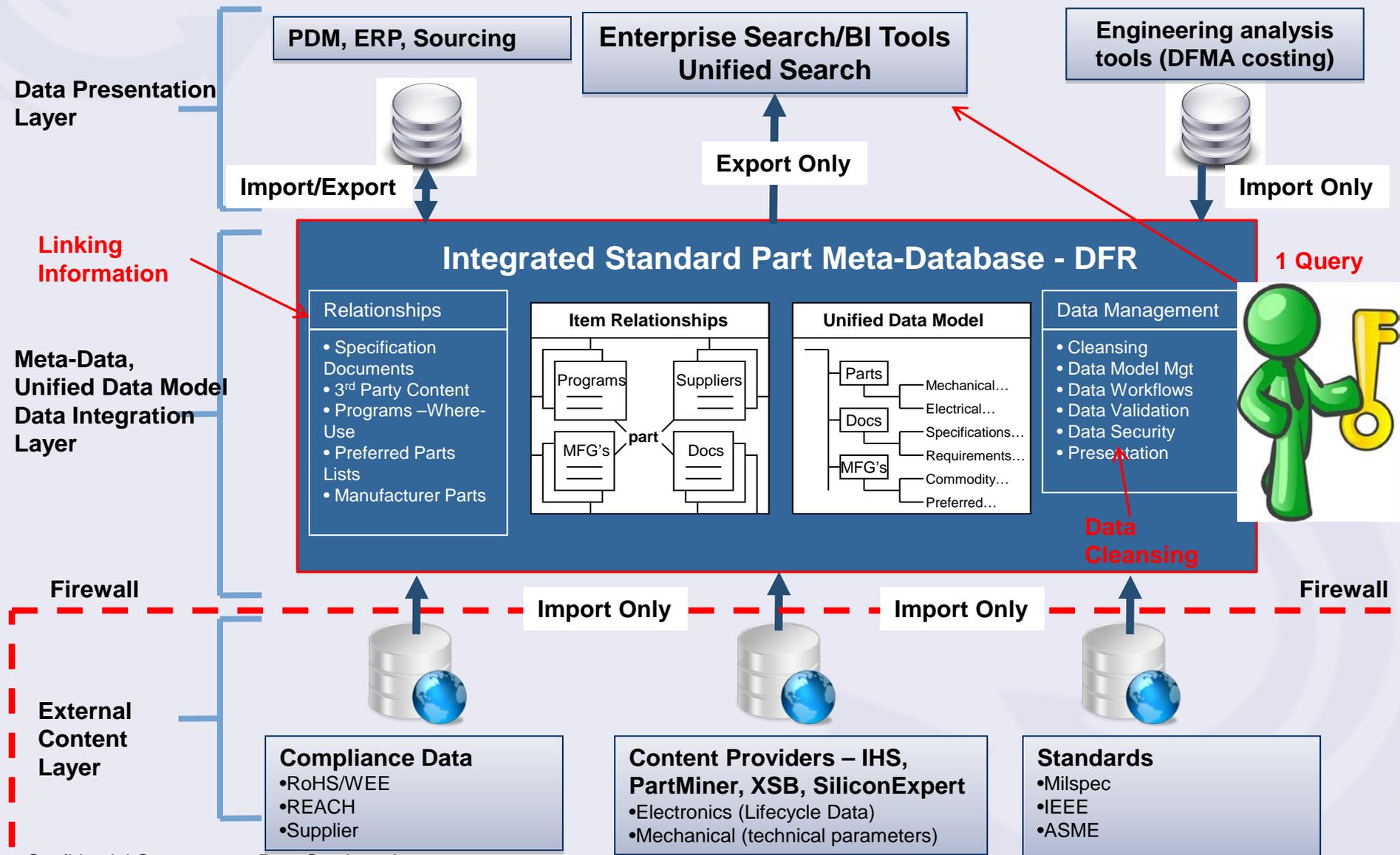
### Problem

- Selecting an unapproved part
- Searching multiple places
- Creating a new part

### Impact

- Material compliance, lifecycle, quality and new supplier issues
- Wasted time, extra administration, delayed product launches
- Increase costs, inventory, number of suppliers

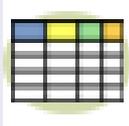
# The CDS Design for Retrieval solution provides an Integrated Standard Part Architecture



# 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
- **3<sup>rd</sup> 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.)

