Maximizing Your Company's Return on Data (RoD)

24 April 2012

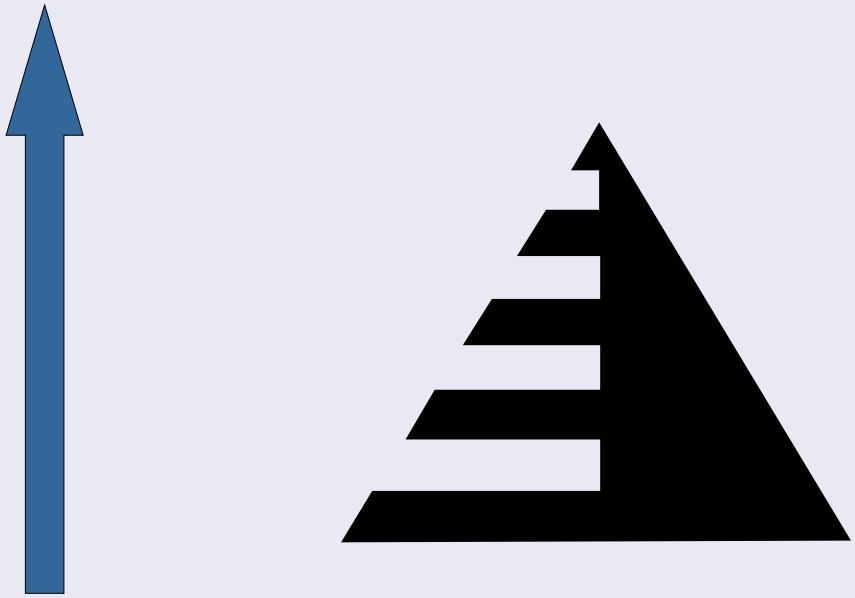
convergence
DATA SERVICES

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

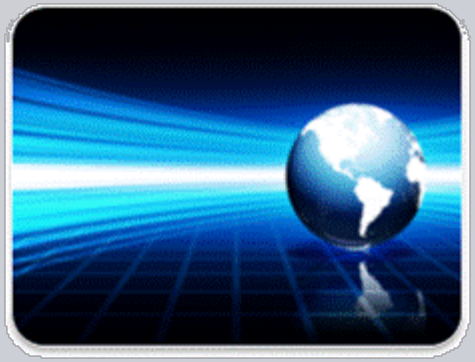
Convergence Data Services - Overview

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**

DESIGN FOR RETRIEVAL® BY CONVERGENCE DATA SERVICES

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**

SMARTFIND BY CONVERGENCE DATA SERVICES

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**

WEBDFR BY CONVERGENCE DATA SERVICES

Web-based Item Creation and Editing

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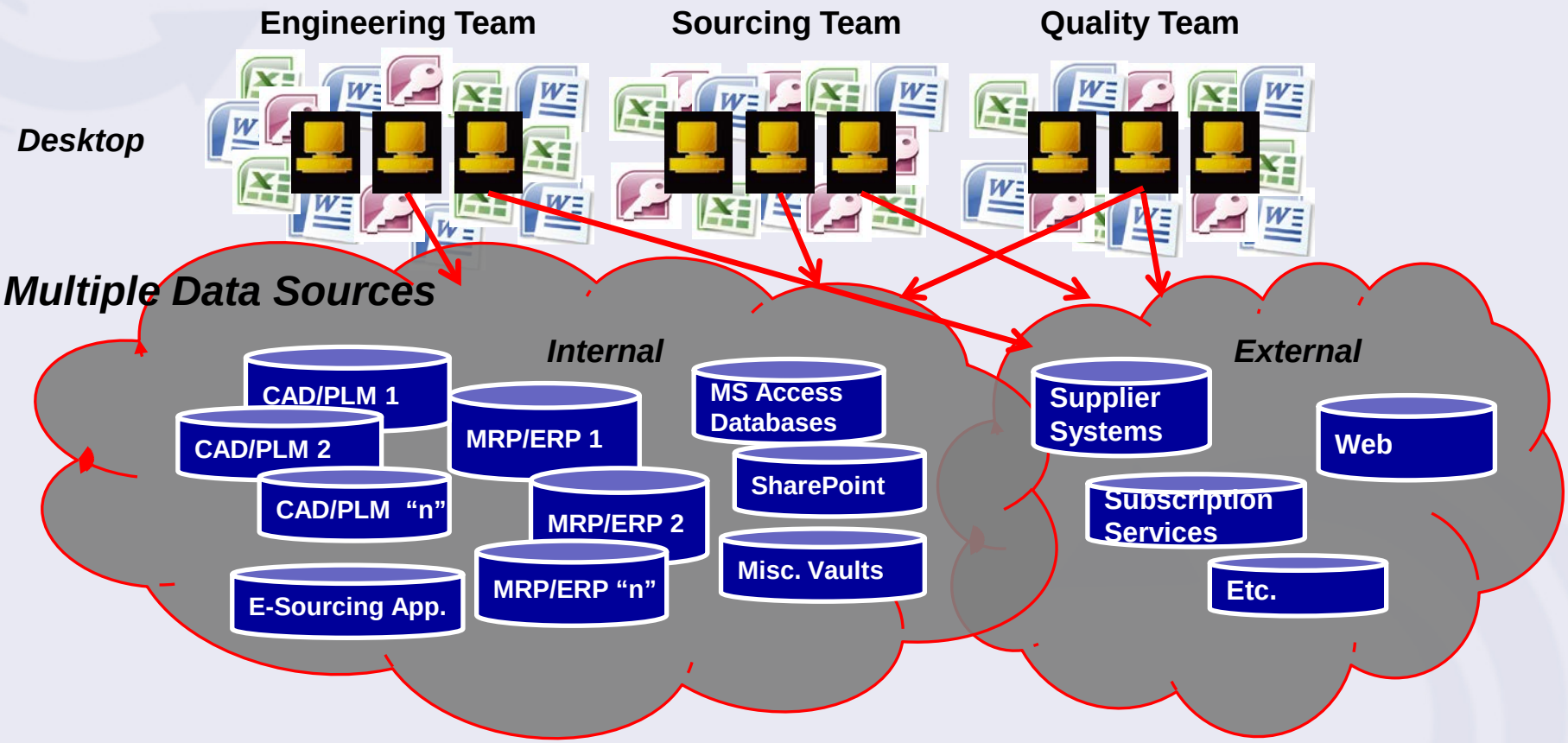
Typical corporate scenario



