Master Data Management for Information Quality

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Jonghoon Chun, Ph.D.
President & CEO
Prompt, Inc.
http://www.prompt.co.kr
Email: jchun@prompt.co.kr
• “Master Data Management (MDM), also known as Reference Data Management, is a sub-discipline of data architecture within information technology that focuses on the management of reference or master data that is shared by several disparate IT systems and groups. MDM is required to warrant consistent computing between diverse system architectures and business functions.” (Wikipedia)

• “A new way to correct the age-old problem in companies that the left hand does not know what the right hand is doing. The goal: Merge all the disparate, oft-conflicting records you have on customers and transactions into one authenticated master file.” (S. Jae Yang)

• “Master Data sets are synchronized copies of core business entities used in traditional or analytical applications across the organization, and subjected to enterprise governance policies, along with their associated metadata, attributes, definitions, roles, connections and taxonomies. (David Loshin)
• “A set of disciplines, applications, and technologies for harmonizing and managing the system of record and system of entry for the data and metadata associated with the key business entities of an organization.” (Colin White, Claudia Imhoff)

• “MDM is a set of corporate disciplines that ensures that corporate reference data, such as charts of accounts and customer information, is presented in a clear and consistent manner across the enterprise.” (Al Moreno, Greg Mancuso)

• “Master data is the official data representation of the real entities that are part of the business and where real objects are those that physically exist in the world.” (Richard Skriletz)
MDM Dissected

- MDM (Master Data Management)
  - Master Data + Data Management
- Master Data
  - Core business entities, like customer, product, vendor etc.
  - Master data vs. reference data
  - System of record
- Data Management
  - Acquire, improve, and share master data
  - Usually applied at source on an on-going basis (vs. project-based approach)
  - Data governance
  - Integration to collect & share master data
- Goal: to provide both inherent and pragmatic information quality!
Some Statistics

- MDM market is predicted to grow to $10.4 billion by 2009, with a compound annual growth rate of 13.8%. (IDC)
- Suffer from poor master data quality (83%) (TDWI survey)
  - Inaccurate reporting (81%)
  - Which data is appropriate or trusted (78%)
  - Bad decisions based on incorrect definitions (54%)
- Benefits from good master data quality (50%) (TDWI survey)
  - Improvements in data quality (76%)
  - Accurate reporting (75%)
  - Better decision making (69%)
- The business entities most often defined in master data (TDWI survey)
  - Customer (74%)
  - Products (54%), Financials (56%)
  - Business partners (49%), employees (45%), location (41%)
MDM for Information Quality

• Information quality requirements
  – Interoperability, supply chain, regulatory/compliance requirements

• Data-driven approach
  – Master vs. Non-master data
  – MDM > CDI(Customer Data Integration), PIM(Product Information Management)

• Metadata management
  – Who, what, why, when, where and how
Physical SOR vs. Virtual Registry

- **Physical system of Record**
  - Maintains persistent storage for SORs
  - Stores both the identification of the master data as well as the other attributes in a single global repository
  - Enforces a true “system of record” platform

- **Virtual Registry**
  - Stores virtual record to reference data where it physically resides
  - Leaves the data in its original location
  - Supports different usage of master data
Enterprise MDM Data Model

Master Data Management

MD View Classification

MD Composition

MD Unit Classification

MD Unit (MD Record)

A Master
B Master
C Master
D Master
Master Data Unit Decomposition & Integration

Conventional and Unconsolidated Master Data

Material
Vendor
Product

Material MD Unit
Vendor MD Unit
Product MD Unit
Integrated Master Data View

- **Base MD**
  - Gen. Prop.
  - Detail (Tech) Properties
  - Vendor
  - Product
  - Analytic Prop.

- **Material Master**
  - (Include other general properties)

- **Vendor Master**
  - (Include other general properties)

- **Product Master**
  - (Include other general properties)
Multi-Classification Approach

1. Discrete Devices
   - Diodes
     - Rectifier Diodes
     - Fast Rectifier Diodes
     - Pin Diodes
     - Stabilizer Diodes

2. Contractor
   - MRO
     - Strategic Sourcing
       - Manufacturer
       - Sales Only
     - Electronic Parts
   - Others

3. Factory
   - Seoul
     - Contractor
     - MRO
     - Strategic Sourcing
       - Manufacturer
       - Sales Only
   - Factory
     - Tokyo
• Operational MDM vs. Analytic MDM
• Enterprise MDM
  – Encompass both operational and analytic MDM
• Project-based vs. real-time basis
• SOA-ready
  – Move core business logic and processes out of applications into the MDM
  – Ability to maintain libraries of common business operations on master data that other applications call
• The current trend is to take MDM out of its isolated silos and make it a separate service layer to manage enterprise-wide master data in a comprehensive way so that it can be shared across many systems.
MDM Players

• Mega-vendors
  – IBM, Oracle, SAP

• In USA
  – Purisma, Siperian, Initiate Systems, DataFlux, Hyperion, Kalido, Identity Systems, Zoomix

• In Korea
  – Prompt, InfoWise, 2eConsulting
• A new label for an old task?
• Plan IQ, start MDM?
• Begin deployment with a single application of MDM (such as PIM, CDI)?
• Take incremental approach?
• But why?