# Migrating Your Legacy Data

## For Greenfields moving data from different legacy systems

- Legacy data can reside in many different systems – especially if a company has acquired businesses
  - Extract data from different repositories – normalize against a single data model
  - Each system will have different fields, nomenclature, and data quality standards

**Step 1: Categorize your parts today**

**Step 2: Enter your critical attribute data**

**Step 3: Create relationships (docs, parts)**

Menu selections are based on user privileges

Item Number	Functional Group Code	Generic Number	IHS Part Status	JESD-609 CODE	Manufacturer Package Description	Manufacturer Part Description	Manufacturer Part Status (per Document)	Manufacturer Series	Mounting Feature	Multilayer	Negative Tolerance	Operating Temperature-Max	Operating Temperature-Min	Package Shape
06033C104KAT2A	F005355913		ACTIVE	e3	CHIP	X7R DIELECTRIC CAPACITOR	PRODUCT	X7R	SURFACE MOUNT	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC
C2012X7R1E105KT	F007499824		ACTIVE	e3	CHIP, ROHS COMPLIANT	GENERAL PURPOSE MULTILAYER CERAMIC CAPACITOR	PRODUCT	C	SURFACE MOUNT	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC
C2012X7R1E105KT-1	F007499824		ACTIVE	e3	CHIP, ROHS COMPLIANT	GENERAL PURPOSE MULTILAYER CERAMIC CAPACITOR	PRODUCT	C	SURFACE MOUNT	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC
GRM21BF50J106ZE01L	F006324404		ACTIVE	e3	CHIP, ROHS COMPLIANT	MONOLITHIC CERAMIC CAPACITOR	PRODUCT	GRM21	SURFACE MOUNT	1	20.00 %	85.00 degC	-30.00 degC	RECTANGULAR PAC
K104K15X7RF5TL2	F004407502		ACTIVE	e3	RADIAL LEADED, POLYPROPYLENE	MULTILAYER CERAMIC CAPACITOR	PRODUCT	K	THROUGH HOLE	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC
K104K15X7RF5TL2-1	F004407502		ACTIVE	e3	RADIAL LEADED, POLYPROPYLENE	MULTILAYER CERAMIC CAPACITOR	PRODUCT	K	THROUGH HOLE	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC
UPW1E681MPD	F005355913		ACTIVE	e3	CHIP	X7R DIELECTRIC CAPACITOR	PRODUCT	X7R	SURFACE MOUNT	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC
UPW1E681MPD-1	F005355913		ACTIVE	e3	CHIP	X7R DIELECTRIC CAPACITOR	PRODUCT	X7R	SURFACE MOUNT	1	10.00 %	125.00 degC	-55.00 degC	RECTANGULAR PAC

Item Number	Qualifier	Item Description	Status	Category Path	STATUS OF RELATIONSHIP
0215012.MXP	Part.LITTELFUSE INC	CAPACITOR, CERAMIC, MULTILAYER, 25 V, X7R, 0.1 uF, SURFACE MOUNT, 0603	New	Root\IHS Reference Data\IHS Altern...	Qualified
0215012.MXP1	Part.FAIRCHILD SEMICONDUCTOR CORP	CAPACITOR, CERAMIC, MULTILAYER, 25 V, X7R, 0.1 uF, SURFACE MOUNT, 0603	New	Root\IHS Reference Data\IHS Altern...	Pending Qualification
0215012.MXP2	Part.RECTRON LTD	CAPACITOR, CERAMIC, MULTILAYER, 25 V, X7R, 0.1 uF, SURFACE MOUNT, 0603	New	Root\IHS Reference Data\IHS Altern...	Qualified

# Creating New Parts

## The new process for creating new parts – data governance

Category 2 – Your New Parts

Creating and classifying New Parts  
Managing a Parts List

Classify parts, enter and validate  
attribute data

**Step 1: Assign Part Numbers**

Item Number	Item Description	Modified	Save	Edit	Clone
INT4-102313	256K X 4 FAST PAGE DRAM, 70 ns, CDIP20	Wed 5/18/2011			
INT4-102314	256K X 4 FAST PAGE DRAM, 80 ns, CDIP20	Wed 5/18/2011			
INT4-102315	256K X 4 FAST PAGE DRAM, 60 ns, PDIP20	Wed 5/18/2011			
INT4-102316	1M X 1 STATIC COLUMN DRAM, 120 ns, PDSO20	Wed 5/18/2011			
INT4-102317	256K X 1 STATIC COLUMN DRAM, 150 ns, PDIP16	Wed 5/18/2011			
INT4-102318	1M X 1 STATIC COLUMN DRAM, 80 ns, PDSO20	Wed 5/18/2011			
INT4-102319	1M X 1 NIBBLE MODE DRAM, 80 ns, PZIP20	Wed 5/18/2011			
INT4-102320	4M X 1 FAST PAGE DRAM, 60 ns, PDSO20	Wed 5/18/2011			
INT4-102321	256K X 4 VIDEO DRAM, 120 ns, PZIP28	Wed 5/18/2011			
INT4-102322	1M X 4 FAST PAGE DRAM, 80 ns, PDIP20	Wed 5/18/2011			