Current Architecture/Technology Challenges

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

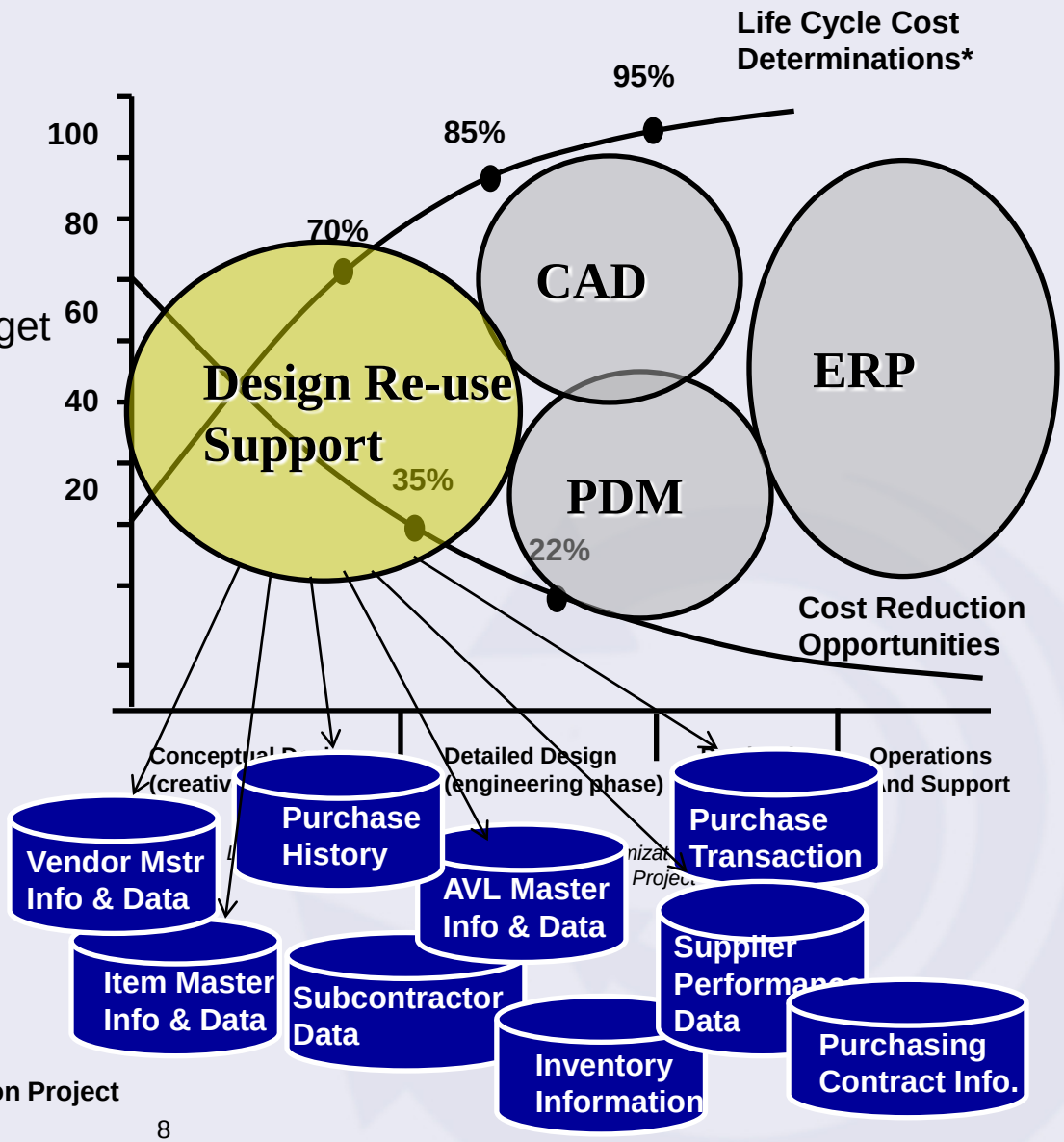
Current Data Challenges

- Accuracy
- Completeness
- Volume
- Duplication

Impact on product design / development

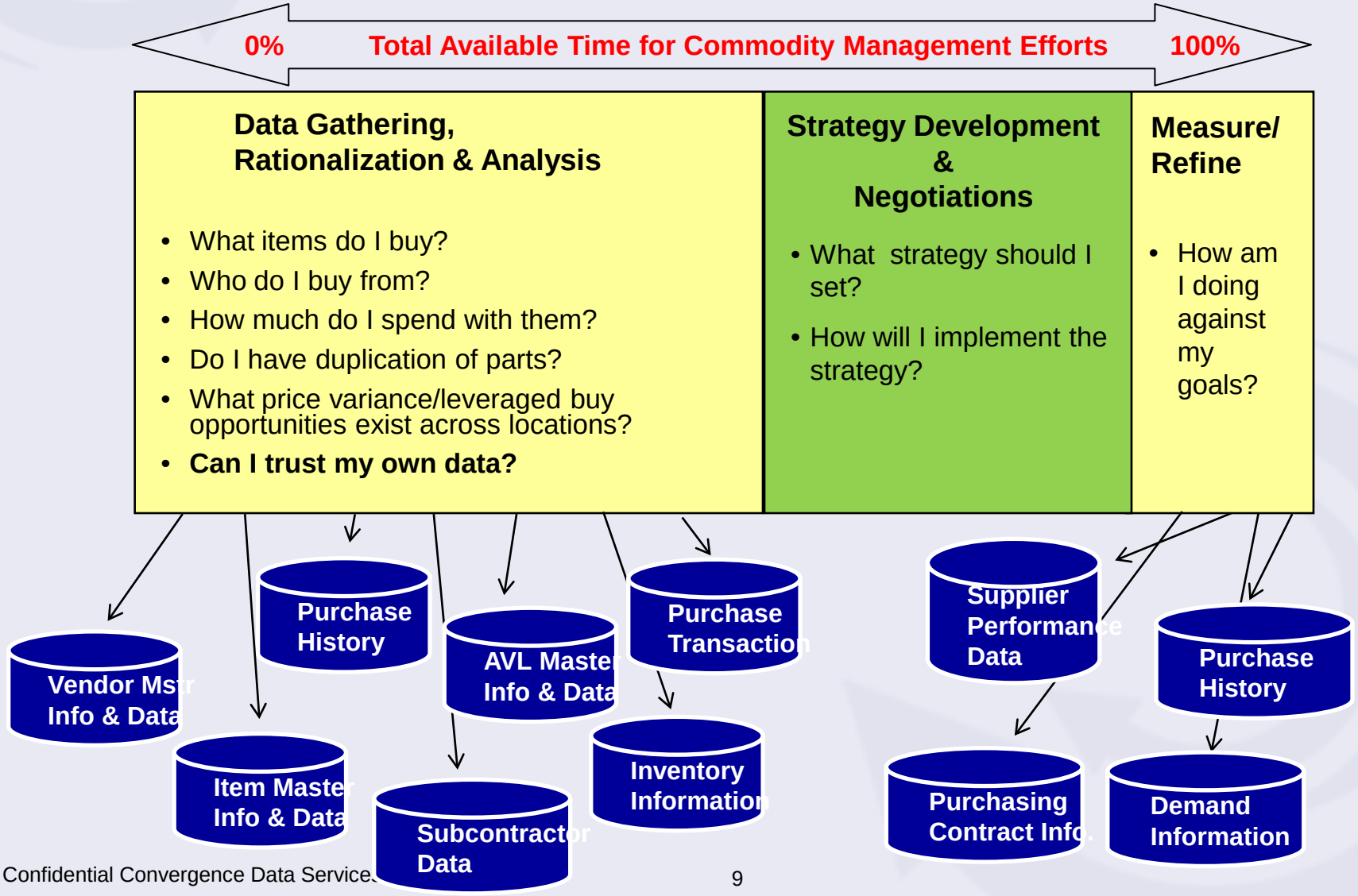
Early Design Support….