**Step 2: Classify and Enter Attribute Data**

Item Number: INT4-102313

Qualifier: Part.Org-ID.INT-ORG4

Revision:

Item Description: 256K X 4 FAST PAGE DRAM, 70 ns, CDIP20

Category: Root\Parts\Electrical\Integrated Circuit (IC)\IC, Memory\IC, Memory, DRAM

Cat. Approvers: AdminF AdminL, Student01, Student06, Kirkwood, Richard cravec, ferrae1, mconnet, Jen Nerbonne, Jennier Nerbonne

Cat. Attachments:

Attributes

OPERATING MODE *	ASYNCHRONOUS
PACKAGE STYLE *	IN-LINE
TECHNOLOGY *	CMOS
Access Mode *	FAST PAGE
Access Time-Max (tACC) *	70 ms
Additional Feature Hazmat *	RAS ONLY; CAS BEFORE RAS; HIDDEN
Alert/Prediction Date *	22-Jul-05
Alternate Memory Width *	32
Component Length - Metric *	24.89 mm
Component Width - Metric *	7.62 mm
Document Last Verified Date *	1-Sep-93
DRAM Type *	FAST PAGE DRAM
JESD-30 Code *	R-CDIP-T20
JESD-97 Code *	e1
LCM Availability *	0
LCM Estimated YTEOL *	zero yr Invalid number
LCM Last Buy Date *	
LCM Last Delivery Date *	
LCM Life Cycle Status *	DISCONTINUED
LCM Part Status *	Preferred
LCM Status Code *	5 NO UNITS
Lead Free *	no
Manufacturer Package Description *	SIDE BRAZED, METAL SEALED, CERAM
Manufacturer Part Description *	MOS 262144-BIT DYNAMIC RANDOM AC

## CDS Case Studies: Aerospace Clients Creating Electronics Databases

### A & D Client A

#### --drive standard part reuse--

- Replaced legacy i2/Aspect electronics parts catalog technology with DFR / Oracle
- Implemented API to promote integration with several other enterprise systems e.g. multiple PDM systems
- Migrated items including documents, parts, and program data. Consolidated data model.
- Provided client a way to configure their own search features, by category, and with the ability to bulk load settings into DFR
- 3<sup>rd</sup> party content integration utilizing Information Handling Systems (IHS) electronic parts catalogs (4D online)
- Still certifying tens of million of dollars in annual savings four years into full deployment

### A & D Client B

#### --replace an aging tool--

- Replaced legacy i2/Aspect electronics parts parts catalog technology
- Implemented Group Access Management -- controls what search users can see during searching
- Developed an easier way to make changes to their classification -- i2 systems deemed too difficult to maintain
- Migrated over 3 million items plus 2 million relationships
- Implemented Collection Attribute technology to support many to many relationships e.g. part to program, part to document, document to attachments, etc.

Migrating data btw systems offers opportunity for some house cleaning

## CDS Case Studies: Cost Savings Client Success Stories

### Oil and Gas

#### --managing growth--

- A \$2 Billion company in 2001 acquired over 50 companies in 6 years and inherited more than 20 legacy business systems (> 1 million parts with huge potential for duplication and obsolete inventory) grew to \$9 Billion in 2010
- Converted data for Endeca Search, Windchill PDM and JD Edwards ERP. Consolidated, Classified and Cleansed over 500k parts. Today they have 850k parts in our database.
- Consolidated over 250k duplicates during data conversion effort, i.e. multiple businesses were ordering the same part and applying a different part number.
- Benefits achieved from direct materials sourcing (supplier and inventory consolidation starting with raw materials and common buy items)

### Appliance

#### --containing escalating costs--

- CDS brought on to supply component data and analysis tools for direct material sourcing team
- Developed enterprise classification structure for all items including parts, subsystems, documents, and modular items (300k parts)
- All new part requests are now classified into a proper category with attribute data
- Integrated engineering and sourcing analysis tools including DFMA should costing tools, Endeca Search, PTC Windchill, ProE and Mentor Graphics CAD systems
- Support commodity road maps with DFR Item Mapping Tool – single migration plan for each commodity group
- On track to save \$1 billion in spend annually

#### Cost Reduction – Common Buy Items

# Conclusions

## Lessons Learned

- You need quality data for effective decision support
- Your data model is not static – it will change with your business (acquisition, products, regs)
- Supporting a simple easy to use search tool will promote adoption otherwise engineers will use Google and procure unapproved and/or duplicate parts
- Integrate your third party content into your own data model – keep your obsolescence and compliance data current
- When converting legacy data, start with high value items first – e.g. common buy items across programs
- Unified search model – group data coming from different systems so users only have to go to one place to find what they need - create a single view of a part



“What a man can be, he must be.”



*Abraham Maslow, 1908-1970*