- 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?

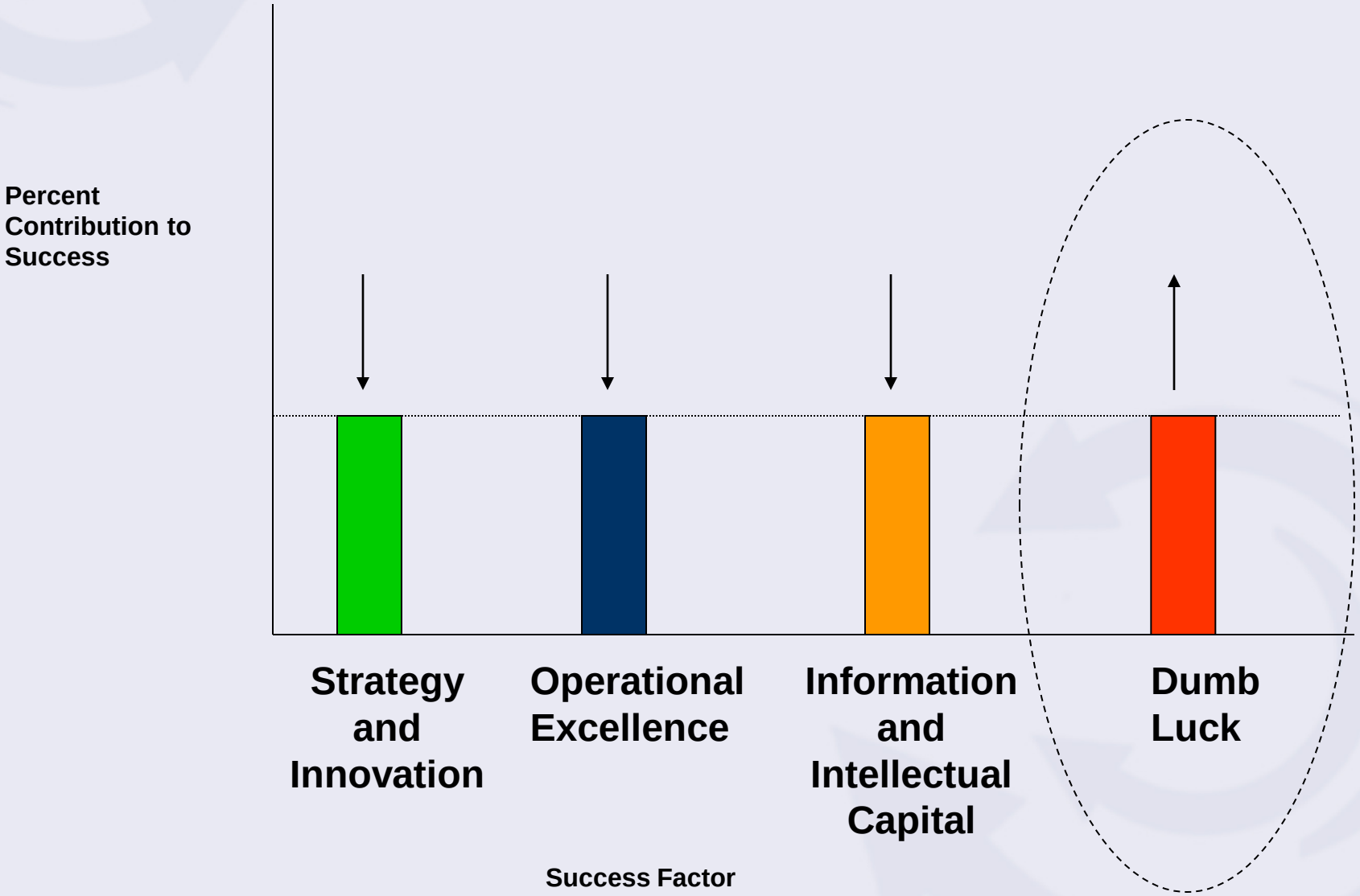


***Source: DARPA Rapid Design Exploration & Optimization Project**

Impact on supplier management



A more direct view



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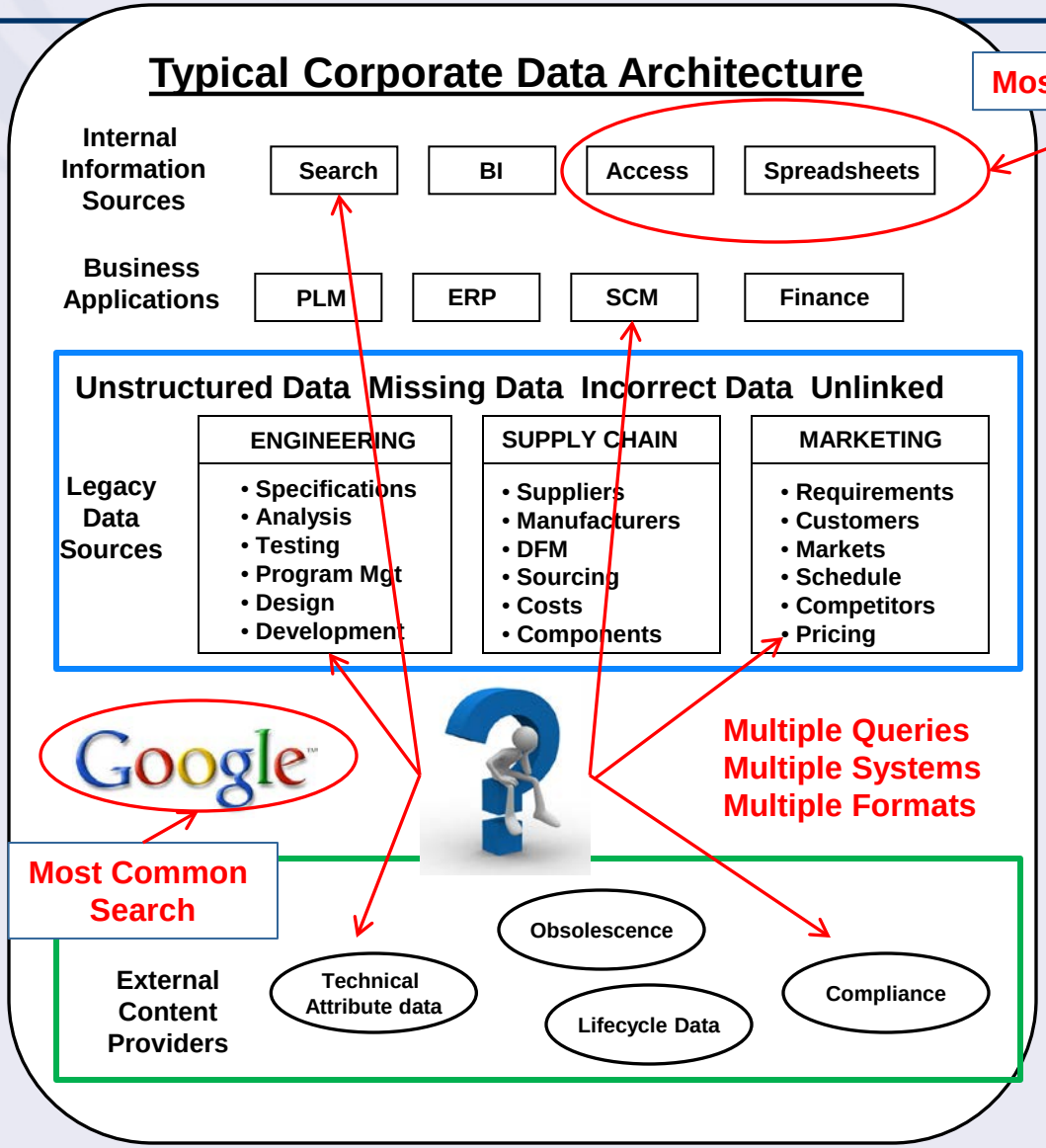
The typical corporate information management infrastructure lacks a complete, integrated digital representation of part data.



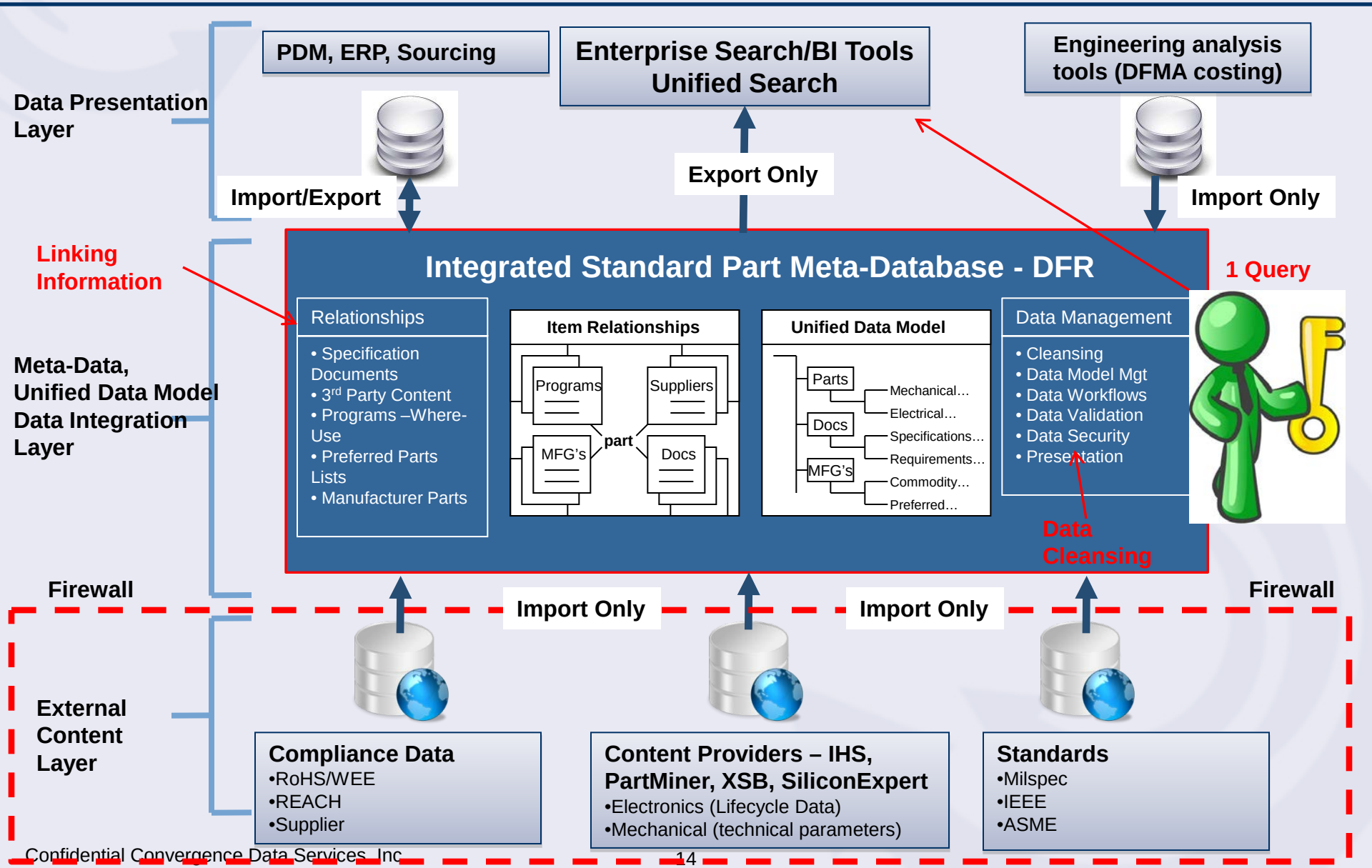
Roadblocks

- **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	Impact
• Selecting an unapproved part	• Material compliance, lifecycle, quality and new supplier issues
• Searching multiple places	• Wasted time, extra administration, delayed product launches
• Creating a new part	• 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

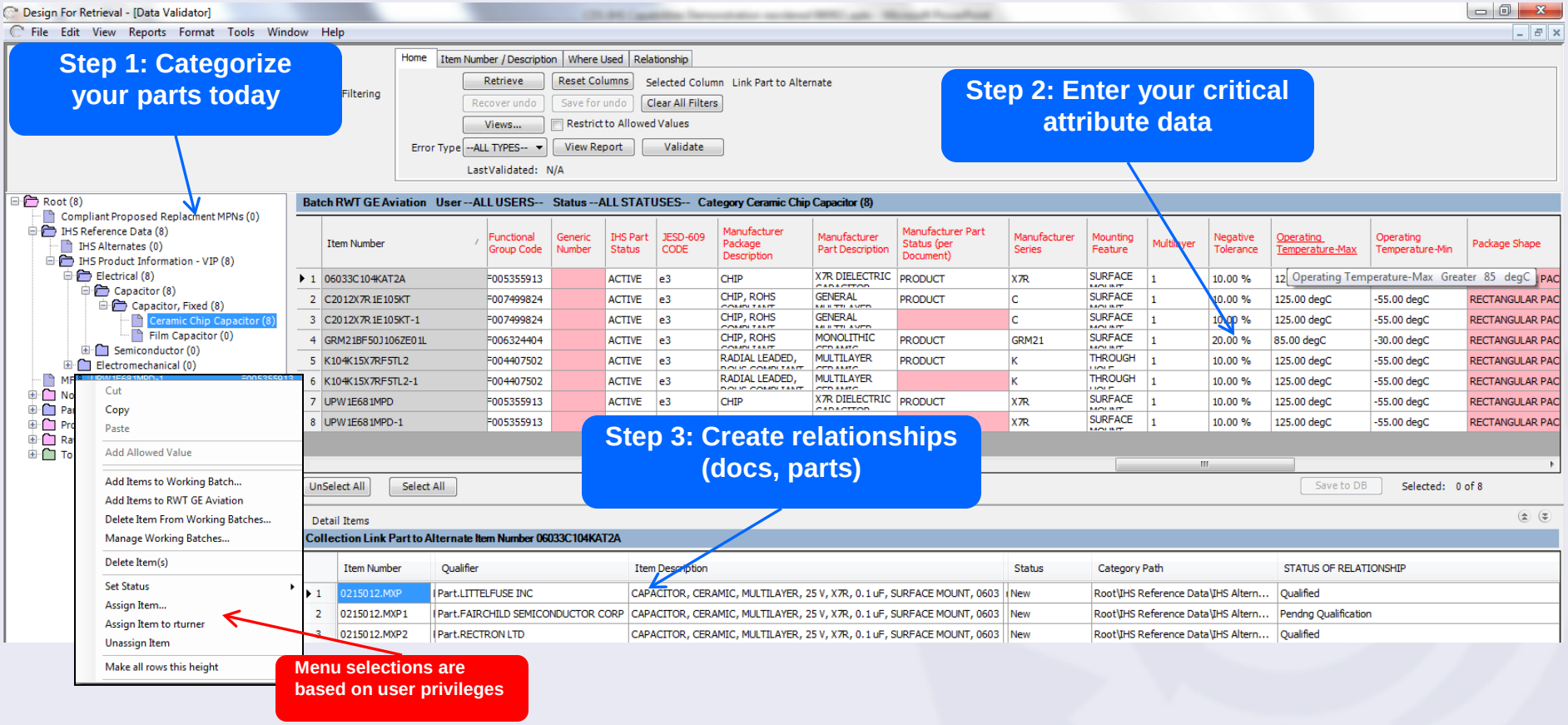
- Application and **data integration** capabilities e.g. direct material sourcing applications, engineering tools (DFM, CAD, PDM, etc.)
- **NPI – New Part Introduction Workflow**
- **Data analysis** tools supporting cluster identification for sourcing or product standardization
- **3rd party content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

Category 1 – Your Legacy Data

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



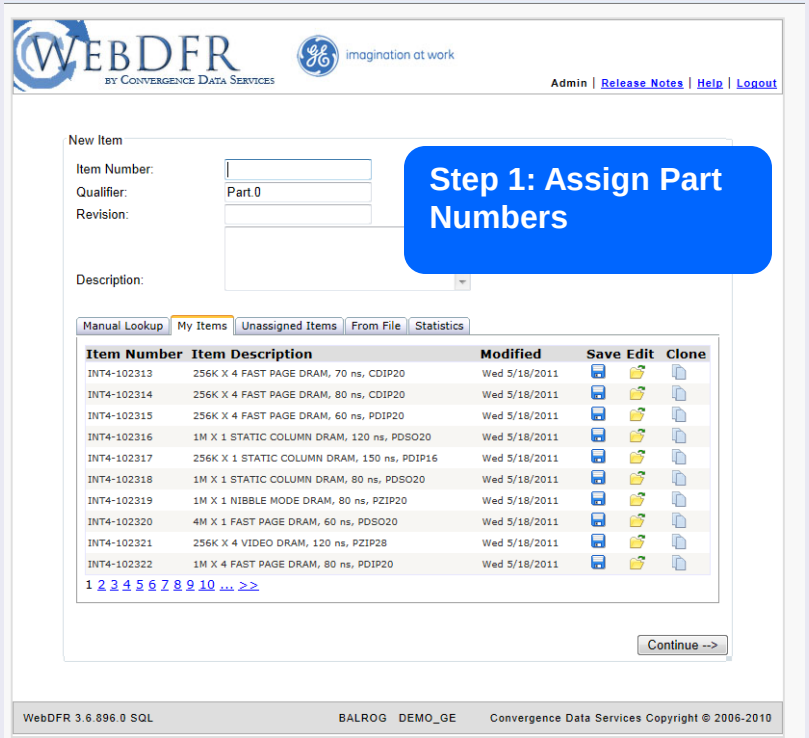
Category 2 – Your New Parts

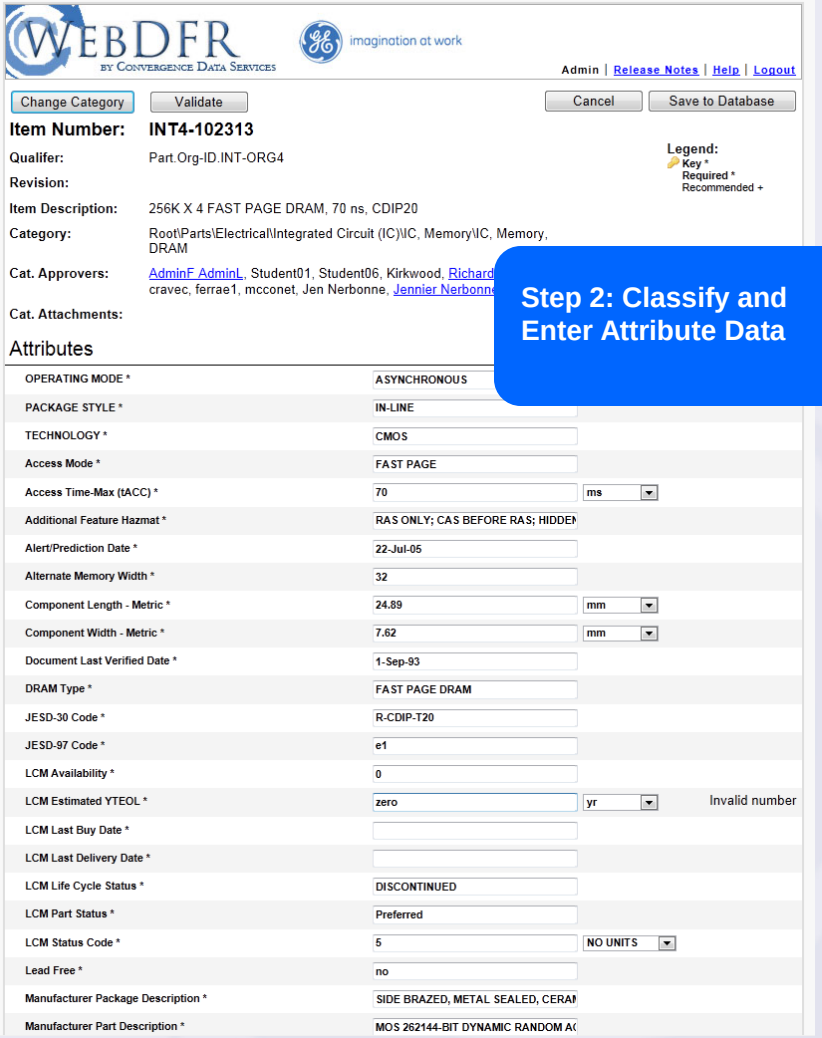
Creating New Parts

The new process for creating new parts – data governance

Creating and classifying New Parts
Managing a Parts List

Classify parts, enter and validate attribute data





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
- 3rd 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

Greenfield – Data Factory Data Conversion Process from Multiple Legacy Systems

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